

**COMPREHENSIVE TRANSPORTATION REVIEW**

**SURSUM CORDA PHASE 1  
STAGE 2 PUD**

**WASHINGTON, DC**

**June 10, 2019**



**ZONING COMMISSION**  
District of Columbia  
CASE NO.15-20C  
EXHIBIT NO.20A

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## EXECUTIVE SUMMARY

The following report is a Comprehensive Transportation Review (CTR) of the Second-Stage Planned Unit Development (PUD) for Phase 1 of the Sursum Corda development. The report reviews the transportation aspects of the project's PUD application (Zoning Commission Case Number 15-20C). It should be noted that the Application also includes a Modification of the First Stage PUD, including changes to the development program of Phase 2. These changes will be further evaluated as part of the subsequent Stage 2 CTR for Phase 2, but the overall development program decreases as part of the Modification.

The purpose of this study is to evaluate whether Phase 2 of the overall Sursum Corda development will generate a detrimental impact to the surrounding transportation network. This evaluation is based on a technical comparison of the existing conditions, background conditions, and future conditions. This report concludes that **the project will not have a detrimental impact** to the surrounding transportation network if all planned site design elements and mitigation measures are implemented.

### Proposed Project

The project, which will redevelop the existing Sursum Corda Cooperate housing development, is in the NoMa neighborhood of Northwest Washington, DC. The site is generally bounded by M Street to the north, First Place to the west, L Street to the south, and First Place and an existing alley to the east.

A Stage 1 PUD (for Phases 1 and 2) was previously approved by the Zoning Commission on May 9, 2016 by Zoning Commission Order No. 15-20. The Stage 1 PUD proposed a mixed-use development containing a mixture of residential, retail, office, and community space. As analyzed in the Stage 1 CTR, Phase 1 of the development was proposed to include 430 residential units, 8,315 square feet of community space, and 272 parking spaces. Phase 2 of the development was proposed to include 712 residential units, 23,225 square feet of retail space, 17,880 square feet of office space, and 474 parking spaces. This resulted in an overall development program of 1,152 residential units, 8,315 square feet of community space, 23,225 square feet of retail space, 17,880 square feet of office space, and 746 parking spaces.

The Stage 2 PUD for Phase 1 eliminates the non-residential uses on site and proposes 562 residential units and 300 parking

spaces. Although not included in this Stage 2 PUD application, Phase 2 of the development now proposes to include 569 residential units, 19,100 square feet of retail space, and 446 parking spaces. This results in a total of 1,131 residential units, 19,100 square feet of retail space, and 746 parking spaces.

Vehicular access to Phase 1 of the development, including parking and loading access, will be from First Place NW via two curb cuts. This is considered an improvement over the Stage 1 PUD plan which included one (1) curb cut on First Place NW and one (1) curb cut on L Street NW. Based on the District's initiative to reestablish L Street NW as a more important multi-modal connector, the site access is better suited along First Place NW which will handle lower volumes.

### Multi-Modal Impacts and Recommendations

#### *Transit*

The site is well-served by regional and local transit services such as Metrorail and Metrobus. The site is 0.4 miles from the NoMa-Gallaudet U Metrorail station serving the Red Line, and just over half a mile from the Mt Vernon Sq/7<sup>th</sup> Street-Convention Center Metrorail Station serving the Yellow and Green Lines. Metrobus stops are located near the site along M Street, North Capitol Street, New Jersey Avenue, and K Street.

Although the development will be generating new transit trips on the network, the existing facilities have enough capacity to handle the new trips. There is, however, an existing P6 bus stop along the perimeter of the site that the Applicant has agreed to improve as part of the public space improvements of the development.

#### *Pedestrian*

The site is surrounded by a well-connected pedestrian network. Although some areas of deficiency exist, most will be addressed as part of this redevelopment or other background developments. Most roadways within a quarter-mile radius provide sidewalks, crosswalks, and curb ramps that meet DDOT standards, particularly along primary walking routes. There are some pedestrian barriers surrounding the site such as limited connectivity to the east and west due to I-395 and Metrorail's Red Line tracks.

As a result of the planned development, pedestrian facilities along the perimeter of the site will be greatly improved, particularly along First Street and L Street. The east side of First Street and the north side of L Street currently do not meet



DDOT standards and will be brought into compliance as part of the development. The development will ensure that sidewalks along the interior of the site also meet DDOT width requirements and provide an adequate pedestrian environment.

#### *Bicycle*

The site has adequate access to existing on-and off-street bicycle facilities. The Metropolitan Branch Trail travels along the Metrorail Red Line tracks and several east-west and north-south bicycle facilities surround the site.

On site, the planned development will provide 188 secure, long-term bicycle parking and provide 30 short-term bicycle spaces (in the form of 15 bicycle racks) within the interior and along the perimeter of the site. The Applicant will also fund the installation of a Capital Bikeshare station on-site to further increase the accessibility of cycling as an alternate mode of transportation.

#### *Vehicular*

The Sursum Corda site is well-connected to regional roadways such as I-395, as well as arterials such as North Capitol Street, New York Avenue, and H Street, and an existing network of collector and local roadways.

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

The following conclusions were made as part of the vehicular capacity analysis:

- Under existing conditions, the majority of intersections in the study area operate at acceptable conditions.
- Future areas of concern for roadway capacity are primarily along commuter routes such as North Capitol Street and New York Avenue
- Two intersections meet the criteria for triggering mitigations in the future scenario with a reconfigured L Street and can be effectively mitigated through signal timing adjustments. Vehicular impacts will be

further studied as part of the Stage 2 PUD application for Phase 2 of the development.

- Overall, this report concludes that the project will not have a detrimental impact to the surrounding transportation network.

#### **Transportation Demand Management (TDM) Plan**

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 typically focuses on reducing the demand of single-occupancy, private vehicles during peak period travel times or on shifting single-occupancy vehicular demand to off-peak periods.

Consistent with the Stage 1 PUD approval, the Applicant will implement a TDM plan that includes the following measures:

- TDM Leaders
- TDM marketing program
- Unbundled parking costs
- Dedicated car-sharing parking spaces in the garage
- Transportation Information Center Displays
- Short- and long-term bicycle parking
- Capital Bikeshare station on site

#### **Summary and Recommendations**

Overall, this report concludes the following:

- The site is close to the NoMa-Gallaudet Metrorail Station, Mt Vernon Sq/7<sup>th</sup> St-Convention Center Metrorail Station, and Metrobus stops along major corridors. The site also has immediate access to bike facilities and a well-connected pedestrian network. Overall, the site has excellent access to regional and local transportation options.
- The amount of parking and loading facilities proposed on-site is expected to accommodate the project's demand.
- The project will supply long-term and short-term bicycle facilities that meet or exceed zoning requirements.
- The project will include improved sidewalk facilities within and along the perimeter of the site, resulting in an improved pedestrian environment for the site as well as the surrounding neighborhood.
- Two intersections meet the criteria for triggering mitigations in the future scenario with a reconfigured L Street and can be effectively mitigated through



signal timing adjustments. Vehicular impacts will be further studied as part of the Stage 2 PUD application for Phase 2 of the development.

- The project will implement a robust Transportation Demand Management (TDM) Plan and a Loading Management Plan.

Based on these features and the technical analysis contained within, this report concludes that **the proposed project will not have a detrimental impact** on the surrounding transportation network if all planned site design elements and mitigation measures are implemented.





## INTRODUCTION

This report is a Comprehensive Transportation Review (CTR) of the Second-Stage Planned Unit Development (PUD) for Phase 1 of the Sursum Corda development. This report reviews the transportation aspects of the Second-Stage PUD application (Zoning Commission Case Number 15-20C). It should be noted that the Application also includes a Modification of the First Stage PUD, including changes to the development program of Phase 2. These changes will be further evaluated as part of the subsequent Stage 2 CTR for Phase 2, but the overall development program decreases as part of the Modification.

As shown in Figure 1, the Sursum Corda development is in the NoMa neighborhood of Northwest Washington, DC. This CTR is submitted into the Zoning Commission record for the above referenced case, as an evaluation of the transportation impacts of the application.

### PURPOSE OF STUDY

The purpose of this report is to:

1. Review the transportation elements of the development site plan and demonstrate that the site conforms to DDOT's general policies of promoting non-automobile modes of travel and sustainability.
2. Provide information to the District Department of Transportation (DDOT) and other agencies on how the development of the site will influence the local transportation network. This report accomplishes this by identifying the potential trips generated by the site on all major modes of travel and where these trips will be distributed on the network.

3. Determine if development of the site will lead to adverse impacts on the local transportation network. This report accomplishes this by projecting future conditions with and without development of the site and performing analyses of vehicular delays. These delays are compared to the acceptable levels of delay set by DDOT standards to determine if the site will negatively impact the study area. The report discusses what improvements to the transportation network are needed to mitigate adverse impacts.

### PROJECT SUMMARY

A Stage 1 PUD (for Phases 1 and 2) was previously approved by the Zoning Commission on May 9, 2016 by Zoning Commission Order No. 15-20. The Stage 1 PUD proposed a mixed-use development containing a mixture of residential, retail, office, and community space. As analyzed in the Stage 1 CTR, Phase 1 of the development was proposed to include 430 residential units, 8,315 square feet of community space, and 272 parking spaces. Phase 2 of the development was proposed to include 712 residential units, 23,225 square feet of retail space, 17,880 square feet of office space, and 474 parking spaces. This resulted in an overall development program of 1,152 residential units, 8,315 square feet of community space, 23,225 square feet of retail space, 17,880 square feet of office space, and 746 parking spaces.

The Stage 2 PUD for Phase 1 eliminates the non-residential uses on site and proposes 553 residential units and 300 parking spaces. Although not included in this Stage 2 PUD application, Phase 2 of the development now proposes to include 578 residential units, 19,100 square feet of retail space, and 446 parking spaces. This results in a total of 1,131 residential units, 19,100 square feet of retail space, and 746 parking spaces.

**Table 1: Stage 1 PUD/Stage 2 PUD Development Program Comparison**

	Stage 1 PUD *			Stage 2 PUD		
	Phase 1	Phase 2	Total Site	Phase 1	Phase 2	Total Site
Dwelling units	430	712	1,152	562	569	1,131
Retail space (SF)	--	23,225	23,225	--	19,100	19,100
Professional office space (SF)	--	17,880	17,880	--	--	--
Community space (SF)	8,315	--	8,315	--	--	--
Residential parking spaces	258	427	685	300	425	725
Retail parking spaces	--	27	27	--	21	21
Office parking spaces	--	20	20	--	--	--
Community parking spaces	14	--	14	--	--	--
<b>Total parking spaces</b>	<b>272</b>	<b>474</b>	<b>746</b>	<b>300</b>	<b>446</b>	<b>746</b>

\* As analyzed in CTR dated 12/14/15. The overall PUD was ultimately approved to include 1,131 units, consistent with what is currently proposed.



## CONTENTS OF STUDY

This report contains nine sections as follows:

- *Study Area Overview*  
This section reviews transportation-related elements of the area near and adjacent to the proposed project and includes an overview of the site location.
- *Project Design*  
This section reviews the transportation components of the project, including the site plan and access. This chapter also contains the proposed Transportation Demand Management (TDM) plan for the site.
- *Trip Generation*  
This section outlines the travel demand of the proposed project. It summarizes the proposed trip generation of the project.
- *Traffic Operations*  
This section provides a summary of the existing roadway facilities and an analysis of the existing and future roadway capacity in the study area. This section highlights the vehicular impacts of the project, including presenting proposed mitigation measures
- *Transit*  
This section summarizes the existing and future transit service adjacent to the site, reviews how the project's transit demand will be accommodated, outlines impacts, and presents recommendations as needed.
- *Pedestrian Facilities*  
This section summarizes existing and future pedestrian access to the site, reviews walking routes to and from the project site, outlines impacts, and presents recommendations as needed.
- *Bicycle Facilities*  
This section summarizes existing and future bicycle access to the site, reviews the quality of cycling routes to and from the project site, outlines impacts, and presents recommendations as needed.
- *Safety/Crash Analysis*  
This section reviews the potential safety impacts of the project. This includes a review of crash data at intersections in the study area and a qualitative discussion on how the development will influence safety.
- *Summary and Conclusions*

This section presents a summary of the recommended mitigation measures by mode and presents overall report findings and conclusions.

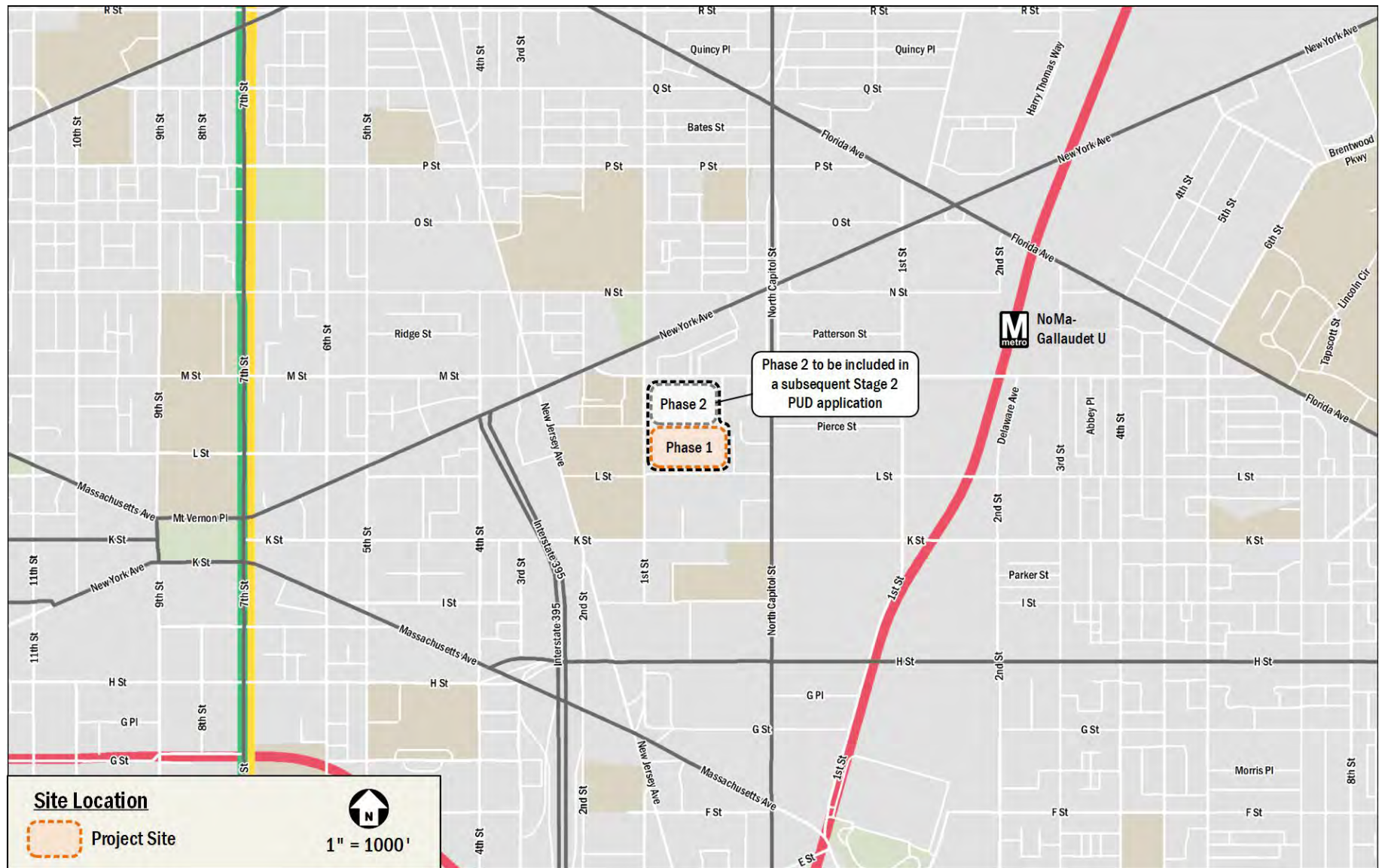


Figure 1: Site Location



## STUDY AREA OVERVIEW

This section reviews the existing conditions of the surrounding transportation network and includes an overview of the site location, including a summary of the major transportation characteristics of the area and of future regional projects. More specific characteristics of each mode and their subsequent study areas will be defined in later sections of this report.

The following conclusions are reached within this chapter:

- The site is surrounded by an extensive regional and local transportation system that will accommodate the residents of the proposed development.
- The site is well-served by public transportation with access to the Metrorail's Red line and several local and regional Metrobus lines.
- There are several bicycle facilities surrounding the site including the Metropolitan Branch Trail and multiple east-west and north-south on-street bicycle facilities. The site is also served by Capital Bikeshare and dockless bikeshare and scooter services.
- The site is surrounded by a well-connected pedestrian environment, resulting in a high walk score.

### MAJOR TRANSPORTATION FEATURES

#### Overview of Regional Access

Under existing conditions, the Sursum Corda site has ample access to regional vehicular- and transit-based transportation options, that connect the site to destinations within the District, Virginia, and Maryland, as shown in Figure 3.

The site is accessible from several interstates and principal arterials such as I-395, North Capitol Street, New York Avenue, and H Street. The interstate and arterials create connections to I-695, I-295, and ultimately the Capital Beltway (I-495) that surrounds Washington, DC and its inner suburbs as well as regional access to I-95. All of these roadways bring vehicular traffic within a quarter-mile of the site, at which point minor arterials, collectors, and local roads can be used to access the site directly.

The site has access to the Red Line via the NoMa-Gallaudet U Metrorail station, which provides connections to areas in the District and Maryland. The Red Line connects Rockville, MD with Glenmont, MD while providing access to the District core.

The Red Line also provides a direct connection to Union Station, which is a hub for commuter and regional rail – such as Amtrak, MARC, and VRE – allowing for access to much of the DC Metropolitan area. The site is also just over half a mile from the Mt Vernon Sq/7<sup>th</sup> St-Convention Center Metrorail Station which serves the Green and Yellow lines. The Green and Yellow Lines travel through the District core and serve destinations in the District, Virginia and Maryland. The Green line terminates to the south at Branch Avenue station in Maryland and to the north in Greenbelt, Maryland. The Yellow Line terminates to the north at Fort Totten near the border of Maryland and the District and to the south in Huntington, Virginia.

Overall, the site has access to several regional roadways and transit options, making it convenient to travel between the site and destinations in the District, Virginia, and Maryland.

#### Overview of Local Access

There are several local transportation options near the site that serve vehicular, transit, walking, and cycling trips under existing conditions, as shown on Figure 4.

The site is served by a local vehicular network that includes several minor arterials and collectors such as New Jersey Avenue, K Street, First Street NW, and M Street. In addition, there is an existing network of connector and local roadways that provide access to the site.

The Metrobus system provides local transit service in the vicinity of the site, including connections to several neighborhoods within the District and additional Metrorail stations. As shown in Figure 4, there are five (5) bus routes that run near the site. In the vicinity of the site the majority of routes travel along North Capitol Street, M Street, New Jersey Avenue, and K Street.

There are existing bicycle facilities that connect the site to areas within the District, most notably the Metropolitan Branch Trail which travels along the Red Line Metrorail tracks and provides a connection to Union Station. Other facilities include a cycle track along First Street NE and M Street NE and several east-west and north-south bicycle lanes within a few blocks of the site. A detailed review of existing and proposed bicycle facilities and connectivity is provided in a later section of this report.



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

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

**Car-sharing**

Four car-sharing companies provide service in the District: Zipcar, Enterprise Carshare, Free2Move, and Car2Go. All four services are private companies that provide registered users access to a variety of automobiles. Of these, Zipcar and Enterprise Carshare have designated spaces for their vehicles. There are no Enterprise Carshare locations located within a quarter-mile of the site; however, there are two (2) Zipcar locations within a quarter-mile. These locations and the number of available vehicles are listed in Table 2.

Car-sharing is also provided by Car2Go and Free2Move, which provide point-to-point car sharing. Unlike Zipcar or Enterprise Carshare, which require two-way trips, Car2Go and Free2Move can be used for one-way rentals. These companies have fleets of vehicles located throughout the District that may park in any non-restricted metered curbside parking space or Residential Parking Permit (RPP) location in any zone throughout the

defined “Home Area”. Members do not have to pay meters or pay stations. Car2Go and Free2Move do not have permanent designated spaces for their vehicles; however availability is tracked through their websites, which provides an additional option for car-sharing patrons.

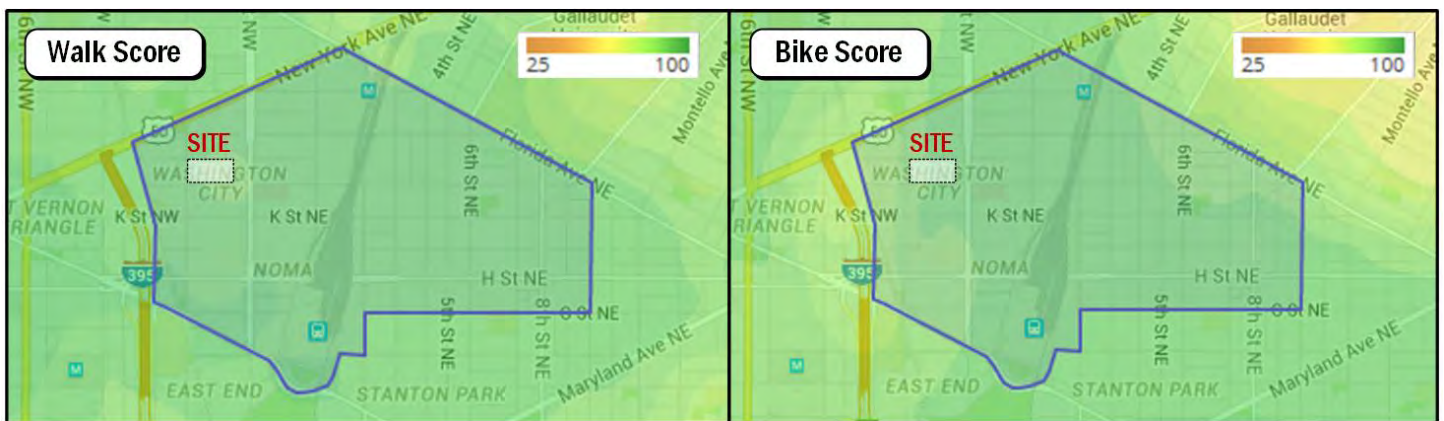
**Table 2: Summary of Zipcar Carshare Locations**

Zipcar Location	Number of Vehicles
77 H Apartments	2 vehicles
First and M Apartments	2 vehicles
<b>Total</b>	<b>4 vehicles</b>

**Walkscore**

Walkscore.com is a website that provides scores and rankings for the walking, biking, and transit conditions within neighborhoods of the District. Based on this website the planned development is located in the H Street-NoMa Neighborhood. This project location itself has a walk score of 93 (or “Walker’s Paradise”), transit score of 81 (or “Excellent Transit”), and a bike score of 91 (or “Biker’s Paradise”). Figure 2 shows the neighborhood borders in relation to the site location and displays a heat map for walkability and bikeability.

As shown in Figure 2, the site is situated in a neighborhood with very good walk scores, and is ranked as the 8<sup>th</sup> most walkable neighborhood in the District. The site is situated in an area with excellent bike scores as well due to the proximity to bicycle facilities, and overall bicycle-friendly roadways. Overall, the H Street-NoMa neighborhood has extensive pedestrian, transit, and bike facilities, as reflected in the high scores.



**Figure 2: Summary of Walk and Bike Scores**



### **Bikeshare and Scooter Share**

The Capital Bikeshare program provides an additional cycling option for residents, employees, and visitors throughout the District. The Bikeshare program has placed over 500 bicycle-share stations across Washington, DC, Arlington County, the City of Alexandria, and Fairfax County in Virginia, and Montgomery County and Prince George’s County in Maryland with over 4,300 bicycles provided. Within a quarter-mile of the site there are three (3) Capital Bikeshare stations housing a total of 48 docks. Figure 4 illustrates the existing bicycle facilities in the area.

In addition to Capital Bikeshare, DDOT has engaged in pilot programs with several dockless bikeshare and electric scooter share companies, allowing an additional option for point-to-point transportation. Bicycle and scooter availability is tracked through mobile phone applications for each company individually.

### **FUTURE PROJECTS**

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

#### **Local Initiatives**

##### *MoveDC: Multimodal Long-Range Transportation Plan*

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

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

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

In direct relation to the proposed development, the MoveDC plan outlines recommended transit and bicycle improvements such as a streetcar line and new bicycle facilities. These recommendations would create additional multi-modal capacity and connectivity to the proposed development.

##### *SustainableDC: Sustainable DC Plan*

SustainableDC is a planning effort initiated by the Department of Energy & Environment and the Office of Planning that provides the District with a framework of leading Washington DC to become the most sustainable city in the nation. The 2012 report proposes a 20-year timeframe to answer challenges in areas of: (1) Jobs & the economy; (2) Health & Wellness; (3) Equity & Diversity; (4) Climate & Environment; (5) Built Environment; (5) Energy; (6) Food; (7) Nature; (8) Transportation; (9) Waste; and (10) Water. With respect to transportation, the sustainability goals targeted in 20 years include:

- Improving connectivity and accessibility through efficient, integrated, and affordable transit systems
- Expanding provision of safe, secure infrastructure for cyclists and pedestrians
- Reducing traffic congestion to improve mobility
- Improving air quality along major transportation routes

A combination of increasing public transit and decreasing vehicular mode shares has been suggested to meet the transportation targets. The Project offers a sizeable reduction in vehicular mode split due to the Project’s proximity to local public transit options and bicycle infrastructure and the project’s proposed TDM plan.

##### *Mid City East Livability Study*

The purpose of this plan is to improve the overall livability of the Bloomingdale, Eckington, eastern Shaw, and LeDroit Park neighborhoods by: (1) addressing day to day transportation challenges faced by residents; (2) enhance community access and circulation (particular for walking and bicycling) for all residents; (3) protect local streets as the “home zone” of neighborhoods and communities; and (4) provide opportunities in the public rights of ways to celebrate community identity and place.

These goals are proposed to be addressed by designating pedestrian priority streets, prioritizing safety improvements at



major intersections, enhancing multimodal travel options along minor corridors, creating unique, functional landscapes that provide mitigation for stormwater runoff, and where possible replacing pavement with green stormwater management spaces.

In direct relation to the proposed development, the Mid City East Livability Study proposes improvements along North Capitol Street and New Jersey Avenue. These improvements include bicycle improvements on New Jersey Avenue, including bike boxes at intersections, as well as pedestrian improvements and median refuges at the intersection of North Capitol Street and New York Avenue. Most of these improvements are not funded nor do they have an expected completion date, therefore they were not included in the analysis.

#### *Mid City East Small Area Plan*

The purpose of this plan is to revitalize the North Capitol Street, Rhode Island Avenue, New Jersey Avenue, New York Avenue, and Florida Avenue corridors as pedestrian-friendly, retail-focused areas. The plan's stated goals are renewing commercial corridors, enriching physical connections, and supporting neighborhood conservation and revitalization. The Mid City East Small Area Plan is concurrent with the Mid City East Livability Study, whose transportation and public realm recommendations the Small Area Plan also supports.

In direct relation to the proposed development, the Mid City East Small Area Plan proposes streetscape improvements along New York Avenue, and corridor improvements along North Capitol Street and New Jersey Avenue. First Street NW has been identified by the Small Area Plan as a priority pedestrian street. The Small Area Plan also calls for restoring sidewalks in need of repair in the Sursum Corda area. Finally, the Small Area Plan proposes extending the street grid by connecting Pierce Street NW and L Street NW with the existing grid, which is implemented as part of this redevelopment

#### *New Jersey Avenue NW From H to N Street Safety Upgrades & Two-Way Conversion Project*

This study was performed by STV Incorporated in June of 2012 to develop and analyze alternatives for the two-way conversion of New Jersey Avenue with the goal of increasing capacity along the corridor while integrating safety enhancements at intersections with high crash activity.

Ultimately, Alternative 3 was chosen as the final design for improvements along New Jersey Avenue. This design converts New Jersey Avenue from one-way northbound to two-way between I Street and Morgan Street, integrates selected safety improvements identified by DDOT, and integrates multi-modal considerations where possible, including north and southbound bicycle lanes. The lane geometry and traffic operations associated with this project are implemented in all Background and Future Conditions within this analysis.

#### **Background Developments**

There are several potential development projects in the vicinity of the Sursum Corda site. 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 that of the project.

Based on these criteria and discussions with DDOT during the scoping process, seven (7) background developments were ultimately included and described below. Figure 5 shows the locations of these developments in relation to the proposed development.

#### *50 Patterson at Lacebark Alley*

This project will consist of approximately 128,000 SF of office space and 4,250 SF of retail. It is scheduled to open in 2020.

#### *RESA at Tyber Place*

This project will consist of approximately 326 residential units and 7,430 SF of retail. It is currently under construction and scheduled to open in 2019.

#### *44M at Tyber Place*

This project will consist of approximately 235,000 SF of office space and 11,100 SF of retail. It is scheduled to open in 2020.

#### *88M at Tyber Place*

This project will consist of approximately 302,000 SF of office space and 8,370 SF of retail. It is scheduled to open in 2020.



*1150 First*

This project will consist of approximately 334,000 SF of office space and 11,500 SF of retail. It is scheduled to open in 2020.

*Sentinel Square III*

This project will consist of approximately 570,000 SF of office space and 20,000 SF of retail. It is currently under construction and scheduled to open in 2019.

*Union Square III*

This project will consist of approximately 250,000 SF of office space. Its opening year is to be determined.





Figure 3: Major Regional Transportation Facilities

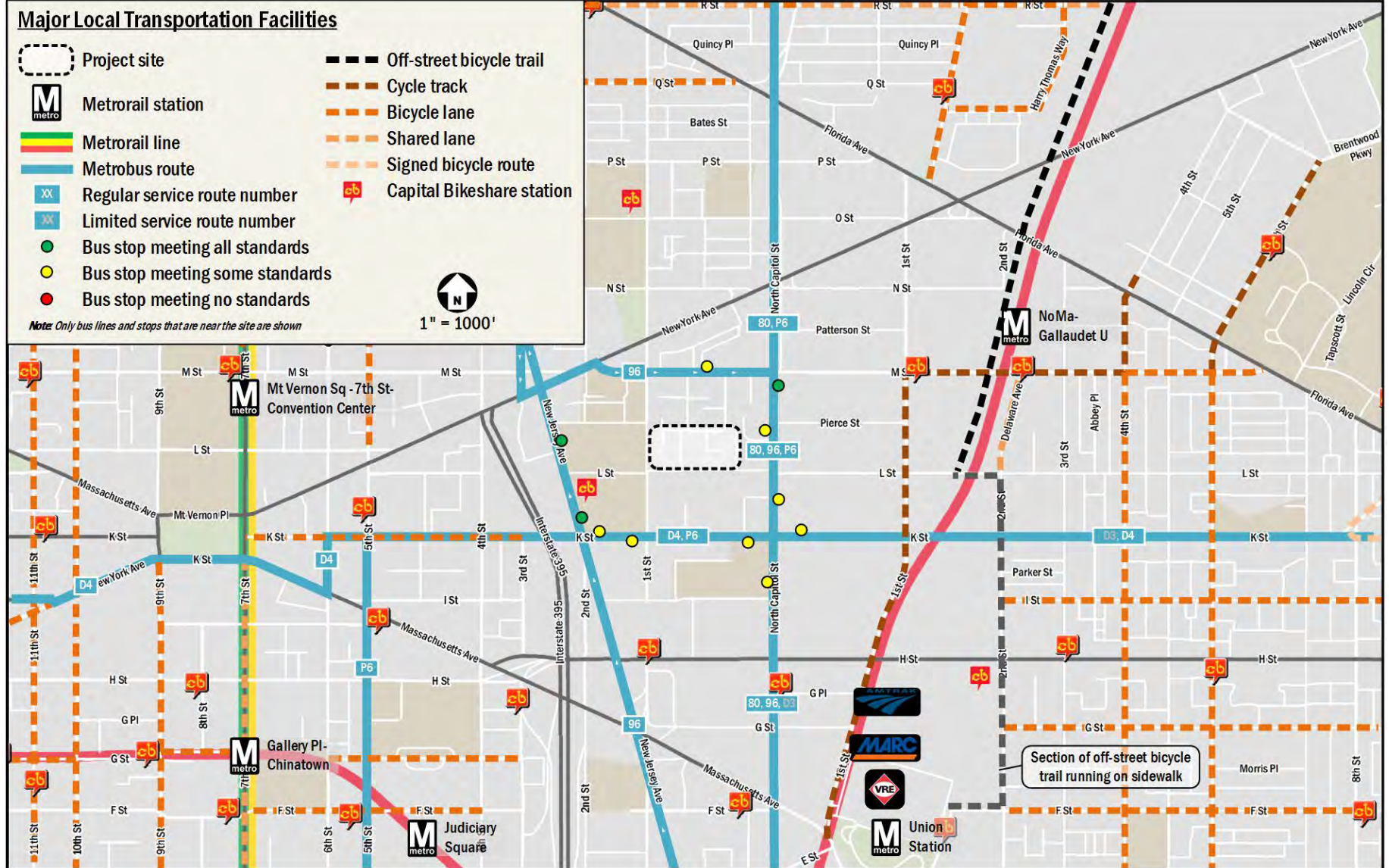


Figure 4: Major Local Transportation Facilities

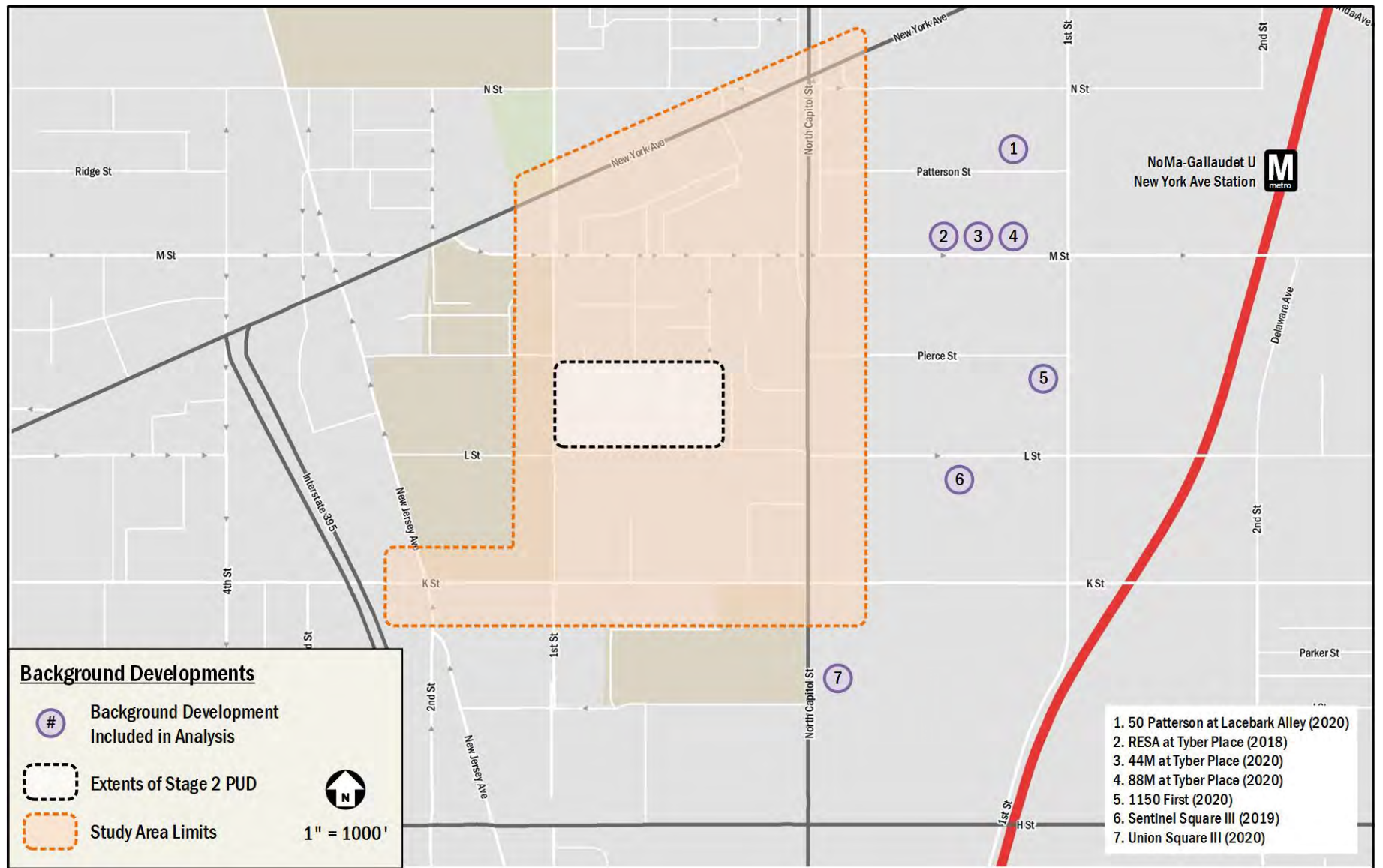


Figure 5: Background Development Map



## PROJECT DESIGN

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

### PROJECT SUMMARY

The overall site is generally bounded by M Street to the north, First Place to the west, L Street to the south, and First Place/an existing alley to the east. Phase 1 of the project consists of the southern half of the site generally bounded by the private extension of Pierce Street to the north, First Place to the west, L Street to the south, and First Place extended to east.

The project will redevelop the existing 199 dwelling units at The Sursum Corda Cooperative with a high density, mixed-use project with a thriving, pedestrian-friendly environment. The project will be developed in two phases:

- The southern portion of the site will be developed as Phase 1. Over two buildings (the SW and SE Buildings), Phase 1 will include approximately 562 residential units. Phase 1 will also include all proposed changes to the roadway network within the site.
- Phase 2, which is not part of this Stage 2 Application and will be analyzed in a subsequent CTR, will encompass the northern portion of the site and is currently expected to include approximately 569 residential units and 19,100 square feet of retail space over two buildings (the NW and NE Buildings).

The existing site and roadway configuration for the overall site is shown on Figure 6 and the proposed site plan and subsequent roadway configuration to be completed as part of Phase 1 is shown on Figure 7.

Figure 8 shows an alternative L Street roadway configuration that would be made possible in conjunction with the Northwest One development, located directly south of the Sursum Corda site across L Street. In the event that the Northwest One development is constructed before or at the same time as the Sursum Corda development, it becomes possible to incorporate the ultimate L Street northern curb line as part of the project.

Both the proposed plan and the reconfigured L Street scenario are evaluated as part of this CTR.

Overall, the PUD takes advantage of the size of the development to reconfigure and enhance the internal roadway network. The existing alley and street network within the site do not provide robust vehicular or pedestrian connectivity, as shown on Figure 6. Additionally, L Street functions more like an alley than a street and does not provide adequate signage or striping to signify the desired operations. As such, illegal turning movements are observed along and onto the street under existing conditions.

As part of Phase 1 of the development, First Terrace, L Street, and the existing alleys will be removed. Pierce Street will be extended to First Place as a private street, First Place will be extended to L Street as a public street, and L Street will be improved to reinforce the desired operations of the roadway. These improvements to the roadway configuration will create more desirable pedestrian and vehicular flow and will result in an improved pedestrian environment.

The proposed functionality of the internal roadways is as follows:

- Pierce Street between First Street NW and First Place will be a new private roadway with a right-of-way of 70'. The right-of-way is proposed to be distributed as two 10' travel lanes, with 7' wide striped parking lanes along both sides, and 18' sidewalks (including buffers) on both sides of the roadway.
- First Place between M Street NW and L Street NW will be a public roadway extending the existing public road south to L Street NW with a right-of-way of 60'. First Place will have two 10' travel lanes, with 8' wide striped parking lanes. There will be 12' sidewalks (including buffers) on both sides of the roadway.
- L Street NW between First Street NW and First Place is an existing public roadway that once had a right-of-way of 90'. However, the right-of-way was partially vacated decades ago and is slowly being reestablished, as can be seen from the required setback at the newly constructed development on the southeast corner of First Street & L Street. Over time, as parcels along L Street are redeveloped, it is the plan of DDOT to fully reestablish the existing right-of-way of L Street and redesign the roadway to reflect DDOT standards. The development will aid in the gradual improvement process by adding signing and striping along the



roadway to include two 10' travel lanes in both directions, with no parking on either side. The sidewalk on the north side of the street will be improved to include at least 12' sidewalk (including buffer). Of note, in the event that the Northwest One development is constructed before or at the same time as Sursum Corda Phase 1, L Street NW between First Street NW and First Place can be reconstructed to incorporate the ultimate northern curb line, resulting in one-way westbound operations instead, as shown in Figure 8.

- L Street NW between First Place and North Capitol Street was also impacted by the right-of-way being partially vacated. It is hoped that the right-of-way for this portion of L Street is also reestablished; however, due to the existing properties on either side of L Street, the proposed development is unable to aid in any physical improvements to this section of L Street other than installing additional signage to improve the enforcement of the one-way eastbound operations. Of note, in the event that the Northwest One development is constructed before or at the same time as Sursum Corda Phase 1, L Street NW between First Place and North Capitol Street can be reconstructed to incorporate the ultimate northern and southern curb lines, resulting in two-way operations instead, as shown in Figure 8.

Figure 7 provides a summary of the proposed roadway changes. Figure 8 provides a similar summary of changes in the event that a more ultimate configuration of L Street is able to be constructed as part of the Northwest One development and Sursum Corda Phase 1.

## SITE ACCESS AND CIRCULATION

### Vehicular Access

Vehicular access to Phase 1 of the development, including parking and loading access, will be from First Place NW. Due to the grade changes along First Place NW, the two access points will be located on two separate levels of the building; parking will be accessible at the P1 Level and loading will be accessible at the P2 Level. Vehicular access is shown on Figure 10 and Figure 11.

This access plan is considered an improvement over the Stage 1 PUD plan which included one (1) curb cut on First Place NW and one (1) curb cut on L Street NW. Based on the District's initiative to reestablish L Street NW as a more important multi-

modal connector, the site access is better suited along First Place NW which will handle lower volumes.

### Pedestrian Access

Pedestrian access to Phase 1 of the development will be along First Place NW and L Street NW for the SE Building and along First Street NW and the center pedestrian plaza for the SW Building. Similar to vehicular access, grade changes throughout the site result in pedestrian access points along multiple levels of the buildings. Pedestrian access is shown on Figure 10, Figure 11, and Figure 12.

### Bicycle Access

Bicycle access to the secure long-term bicycle storage room will be from First Place NW at the pedestrian entrance just north of the loading dock access. Short-term bicycle parking will be located along the perimeter of the site along L Street NW and Pierce Street NW. Bicycle access is shown on Figure 11.

## LOADING

The loading area off of First Place will contain one (1) 30' loading berth and one (1) 20' service/delivery area. The loading dock will have access to the SE Building's elevators and trash area, and to the SW Building's trash area via the parking garage that connects the two buildings.

Additionally, one (1) 30' loading berth and one (1) 20' service/delivery space will be designated along Pierce Street to serve move-ins/move-outs and mail/parcel delivery for the SW building.

Truck routing to and from the site will be focused on designated primary truck routes, such as I-395, New York Avenue, North Capitol Street, New Jersey Avenue, and H Street. The only restricted truck routes surrounding the site are First Street north of New York Avenue, and N Street west of First Street.

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

- As a baseline, it is assumed that there will be three daily truck deliveries at each of the four individual loading areas (covering trash, a general shared delivery, and mail).
- Residential loading activity is estimated assuming an expected rental turnover of 18 months, with two trucks per move – one move in and one move out.



Using these estimates, the site is expected to generate five (5) loading activities per day.

The development is proposing to include two (2) 30' loading berths and two (2) 20' service/delivery spaces. Based on the anticipated loading demand, the proposed amount of loading is enough to accommodate all loading and service requirements on site.

That said, due to the location of loading facilities along Pierce Street in addition to internalized loading, the Applicant is proposing the following Loading Management Plan:

- A member of the property management team will be designated as the loading facility manager.
- The loading facility manager will schedule deliveries such that the loading facility's capacity is not exceeded. In the event that an unscheduled delivery vehicle arrives while the facility is full, that driver will be directed to return at a later time when the loading facility will be available.
- All tenants will be provided with information regarding loading dock restrictions, rules, and suggested truck routes at lease signing.
- All tenants will be required to use trucks 30' in length or shorter.
- All residential tenants will be required to schedule move ins/move outs.
- Residential move ins/move outs will occur within the internal loading area off of First Place for the east building and along Pierce Street for the west building.
- Waste collection for the entirety of the development will occur within the designated loading area off of First Place.
- Trucks using the loading facility will not be allowed to idle and must follow all District guidelines for heavy vehicle operation including but not limited to DCMR 20 – Chapter 9, Section 900 (Engine Idling), the regulations set forth in DDOT's Freight Management and Commercial Vehicle Operations document, and the primary access routes listed in the DDOT Truck and Bus Route System.
- The loading facility manager will be responsible for disseminating suggested truck routing maps to drivers from delivery services that frequently utilize the loading facility. The facility manager will also distribute materials such as DDOT's Freight Management and

Commercial Vehicle Operations document to drivers as needed to encourage compliance with idling laws.

## PARKING

### On-Site Parking

Based on current District zoning laws, and cited on page A-12 of the Zoning application, Phase 1 of the development is required to supply 138 parking spaces per zoning requirements. The development will meet this requirement by supplying a total of 300 parking spaces in the Phase 1 garage.

This results in a parking ratio of 0.54 parking spaces per unit. Based on data collection in the Gorove/Slade library, residential buildings in the NoMa neighborhood observe parking demands of approximately 0.45 spaces per unit. Based on the mix of units in the Sursum Corda development and the inclusion of 3-bedroom units, it is believed that a parking ratio of 0.54 spaces per unit will be more suitable to serve the specific needs of this development without promoting vehicle use.

## BICYCLE FACILITIES

The project will include both long- and short-term bicycle parking spaces.

188 secure long-term bicycle parking spaces will be provided in the bicycle storage room, meeting zoning regulations.

Short-term bicycle parking will be provided along the perimeter of the site near the primary pedestrian access points. The Phase 1 plans propose to include 15 bicycle racks along Pierce Street NW and L Street NW, providing a total of 30 short-term bicycle parking spaces. Finally, the Applicant has agreed to fund the installation (and one year of operations) of one (1) Capital Bikeshare station within the site. The station is proposed to be located near the corner of First Street and L Street NW.

## PEDESTRIAN FACILITIES

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

Within the site, and consistent with the Stage 1 PUD, the development will provide new or improved sidewalks along the interior and perimeter of the site. This will be particularly beneficial along First Street where insufficient pedestrian facilities currently exist, and along L Street where no sidewalks



exist and the roadway functions more like an alley than a street.

In addition, a public north-south pedestrian plaza will be implemented through the center of the site, providing an additional pedestrian connection that enhances the overall pedestrian environment in the vicinity of the site. As part of Phase 1, the pedestrian plaza will be constructed between L Street and the new private extension of Pierce Street.

### 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 typically focuses on reducing the demand of single-occupancy, private vehicles during peak period travel times or on shifting single-occupancy vehicular demand to off-peak periods.

Consistent with the Stage 1 PUD approval, the Applicant will implement the following TDM measures:

- The Applicant will identify TDM Leaders (for planning, construction, and operations). The TDM Leaders will work with residents to distribute and market various transportation alternatives and options.
- The Applicant will establish a TDM marketing program that provides detailed transportation information and promotes walking, cycling, and transit. An effective marketing strategy should consist of a multi-modal access guide that provides comprehensive transportation information. This information can be compiled in a brochure for distribution. The marketing program should also utilize and provide website links to [CommuterConnections.com](http://CommuterConnections.com) and [goDCgo.com](http://goDCgo.com), which provide transportation information and options for getting around the District.
- The Applicant will unbundle all parking costs from the cost of the lease and set the cost at no less than the charges of the lowest fee garage located within a quarter-mile of the site.
- The Applicant will dedicate two (2) parking spaces in each garage for car sharing services to use with right of first refusal. These spaces should be located near the garage entrance and available to all members of the car-sharing service at all times without restriction.
- The Applicant will install Transportation Information Center Displays (kiosks or screens) within the lobbies of the residential multi-family buildings and the community serving buildings, containing information related to local transportation alternatives.
- The Applicant will supply long-term secure bicycle parking within the garages and short-term bicycle parking along the interior and perimeter of the site that exceed zoning requirements.
- The Applicant has agreed to fund the installation of a Capital Bikeshare station within the site.

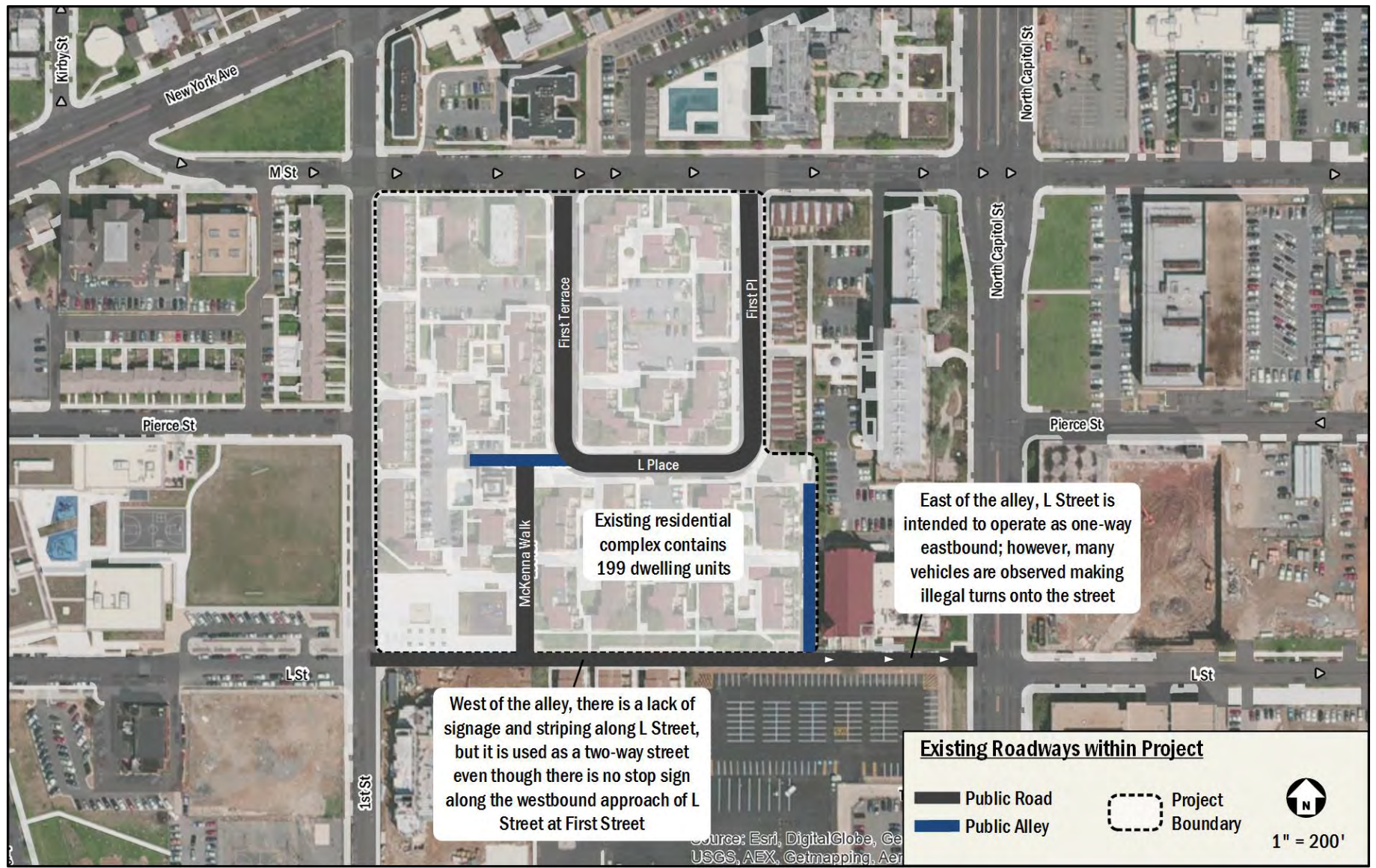


Figure 6: Existing Site and Roadway Configuration



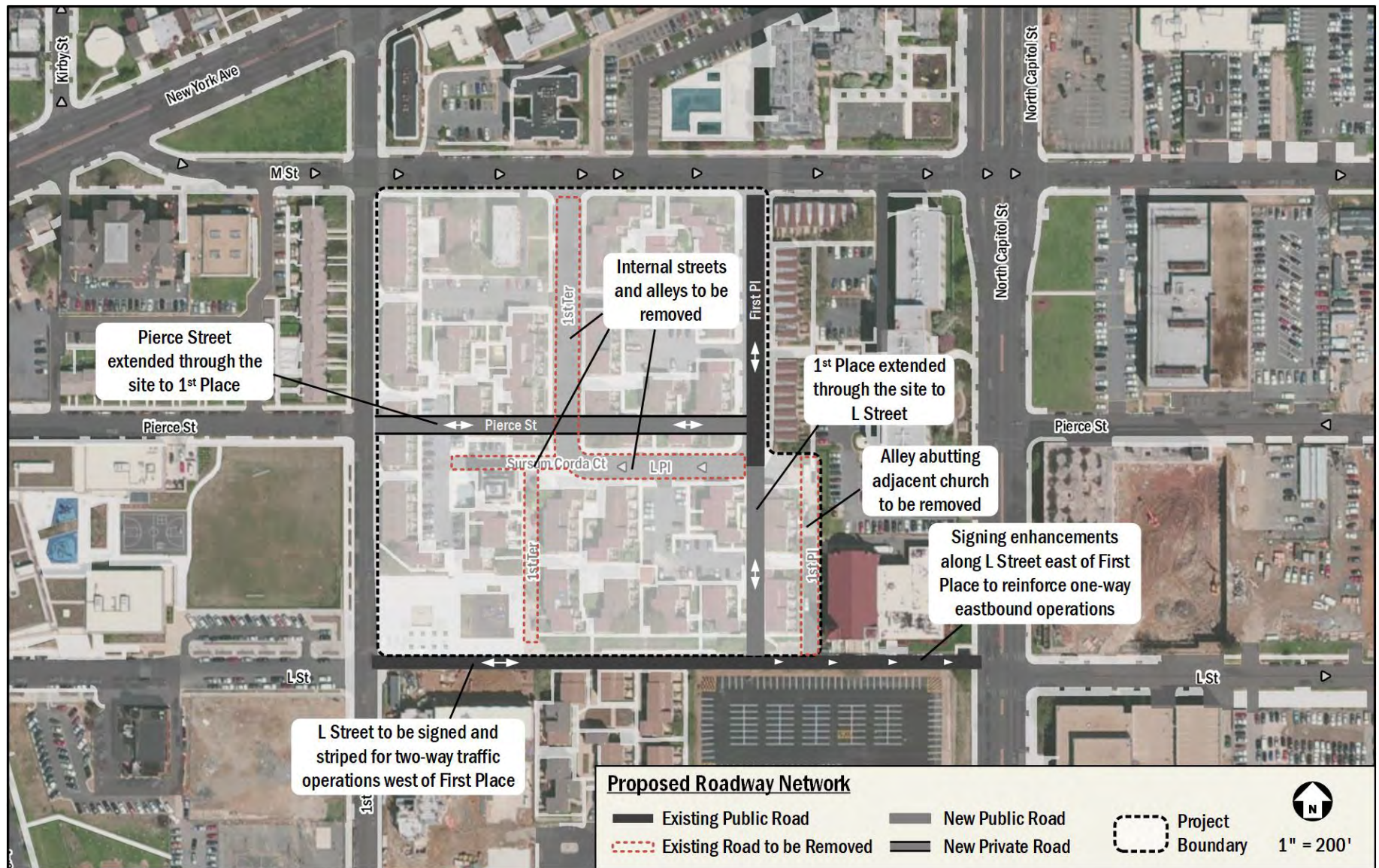


Figure 7: Proposed Roadway Network

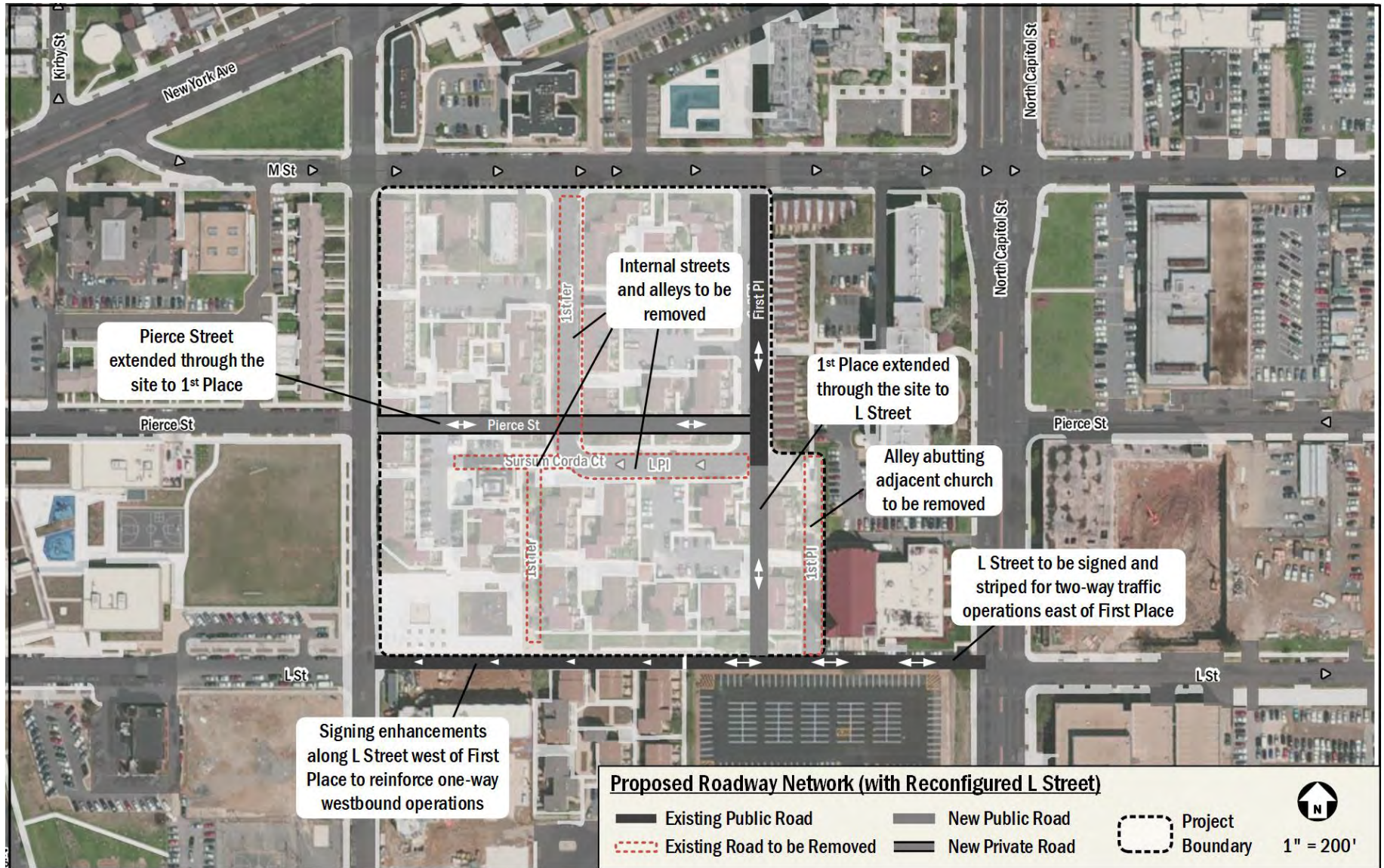


Figure 8: Proposed Roadway Network (with Reconfigured L Street)

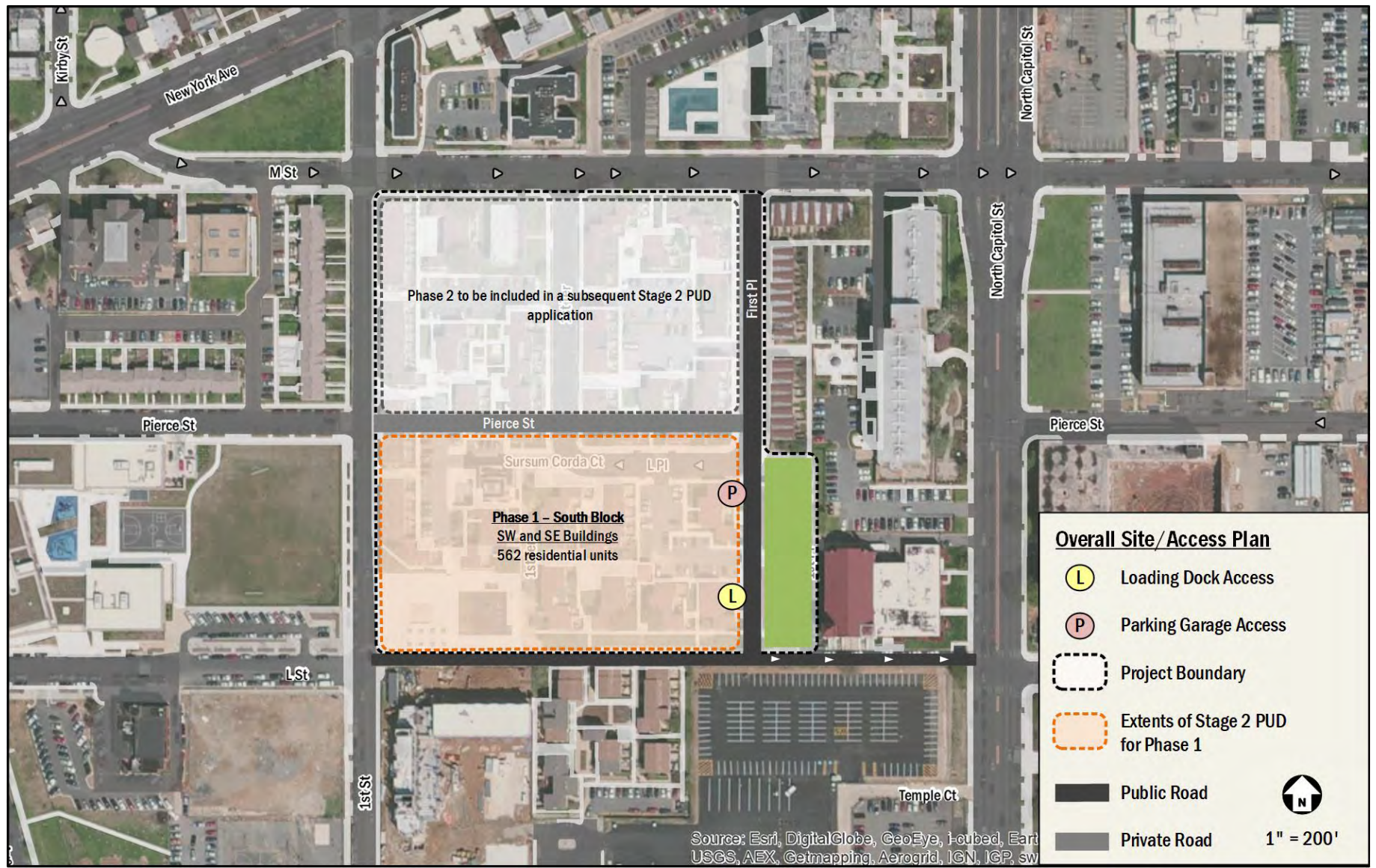


Figure 9: Proposed Development Program

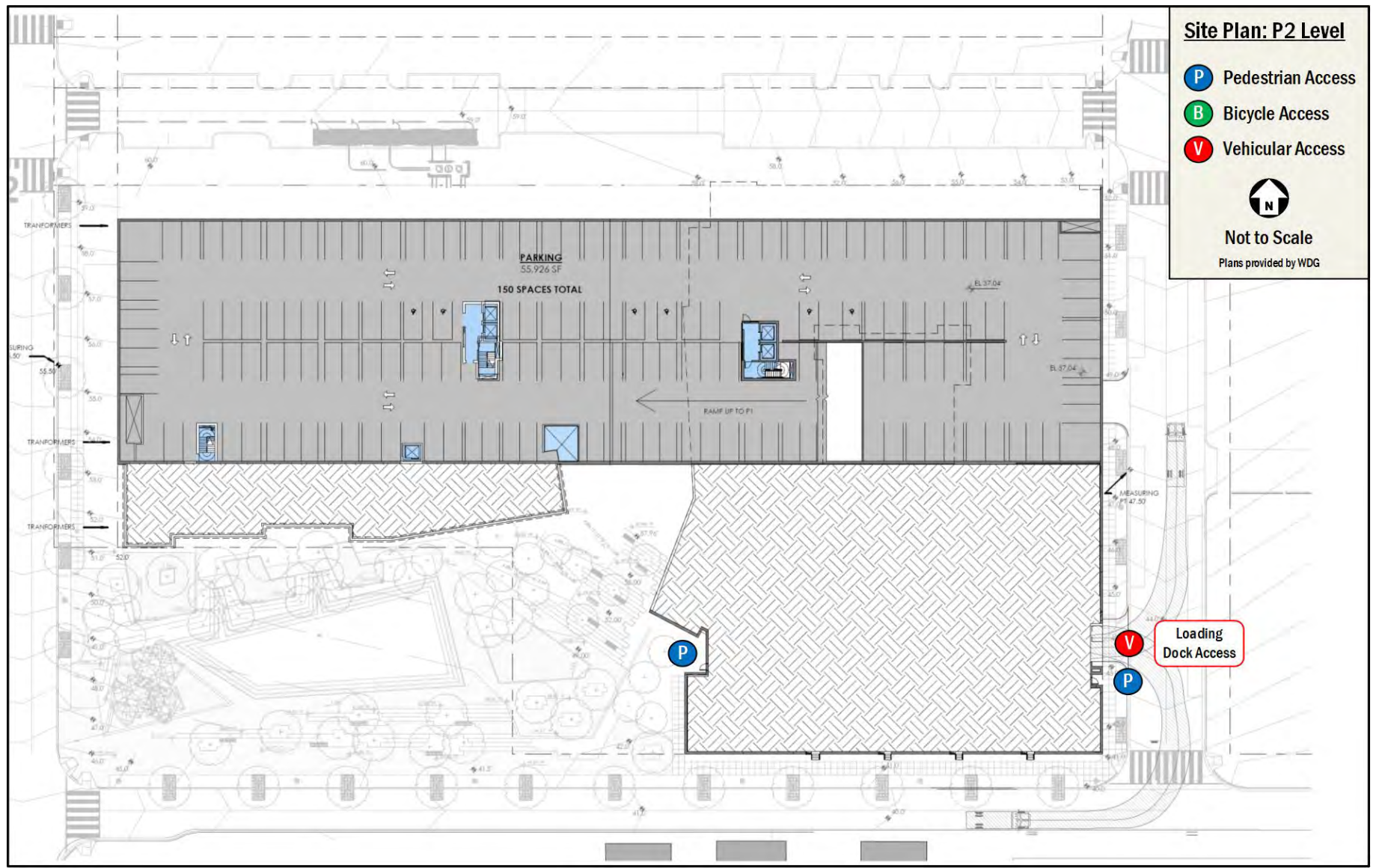


Figure 10: Phase 1 Access Plan – P2 Level

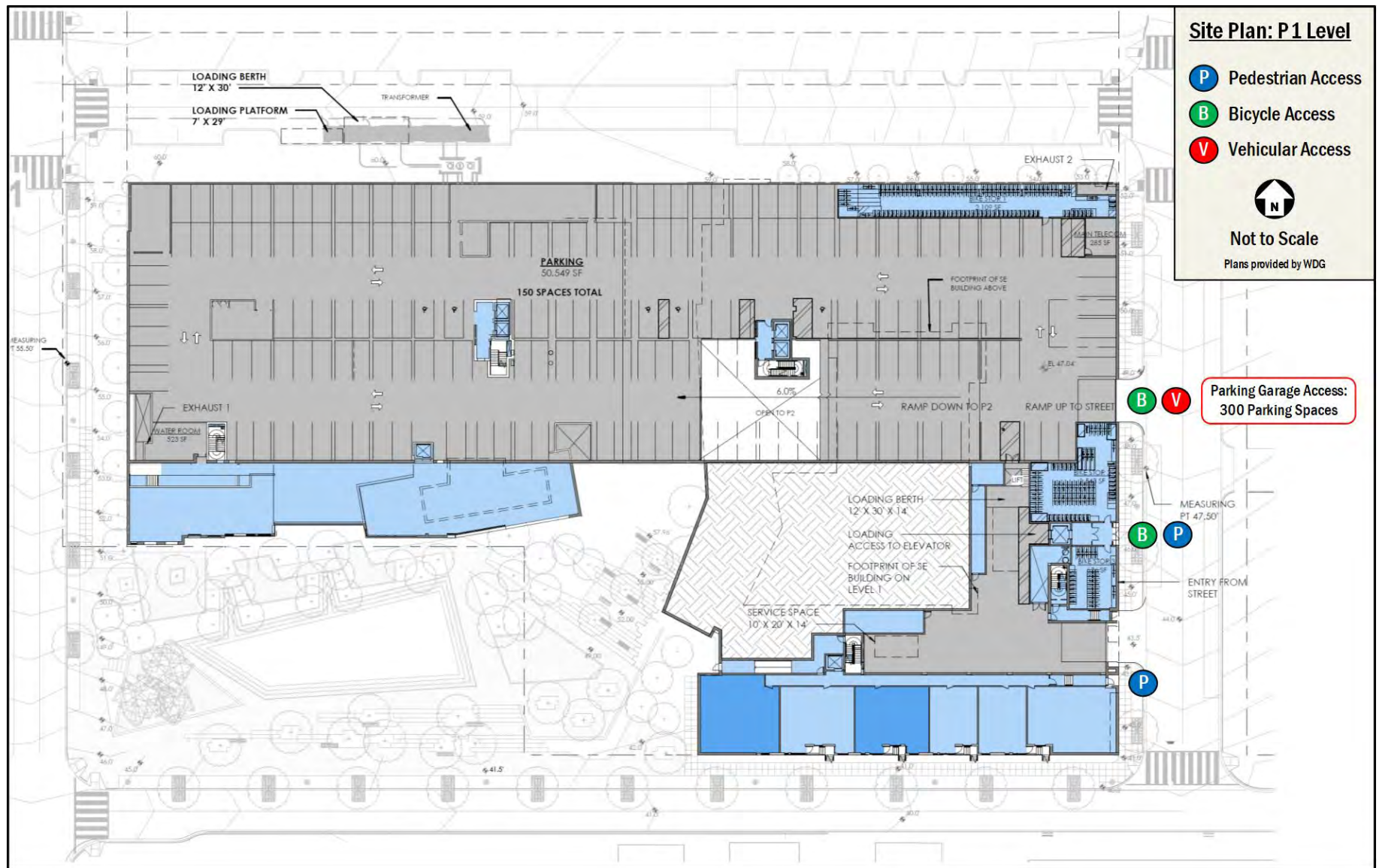


Figure 11: Phase 1 Access Plan – P1 Level



Figure 12: Phase 1 Access Plan – Level 1



## TRIP GENERATION

This section outlines the transportation demand of Phase 1 of the proposed Sursum Corda development. It summarizes the projected trip generation of the site by land use and by mode, which forms the basis for the chapters that follow. While the Stage 1 PUD included both residential and recreation center land uses for Phase 1, the plans has been revised as part of the Stage 2 PUD application to include residential space only.

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

Residential trip generation was calculated based on ITE land use 220, Apartments, splitting trips into different modes using assumptions based on census data for the residents that currently live near the site. The vehicular mode split was then

**Table 4: Phase 1 Multimodal Trip Generation Summary**

Mode	Land Use	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
<b>Auto</b>	Apartments	27 veh/hr	111 veh/hr	138 veh/hr	104 veh/hr	57 veh/hr	161 veh/hr
<b>Transit</b>	Apartments	25 ppl/hr	99 ppl/hr	124 ppl/hr	94 ppl/hr	52 ppl/hr	146 ppl/hr
<b>Bike</b>	Apartments	1 ppl/hr	5 ppl/hr	6 ppl/hr	5 ppl/hr	2 ppl/hr	7 ppl/hr
<b>Walk</b>	Apartments	5 ppl/hr	20 ppl/hr	25 ppl/hr	19 ppl/hr	10 ppl/hr	29 ppl/hr

adjusted up from the census data to reflect the parking supply and other developments with similar proximity to Metrorail.

The mode split assumptions for all land uses within the development is summarized in Table 3. Multimodal trip generation for Phase 1 is shown on Table 4. Detailed calculations are included in the Technical Appendix. Of note, the trip generation shown on Table 4 was based on a previous development program that included 553 residential units. Although the development now proposes to include 562 residential units, the increase in trip generation is minimal (2 trips in the AM peak hour; 3 trips in PM peak hour). As such, the analysis contained herein is considered acceptable to evaluate the impacts of the project.

**Table 3: Summary of Mode Split Assumptions**

Land Use	Mode			
	Auto	Transit	Bike	Walk
Residential	50%	40%	2%	8%



## TRAFFIC OPERATIONS

This section provides a summary of an analysis of the existing and future roadway capacity in the study area. Included is an analysis of potential vehicular impacts of Phase 1 of the Sursum Corda development and a discussion of potential improvements.

The purpose of the capacity analysis is to:

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

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

1. 2018 Existing Conditions
2. 2021 Future without Development Conditions (2021 Background)
3. 2021 Future with Development Conditions (2021 Future)
4. 2021 Future with Development Conditions (2021 Future) with Reconfigured L Street

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

The following conclusions are reached within this chapter:

- Under existing conditions, the majority of intersections in the study area operate at acceptable conditions.
- Future areas of concern for roadway capacity are primarily along commuter routes such as North Capitol Street and New York Avenue
- Two intersections meet the criteria for triggering mitigations in the future scenario with a reconfigured L Street and can be effectively mitigated through signal timing adjustments. Vehicular impacts will be further studied as part of the Stage 2 PUD application for Phase 2 of the development.

- Overall, this report concludes that the project will not have a detrimental impact to the surrounding transportation network.

### STUDY AREA, SCOPE, & METHODOLOGY

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

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

#### Capacity Analysis Scenarios

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

Specifically, the roadway capacity analysis examined the following scenarios:

1. 2018 Existing Conditions
2. 2021 Future without Phase 1 of the Development Conditions (2021 Background)
3. 2021 Future with Phase 1 of the Development Conditions (2021 Future)
4. 2021 Future with Phase 1 of the Development Conditions (2021 Future) with Reconfigured L Street

#### Study Area

The study area of the analysis is a set of intersections where detailed capacity analyses are performed for the scenarios listed above. The set of intersections decided upon during the study scoping process with DDOT are those intersections most likely to have potential impacts or require changes to traffic operations to accommodate the proposed development. Although it is possible that impacts will occur outside of the study area, those impacts are not significant enough to be





considered a detrimental impact nor considered for mitigation measures.

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

1. New York Avenue & First Street NW
2. North Capitol Street & M Street
3. North Capitol Street & L Street
4. North Capitol Street & K Street
5. First Street & M Street NW
6. First Street & Pierce Street NW
7. First Street & L Street NW
8. First Street & K Street NW
9. M Street & First Terrace NW
10. M Street & First Place NW
11. N Capitol Street (SB) & New York Avenue
12. N Capitol Street (NB) & New York Avenue
13. K Street & New Jersey Avenue NW

Figure 13 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.

#### *Existing Geometry and Operations Assumptions*

The geometry and operations assumed in the existing conditions scenario are those present when the main data collection occurred. Gorove/Slade made observations and confirmed the existing lane configurations and traffic controls at the intersections within the study area.

Of note, signage, striping, and overall operations along L Street between First Place and North Capitol Street are more similar to that of an alley rather than a street under existing conditions. Based on the lack of a stop sign at First Place NW and the “Do Not Enter” signs from North Capitol Street, it is intended for the street to function as one-way eastbound; however, based on the existing traffic volumes, it is evident that the street is treated as two-way by vehicles, with a significant amount of traffic turning onto L Street from North Capitol Street and exiting L Street to First Street NW. Additionally, the eastbound approach of L Street at North Capitol Street is not currently part of the signal at the intersection.

The lane configurations and traffic controls assumed for the Existing Conditions are included in Figure 14.

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

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

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

Based on these criteria and discussions with DDOT, the conversion of New Jersey Avenue from one-way to two-way between I Street and Morgan Street and subsequent lane configuration changes was included as a background improvement, as laid out in the *New Jersey Avenue NW Safety Upgrades & Two-Way Conversion Project* performed by STV Incorporated in June 2012. Updated signal timings as a result of the two-way conversion were not provided; thus, the signal timings were updated such that capacity concerns due to the conversion were mitigated to the highest degree.

The lane configurations and traffic controls for the 2018 Background Conditions are included in Figure 15.

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

The geometry and operations assumed in the 2021 Future Conditions are based on the 2021 Background Conditions with the changes to the site’s internal roadway network incorporated, as shown previously in Figure 7. This includes the removal of First Terrace NW, L Place NW, Sursum Corda Court, and the alley abutting the adjacent church to be replaced by an extension of Pierce Street NW to First Place NW and an extension of First Place NW to L Street NW. This results in better vehicular and pedestrian connectivity through the site.

Additionally, as part of the PUD, increased signage and striping along L Street NW between First Street NW and North Capitol Street will be implemented such that L Street NW will be two-way from First Street NW to First Place NW and one-way eastbound from First Place NW to North Capitol Street.

The lane configurations and traffic controls for the 2021 Future Conditions are included in Figure 16.



### *2021 Future Geometry and Operations Assumptions (with Phase 1 of the project) with Reconfigured L Street*

The geometry and operations assumed in the 2021 Future Conditions with Reconfigured L Street are based on the 2021 Future Conditions with changes to the operations of L Street in the event that the ultimate alignment of L Street is partially constructed as part of the Northwest One development and Sursum Corda Phase 1, as shown previously in Figure 8.

The lane configurations and traffic controls for the 2021 Future Conditions are included in Figure 17.

### **Traffic Volume Assumptions**

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

### *2018 Existing Traffic Volumes*

The existing traffic volumes are comprised of turning movement count data, which was collected on Tuesday, October 23, 2018.

During the data collection process, it was found that a significant amount of traffic makes illegal southbound right turns and northbound left turns onto L Street from North Capitol Street, although there is currently two “Do Not Enter” signs along the curb cut. Because of the significant number of illegal turns, and the proximity to the site, they were included in the analysis.

The results of the traffic counts and the existing peak hour traffic volumes are included the Technical Attachments. The existing peak hour traffic volumes are shown in Figure 18. For all intersections the individual morning and afternoon peak hours were used.

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

Traffic projections for the background conditions typically consist of the existing volumes with two additions:

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

Additionally for this project, volume changes based on the conversion of New Jersey Avenue from one-way northbound to two-way between I Street and Morgan Street were

incorporated throughout the study area based on the finding of the *New Jersey Avenue NW Safety Upgrades & Two-Way Conversion Project*.

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

- Be located in the study area, defined as having an origin or destination point within the cluster of study area intersections;
- Have entitlements; and
- Have a construction completion date prior or close to the proposed development.

As discussed previously, multiple background developments were considered for inclusion in the study, with seven (7) developments ultimately meeting all criteria. These developments include the following:

- 50 Patterson at Lacebark Alley
- RESA at Tyber Place
- 44M at Tyber Place
- 88M at Tyber Place
- 1150 First
- Sentinel Square III
- Union Square III

Since there are no existing studies available for these developments, trip generation was calculated based on the Institute of Transportation Engineers’ *Trip Generation Manual*, 9<sup>th</sup> Edition, with mode splits based on those used for similar developments in the NoMa neighborhood. Trip distribution assumptions for the background developments were based on those determined for the Sursum Corda development and other nearby developments and altered where necessary based on anticipated travel patterns.

Trip generation assumptions for the background developments are shown in Table 5. Detailed mode split and trip generation information for each background development is included in the Technical Appendix.

While the background developments represent local traffic changes, regional traffic growth is typically accounted for using percentage growth rates. The growth rates used in this analysis are derived from the Metropolitan Washington Council of Government’s (MWCOC) currently adopted regional



transportation model, comparing the difference between the year 2017 and 2020 model scenarios. The growth rates observed in this model served as a basis for analysis assumptions, and where negative growth was observed, a conservative 0.10 percent annual growth rate was applied to the roadway. The applied growth rates are shown in Table 6.

Traffic volumes generated by the inherent growth along the network were added to the existing traffic volumes in order to establish the 2021 Background traffic volumes. Traffic volumes for the 2021 Background conditions are included in Figure 19.



**Table 5: Summary of Background Development Trip Generation**

Background Development	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
50 Patterson at Lacebark Alley	106 veh/hr	16 veh/hr	122 veh/hr	22 veh/hr	100 veh/hr	122 veh/hr
RESA at Tyber Place	12 veh/hr	30 veh/hr	42 veh/hr	34 veh/hr	26 veh/hr	60 veh/hr
44M at Tyber Place	197 veh/hr	27 veh/hr	224 veh/hr	45 veh/hr	185 veh/hr	230 veh/hr
88M at Tyber Place	251 veh/hr	34 veh/hr	285 veh/hr	53 veh/hr	232 veh/hr	285 veh/hr
1150 First	278 veh/hr	39 veh/hr	317 veh/hr	61 veh/hr	258 veh/hr	319 veh/hr
Sentinel Square III	474 veh/hr	68 veh/hr	542 veh/hr	103 veh/hr	440 veh/hr	543 veh/hr
Union Square III	206 veh/hr	29 veh/hr	235 veh/hr	38 veh/hr	186 veh/hr	224 veh/hr
<b>Total</b>	<b>1,524 veh/hr</b>	<b>243 veh/hr</b>	<b>1,767 veh/hr</b>	<b>356 veh/hr</b>	<b>1,427 veh/hr</b>	<b>1,783 veh/hr</b>

**Table 6: Applied Annual and Total Growth Rates**

Roadway (Direction)	Proposed Annual Growth Rate Between 2018 and 2021		Total Growth Between 2018 and 2021	
	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
New York Avenue (EB)	0.90%	0.30%	2.72%	0.90%
New York Avenue (WB)	0.20%	0.60%	0.60%	1.81%
North Capitol Street (NB)	2.00%	0.20%	6.12%	0.60%
North Capitol Street (SB)	0.20%	0.20%	0.60%	0.60%
M Street (EB)	0.50%	0.50%	1.51%	1.51%
First Street NW (NB)	2.00%	0.50%	6.12%	1.51%
First Street NW (SB)	0.20%	0.30%	0.60%	0.90%
K Street (EB)	2.00%	0.50%	6.12%	1.51%
K Street (WB)	0.20%	0.90%	0.60%	2.72%

*2021 Future Traffic Volumes (with the project)*

The 2021 Total Future traffic volumes consist of the 2021 Background volumes with the addition of the traffic volumes generated by Phase 1 of the proposed development (Phase 1 site-generated trips).

It was assumed that due to the upgraded signage, striping, and overall operations along L Street NW between First Place NW and North Capitol Street as part of the PUD, vehicles would no longer turn illegally onto L Street from North Capitol Street. These illegal movements were rerouted through the network.

Thus, the 2021 Total Future traffic volumes include traffic generated by: the existing volumes, the background developments, the inherent growth on the study area roadways, rerouted trips due to the two-way New Jersey Avenue conversion and enhanced operations along L Street NW, and trips generated by Phase 1 of the proposed project.

Trip distribution for the Phase 1 site-generated trips was determined based on: (1) CTPP TAZ data, (2) existing travel patterns in the study area, and (3) the parking access location.

The residential trip distribution was significantly influenced by the CTPP TAZ flow data for drivers commuting from the site's TAZ, and adjusted based on traffic volumes and patterns. The origin of outbound and destination of inbound Phase 1 residential vehicular trips was the garage driveway along First Place NW.

Based on traffic patterns and a review of the site access locations, the site-generated trips were distributed through the study area intersections. A summary of trip distribution routing assumptions is shown on Figure 20 and Figure 21 for the inbound and outbound traffic, respectively.

The site-generated traffic volumes and the 2021 Future traffic volumes are included in Figure 22 and Figure 23, respectively.



### *2021 Future Traffic Volumes (with the project) with Reconfigured L Street*

The 2021 Total Future with Reconfigured L Street traffic volumes consist of the 2021 Background volumes with the addition of the traffic volumes generated by Phase 1 of the proposed development (Phase 1 site-generated trips) assuming the reconfiguration of L Street previously shown on Figure 8.

Under this scenario vehicles will no longer have eastbound through access along L Street between First Street NW and First Place NW, but L Street between First Place NW and North Capitol Street will operate as two-way; thus, existing, background, and future vehicle trips were rerouted throughout the network accordingly.

As such, the 2021 Total Future traffic volumes include traffic generated by: the existing volumes, the background developments, the inherent growth on the study area roadways, rerouted trips due to the two-way New Jersey Avenue conversion and enhanced operations along L Street NW, and trips generated by Phase 1 of the proposed project assuming the reconfiguration of L Street.

Trip distribution for the Phase 1 site-generated trips was determined based on: (1) CTPP TAZ data, (2) existing travel patterns in the study area, (3) the parking access location, and (4) the operations of L Street.

Consistent with the 2021 Future Conditions, the residential trip distribution was significantly influenced by the CTPP TAZ flow data for drivers commuting from the site's TAZ, and adjusted based on traffic volumes and patterns. The origin of outbound and destination of inbound Phase 1 residential vehicular trips was the garage driveway along First Place NW.

Based on traffic patterns, a review of the site access locations, and the site-generated trips were distributed through the study area intersections. A summary of trip distribution routing assumptions is shown on Figure 20 and Figure 21 for the inbound and outbound traffic, respectively.

The site-generated traffic volumes and the 2021 Future with Reconfigured L Street traffic volumes are included in Figure 24 and Figure 25, respectively.

### *Peak Hour Factors*

The TRB *Highway Capacity Manual* (HCM) and the AASHTO *Policy on Geometric Design of Highways and Intersections*

recommend evaluating traffic conditions during the worst 15 minutes of either a design hour or a typical weekday rush hour. Peak Hour Factor (PHF) is used to convert the hourly volume into the volume rate representing the busiest 15 minutes of the hour. The existing guidelines provide typical values of PHF and advise using the PHF calculated from vehicle counts at analyzed or similar locations. The HCM recommends a PHF of 0.88 for rural areas and 0.92 for urban areas and presumes that capacity constraints in congested areas reduce the short-term traffic fluctuation. The HCM postulates 0.95 as the typical PHF for congested roadways.

For the Existing Conditions analysis, PHF were calculated from the turning movement data that was collected in the field, using a minimum PHF of 0.85.

To account for the significant increase in peak hour traffic generated by local development on side streets, and regional growth along major corridors, a default PHF minimum of 0.92 was assumed in the Background Conditions and Total Future Conditions analyses.

## **VEHICULAR ANALYSIS RESULTS**

### **Intersection Capacity Analysis**

Intersection capacity analyses were performed for the three scenarios outlined previously at the intersections contained within the study area during the morning and afternoon peak hours. *Synchro*, version 9.0 was used to analyze the study intersections based on the *Highway Capacity Manual 2000* (HCM) methodology.

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

The LOS capacity analyses were based on: (1) the peak hour traffic volumes; (2) the lane use and traffic controls; and (3) the *Highway Capacity Manual* (HCM) methodologies (using the *Synchro* software). The average delay of each approach and LOS is shown for the signalized intersections in addition to the overall average delay and intersection LOS grade. The HCM



does not give guidelines for calculating the average delay for a two-way stop-controlled intersection, as the approaches without stop signs would technically have no delay. Detailed LOS descriptions and the analysis worksheets are contained in the Technical Attachments.

Table 7 and Table 8 show the results of the capacity analyses, including LOS and average delay per vehicle (in seconds) for the 2018 Existing (EX), 2021 Background (BG), and 2021 Future (TF), and 2021 Future with Reconfigured L Street (TFRLS) scenarios. Seven (7) of the study intersections operate at unacceptable conditions or have an approach that operates at unacceptable conditions during at least one of the study scenarios. These intersections are as follows:

- New York Avenue & First Street NW
  - Overall intersection: PM (EX, BG, TF, TFRLS)
  - Northbound approach: PM (EX, BG, TF, TFRLS)
  - Southbound approach: AM/PM (EX, BG, TF, TFRLS)
- North Capitol Street & M Street NW
  - Overall intersection: AM (BG, TF, TFRLS)
  - Eastbound approach: AM (BG, TF, TFRLS)
- North Capitol Street & L Street
  - Overall intersection: PM (BG, TF, TFRLS)
  - Westbound approach: AM/PM (BG)
  - Westbound approach: PM (TF, TFRLS)
- North Capitol Street & K Street
  - Eastbound approach: AM (EX, BG, TF, TFRLS)
- First Street & M Street NW
  - Northbound approach: AM/PM (EX, BG, TF, TFRLS)
- North Capitol Street (SB) & New York Avenue
  - Southbound approach: AM (EX, BG, TF, TFRLS)
- North Capitol Street (NB) & New York Avenue
  - Overall intersection: PM (BG, TF, TFRLS)
  - Northbound approach: AM/PM (EX, BG, TF, TFRLS)

### Queuing Analysis

In addition to the capacity analyses presented above, a queuing analysis was performed at the study intersections. The queuing analysis was performed using the *Synchro* software. The 50<sup>th</sup> percentile and 95<sup>th</sup> percentile maximum queue lengths are shown for each lane group at the study area signalized intersections. The 50<sup>th</sup> percentile maximum queue is the maximum back of queue on a typical cycle. The 95<sup>th</sup> percentile queue is the maximum back of queue with 95<sup>th</sup> percentile traffic volumes. For unsignalized intersections, the 95<sup>th</sup> percentile queue is reported for each lane group (including

free-flowing left turns and stop-controlled movements) based on the HCM calculations.

Table 8 shows the queuing results for the study area intersections. Eight (8) of the study intersections have one or more lane groups that exceed the given storage length during at least one peak hour in at least one of the study scenarios. These intersections are as follows:

- New York Avenue & First Street NW
  - WB Through/Right: PM (BG, TF, TFRLS)
  - NB Left/Through/Right: AM/PM (EX, BG, TF, TFRLS)
  - SB Left/Through/Right: AM/PM (EX, BG, TF) , TFRLS
- North Capitol Street & M Street
  - EB Left to NB North Capitol Street: AM/PM (EX, BG, TF, TFRLS)
  - NB Right: PM (BG, TF, TFRLS)
- North Capitol Street & L Street
  - WB Left/Through/Right: PM (BG, TF, TFRLS)
- North Capitol Street & K Street
  - EB Left: AM/PM (EX, BG, TF, TFRLS)
  - SB Through/Right: PM (EX), AM/PM (BG, TF)
- First Street & M Street NW
  - EB Left/Through/Right: AM (EX), AM/PM (BG, TF, TFRLS)
  - NB Through/Right: PM (EX, BG, TF, TFRLS)
- North Capitol Street (SB) & New York Avenue
  - WB Through: AM/PM (BG, TF, TFRLS)
  - SB Left/Through: AM (BG, TF, TFRLS)
- North Capitol Street (NB) & New York Avenue
  - EB Through/Right: PM (EX), AM/PM (BG, TF, TFRLS)
  - NB Left/Through: AM/PM (EX, BG, TF, TFRLS)
- K Street & New Jersey Avenue NW
  - WB Left/Through/Right: AM (BG, TF, TFRLS)
  - NB Left: AM/PM (EX, BG, TF, TFRLS)
  - NB Through/Right: AM (BG, TF, TFRLS)

### MITIGATIONS AND IMPROVEMENTS

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 where one does not exist in the Existing Conditions or Background Conditions;



- There is an increase in delay at any approach or overall intersection operating under LOS E or F of greater than 5 percent when compared to the Background Conditions; or
- There is an increase in the 95<sup>th</sup> percentile queues by more than 150 feet at an intersection or along an approach from Background Conditions to Total Future Conditions.

Following these guidelines, two (2) intersections within the study area have movements that meet the criteria for triggering mitigations as a result of Phase 1 of the Sursum Corda development under the Reconfigured L Street scenario. Mitigation measures were tested at these intersections, with results shown on Table 11 and Table 12, with detailed Synchro reports provided in the Technical Appendix.

The following conclusions were made regarding mitigations:

- *North Capitol Street and L Street*  
Under the 2021 Future with Development with Reconfigured L Street conditions, during the PM peak hour, delay for the southbound movement at the intersection of North Capitol Street and L Street increases to LOS E from LOS D in the 2021 Background conditions.

The increase in delay at this intersection attributable to the proposed development can be mitigated by increasing the southbound signal phase (4) from 30 to 32 seconds. Given that the signal is assumed to be modified as part of Phase 1 of the Sursum Corda development, it is expected that signal timing adjustments can be incorporated at this intersection.

- *First Street and K Street, NW*  
Under the 2021 Future with Development with Reconfigured L Street conditions, during the AM peak hour, delay for the southbound movement at the intersection of First Street and K Street, NW increases to LOS E from LOS D in the 2021 Background conditions.

The increase in delay at this intersection attributable to the proposed development can be mitigated by increasing the southbound right signal phase (1) from 23 to 32 seconds. However, it should also be noted that it is expected driver behavior will continue adjusting to new traffic conditions associated with L Street in ways not fully captured in this level of analysis. As such, signal timings

may be beneficial in the short term, but may not be necessary in the long-term.

Additionally, as outlined in the Stage 1 PUD Zoning Order, the intersection control at the intersection of Pierce Street and First Street NW was further evaluated. As part of the Stage 1 CTR, it was determined that an all-way stop control would be warranted as part of Phase 2 of the development, but not as part of Phase 1. This conclusion is consistent with the Stage 2 PUD analysis. As such, it is proposed that the intersection remain as a two-way stop-controlled intersection as part of Phase 1 and be reevaluated as part of Phase 2.

The intersection of First Street and New York Avenue NW was identified as triggering mitigations as part of the Stage 1 PUD CTR, but does not trigger mitigations as part of the Stage 2 PUD CTR for Phase 1. This intersection will be further reviewed as part of the Stage 2 CTR for Phase 2 of the overall development.

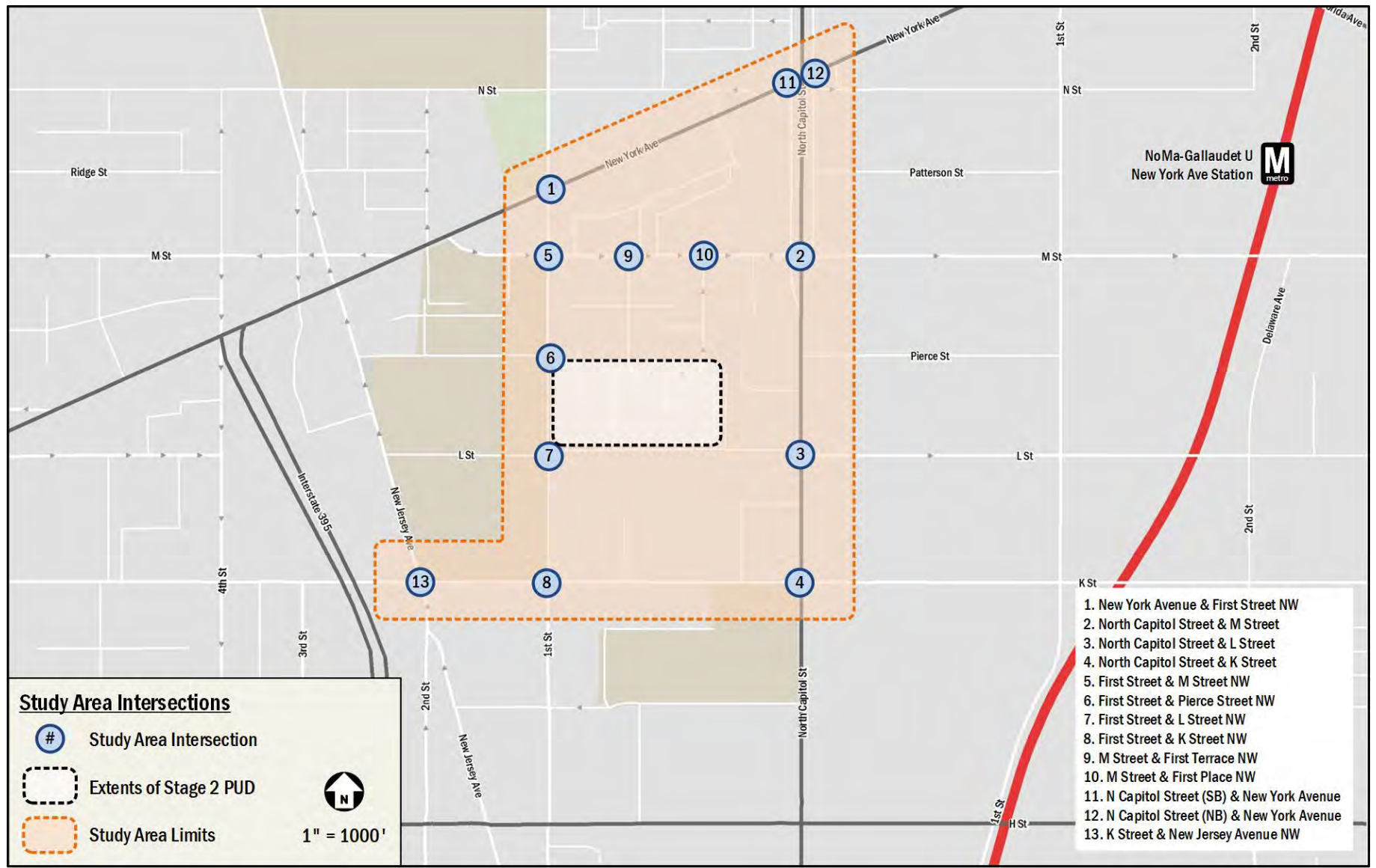


Figure 13: Study Area Intersections



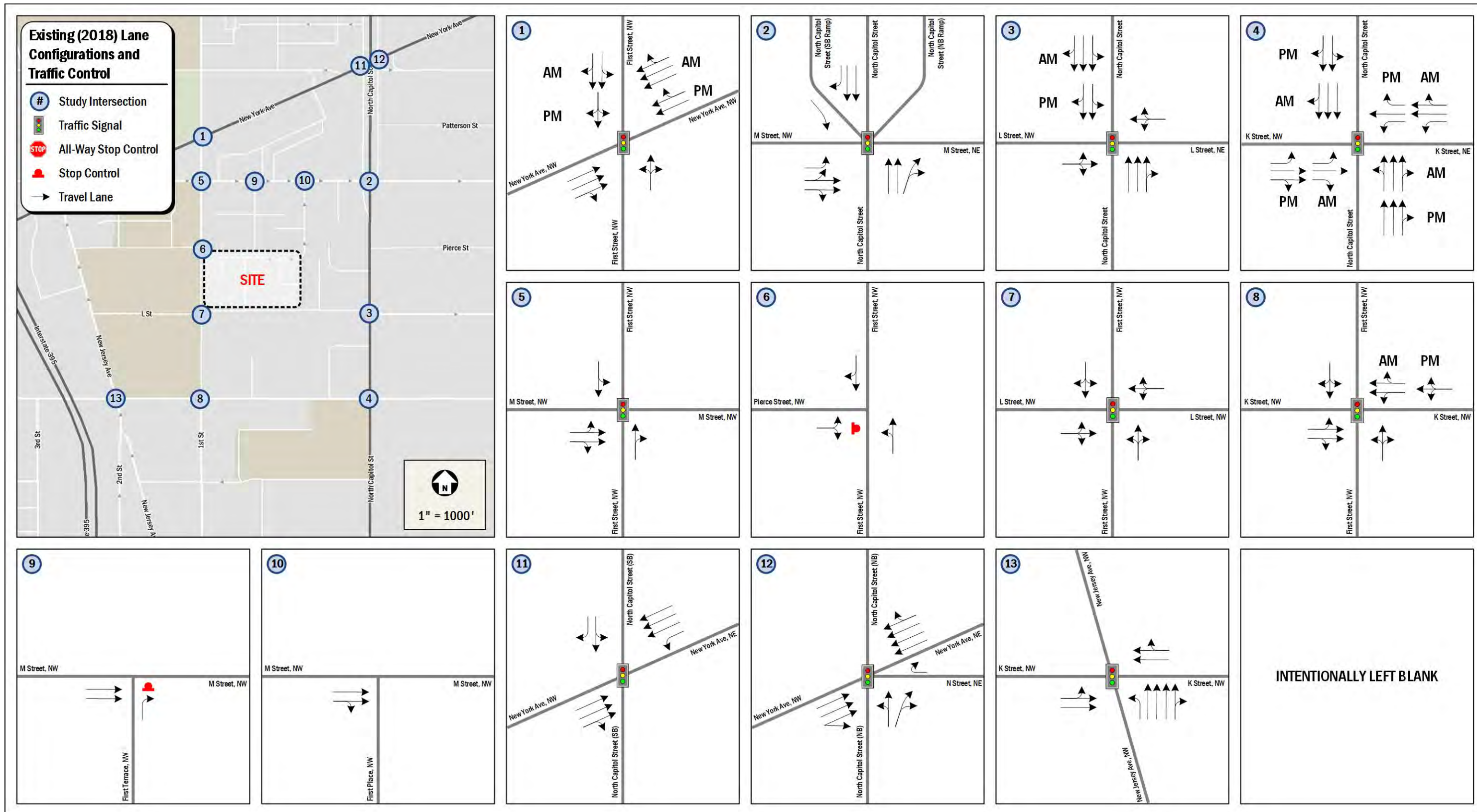


Figure 14: Existing Lane Configuration and Traffic Control (2018)

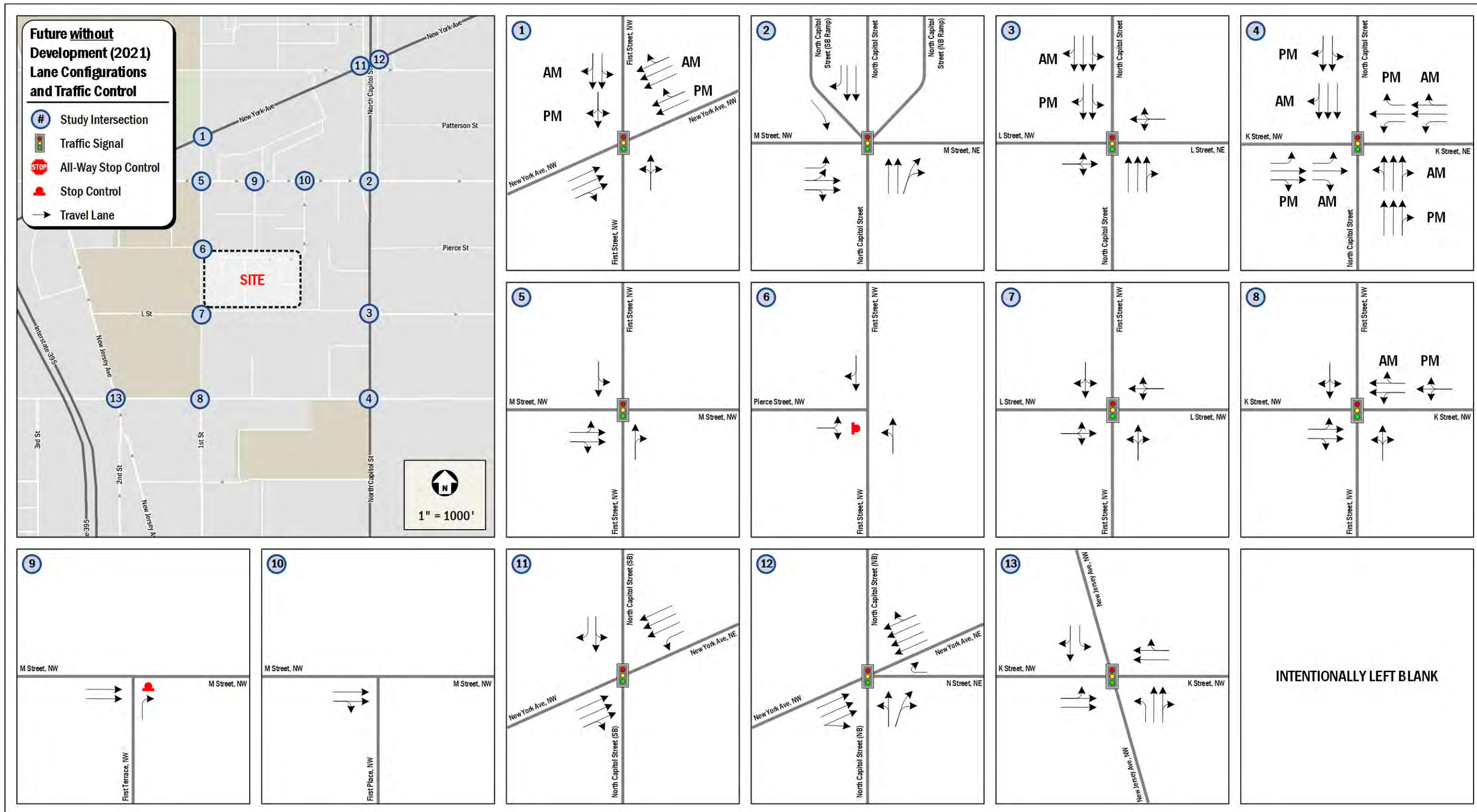


Figure 15: Background Lane Configuration and Traffic Control (2021)

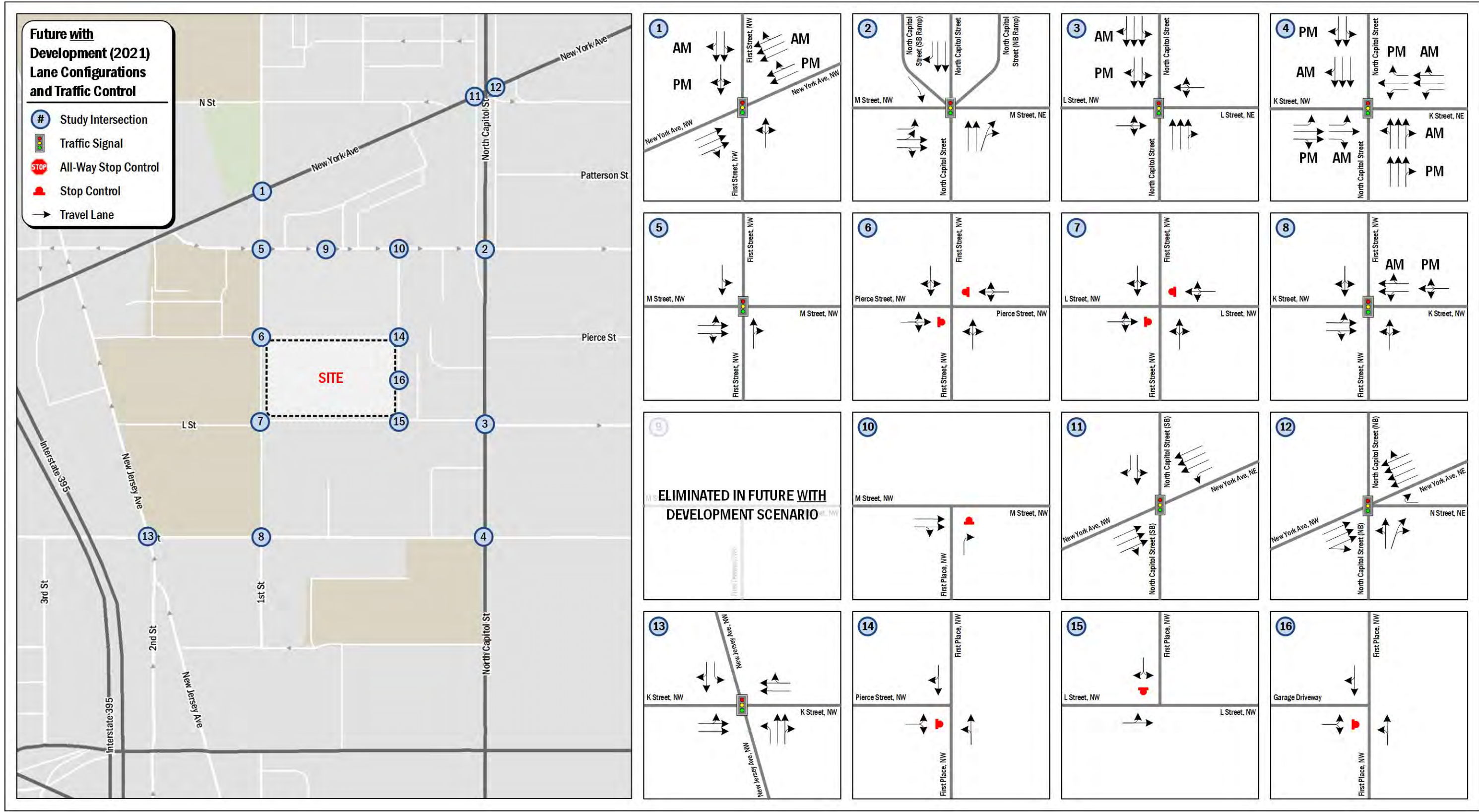


Figure 16: Future Lane Configuration and Traffic Control (2021)

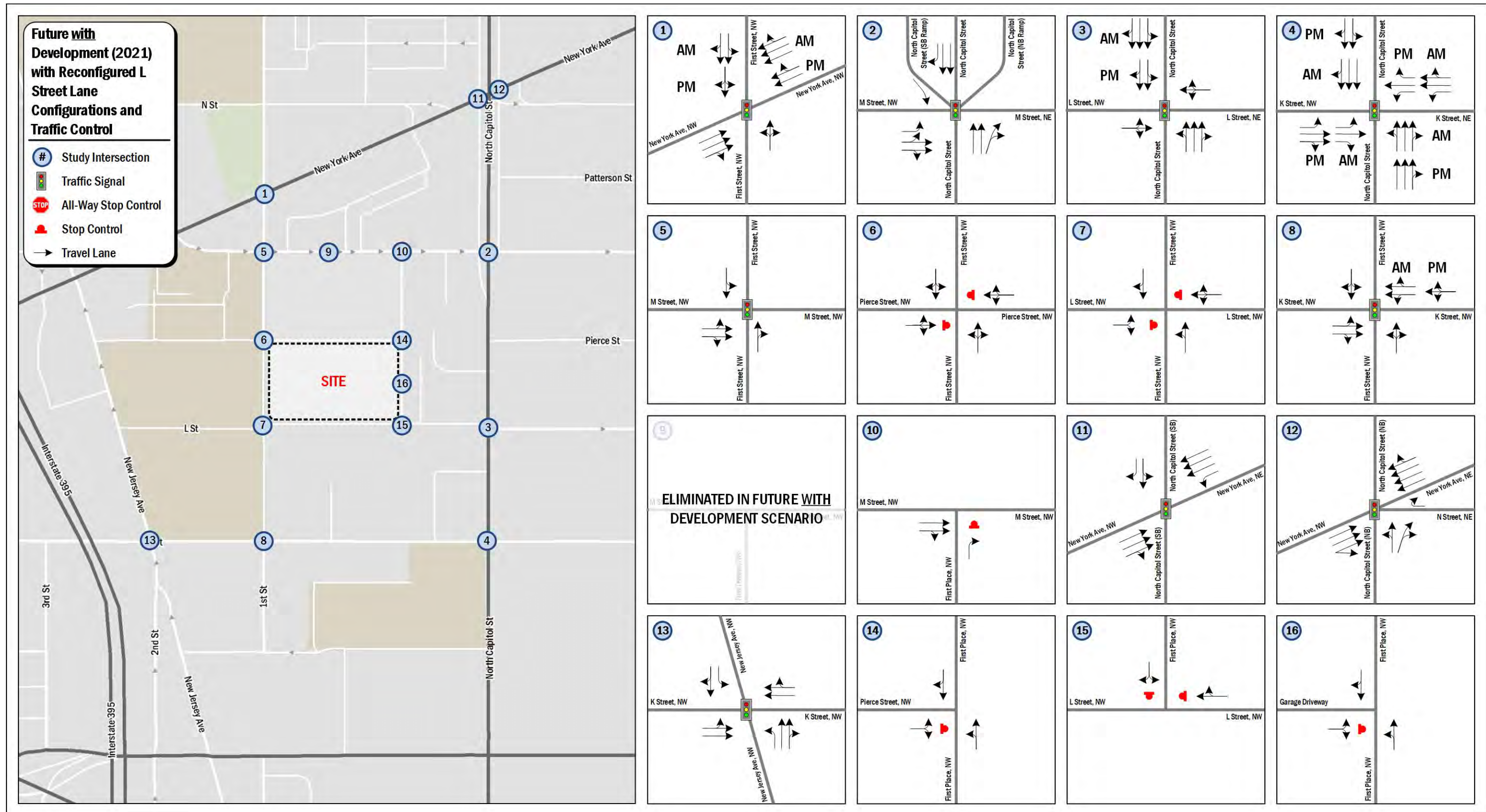


Figure 17: Future Lane Configuration and Traffic Control (2021) with Reconfigured L Street

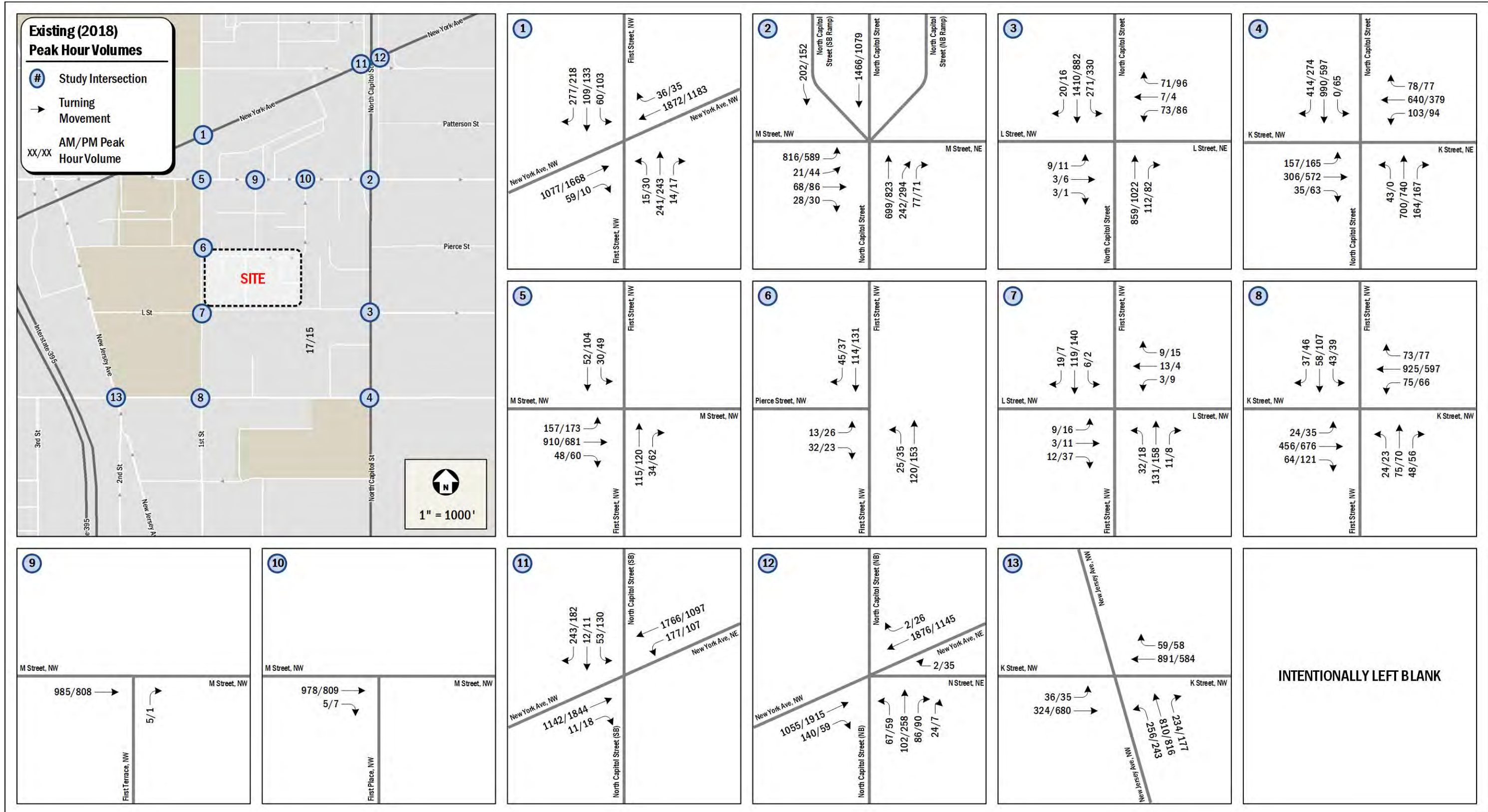


Figure 18: Existing Peak Hour Traffic Volumes (2018)





Figure 20: Inbound Trip Distribution and Routing

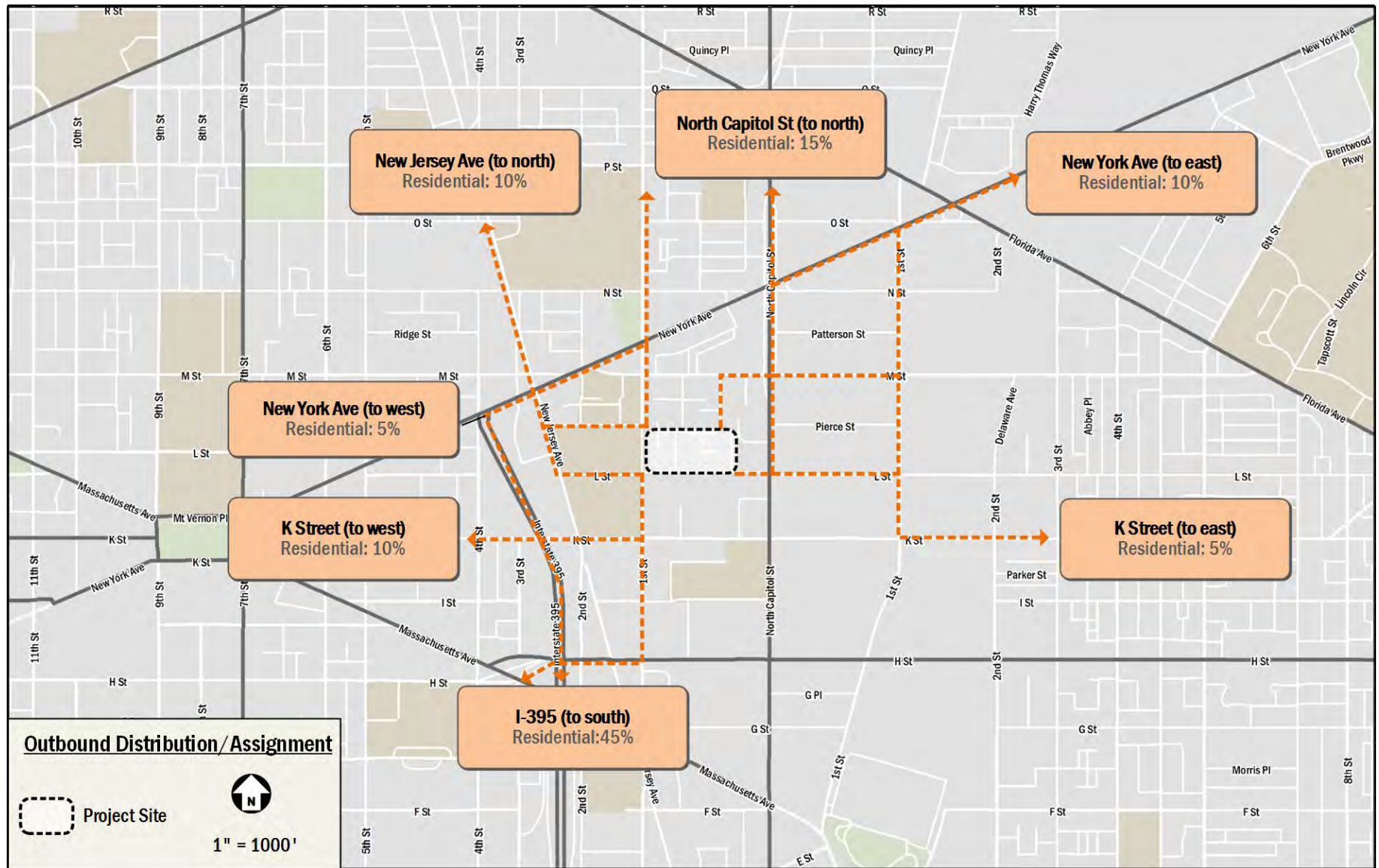


Figure 21: Outbound Trip Distribution and Routing



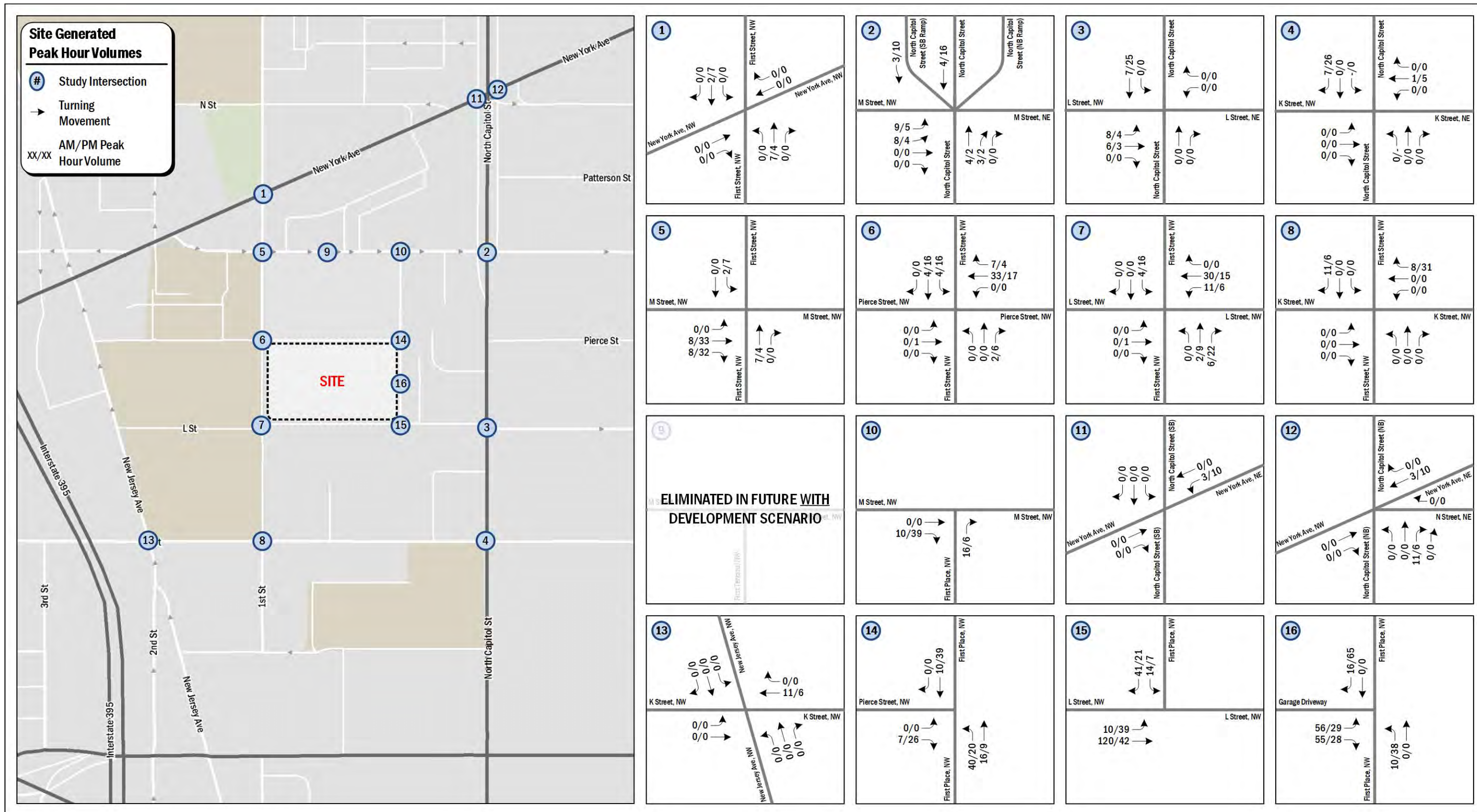


Figure 22: Site-Generated Peak Hour Traffic Volumes (2021)

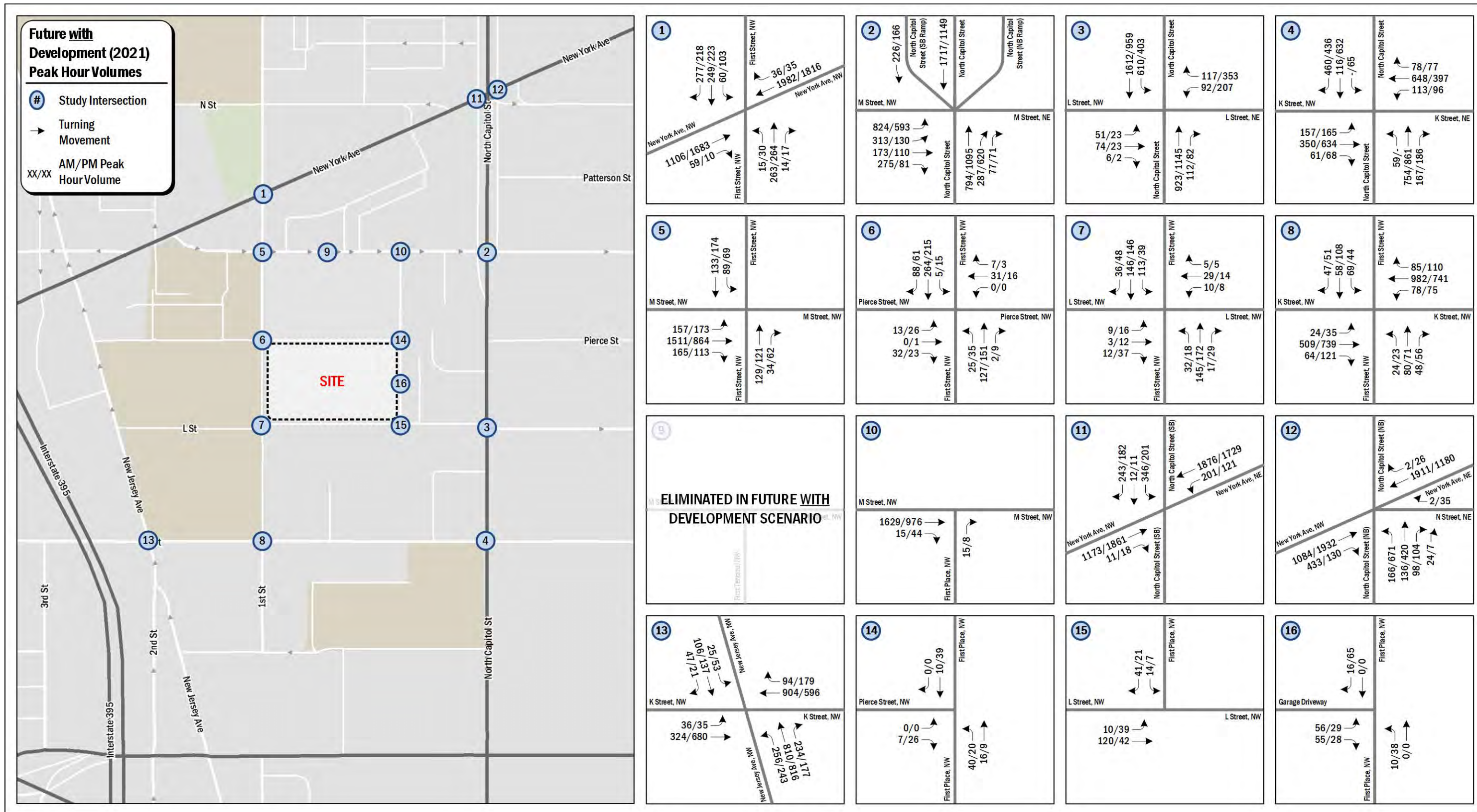


Figure 23: Future Peak Hour Traffic Volumes (2021)

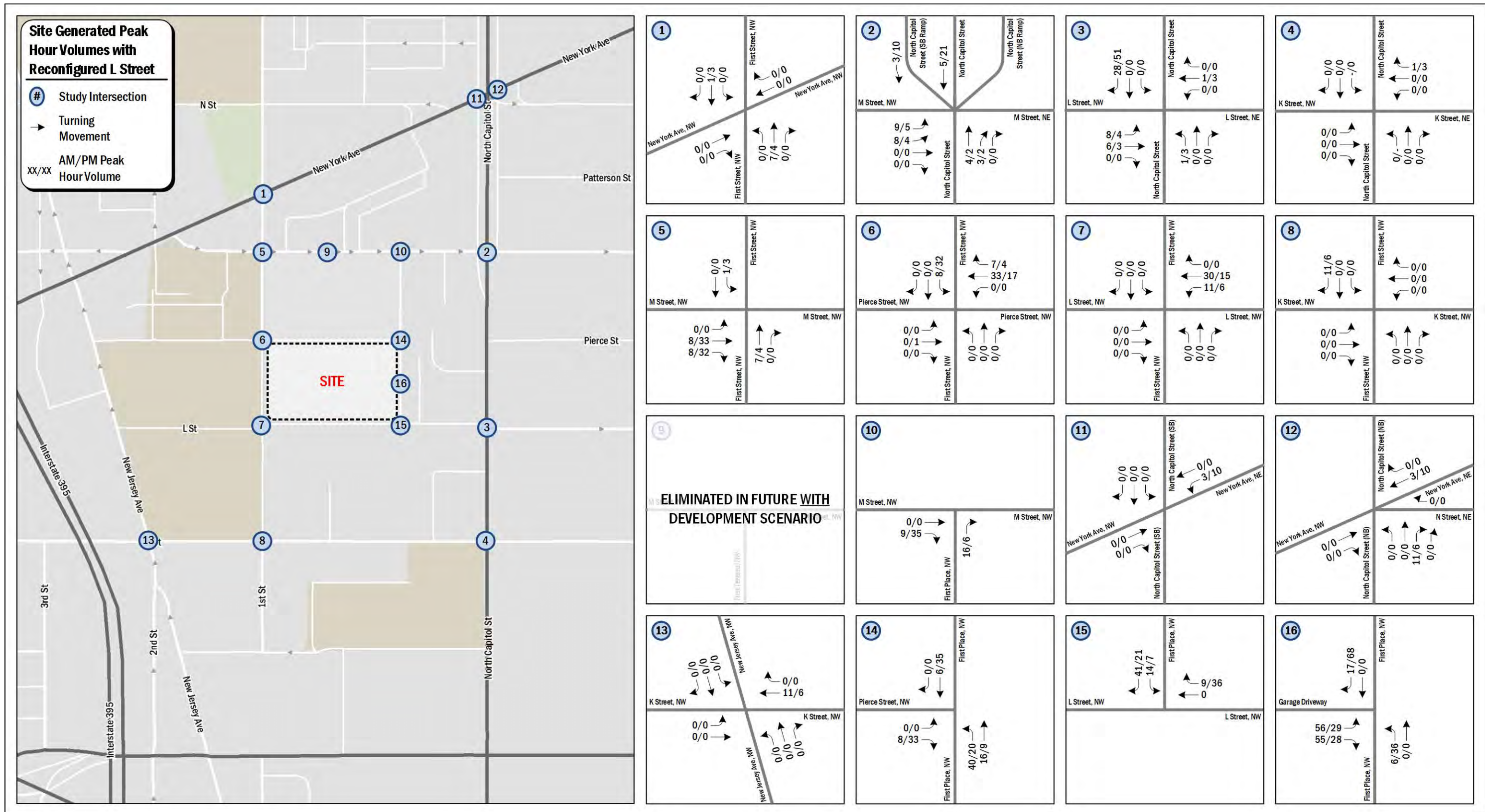


Figure 24: Site-Generated Peak Hour Traffic Volumes (2021) with Reconfigured L Street

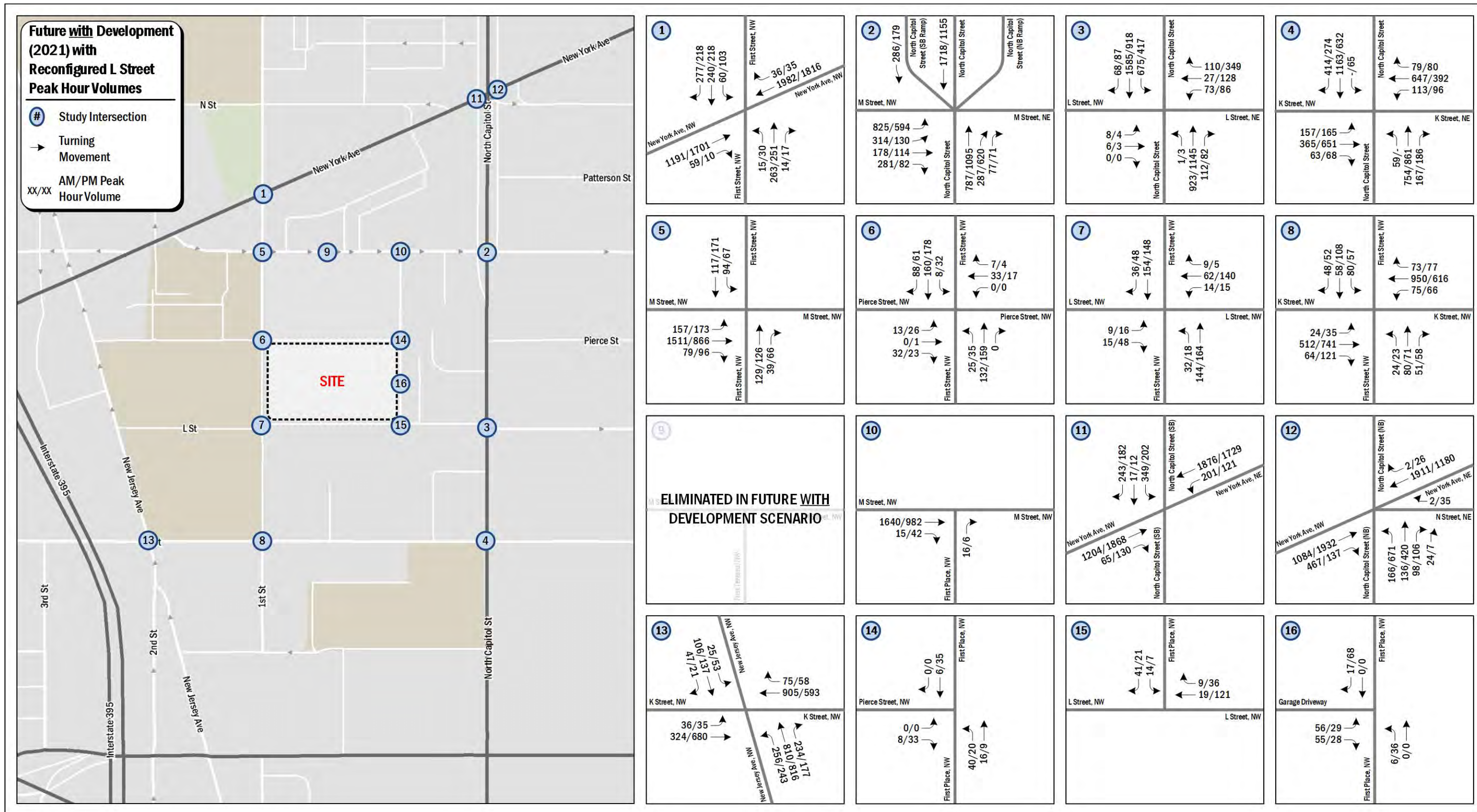


Figure 25: Future Peak Hour Traffic Volumes (2021) with Reconfigured L Street



**Table 7: AM Peak Hour LOS Results**

Intersection & Approach	Existing Conditions (2018)		Future without Development Conditions (2021)		Future with Development Conditions (2021)		Future with Development Conditions (2021) with Reconfigured L Street	
	AM Peak Hour		AM Peak Hour		AM Peak Hour		AM Peak Hour	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
<b>New York Avenue &amp; First Street, NW</b>								
<b>Overall</b>	<b>22.7</b>	<b>C</b>	<b>32.1</b>	<b>C</b>	<b>33.0</b>	<b>C</b>	<b>31.8</b>	<b>C</b>
Eastbound	11.5	B	11.6	B	11.6	B	11.9	B
Westbound	13.6	B	14.5	B	14.5	B	14.5	B
Northbound	47.9	D	50.8	D	51.1	D	51.1	D
Southbound	70.9	E	119.8	F	125.2	F	120.4	F
<b>North Capitol Street &amp; M Street</b>								
<b>Overall</b>	<b>25.3</b>	<b>C</b>	<b>55.9</b>	<b>E</b>	<b>57.7</b>	<b>E</b>	<b>58.5</b>	<b>E</b>
Eastbound	38.4	D	110.2	F	114.8	F	117.5	F
Northbound	15.7	B	16.8	B	16.8	B	17.8	B
Southbound	25.1	C	37.7	D	38.1	D	38.2	D
Southbound (From Service Road)	13.8	B	13.9	B	13.9	B	14.9	B
<b>North Capitol Street &amp; L Street</b>								
<b>Overall</b>	<b>9.2</b>	<b>A</b>	<b>14.6</b>	<b>B</b>	<b>14.6</b>	<b>B</b>	<b>15.9</b>	<b>B</b>
Eastbound	32.2	C	42.4	D	44.5	D	35.1	D
Westbound	43.3	D	56.5	E	53.3	D	49.4	D
Northbound	11.6	B	11.7	B	11.6	B	12.3	B
Southbound	4.4	A	10.3	B	10.3	B	14.3	B
<b>North Capitol Street &amp; K Street</b>								
<b>Overall</b>	<b>32.2</b>	<b>C</b>	<b>32.3</b>	<b>C</b>	<b>32.4</b>	<b>C</b>	<b>32.1</b>	<b>C</b>
Eastbound	61.9	E	57.0	E	57.0	E	56.1	E
Westbound	36.0	D	36.2	D	36.2	D	36.3	D
Northbound	27.4	C	29.6	C	29.7	C	29.5	C
Southbound	23.5	C	23.5	C	23.8	C	22.8	C
<b>First Street &amp; M Street, NW</b>								
<b>Overall</b>	<b>21.1</b>	<b>C</b>	<b>29.1</b>	<b>C</b>	<b>30.0</b>	<b>C</b>	<b>27.1</b>	<b>C</b>
Eastbound	15.0	B	27.3	C	28.0	C	24.0	C
Northbound	63.4	E	64.3	E	65.5	E	66.5	E
Southbound	24.4	C	18.6	B	19.2	B	19.7	B
<b>First Street &amp; Pierce Street, NW</b>								
Eastbound	11.4	B	13.0	B	14.4	B	13.1	B
Westbound	--	--	--	--	15.9	C	14.6	B
Northbound	1.6	A	1.7	A	1.7	A	1.5	A
Southbound	0.0	A	0.0	A	0.1	A	0.3	A
<b>First Street &amp; L Street, NW</b>								
Eastbound	11.9	B	14.6	B	15.2	C	12.1	B
Westbound	12.5	B	15.6	C	19.9	C	15.2	C
Northbound	1.6	A	1.6	A	1.5	A	1.6	A



Intersection & Approach	Existing Conditions (2018)		Future without Development Conditions (2021)		Future with Development Conditions (2021)		Future with Development Conditions (2021) with Reconfigured L Street	
	AM Peak Hour		AM Peak Hour		AM Peak Hour		AM Peak Hour	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Southbound	0.4	A	3.6	A	3.7	A	0.0	A
<b>First Street &amp; K Street, NW</b>								
<b>Overall</b>	<b>12.7</b>	<b>B</b>	<b>12.8</b>	<b>B</b>	<b>13.4</b>	<b>B</b>	<b>13.9</b>	<b>B</b>
Eastbound	9.1	A	7.2	A	7.2	A	7.2	A
Westbound	6.0	A	6.5	A	7.0	A	6.1	A
Northbound	41.2	D	40.6	D	40.7	D	41.0	D
Southbound	43.5	D	50.9	D	52.4	D	59.1	E
<b>M Street &amp; First Terrace, NW</b>								
Eastbound	0.0	A	0.0	A	--	--	--	--
Northbound Right	9.5	A	11.3	B	--	--	--	--
<b>M Street &amp; First Place, NW</b>								
Eastbound TR	0.0	A	0.0	A	0.0	A	0.0	A
Northbound Right	--	--	--	--	11.4	B	10.8	B
<b>North Capitol Street (SB) and New York Avenue</b>								
<b>Overall</b>	<b>19.4</b>	<b>B</b>	<b>45.6</b>	<b>D</b>	<b>45.6</b>	<b>D</b>	<b>47.3</b>	<b>D</b>
Eastbound	20.9	C	21.1	C	21.1	C	22.0	C
Westbound	4.4	A	6.7	A	6.7	A	6.9	A
Southbound	106.0	F	225.4	F	225.4	F	234.5	F
<b>North Capitol Street (NB) and New York Avenue</b>								
<b>Overall</b>	<b>13.8</b>	<b>B</b>	<b>27.5</b>	<b>C</b>	<b>27.6</b>	<b>C</b>	<b>27.7</b>	<b>C</b>
Eastbound	4.2	A	12.7	B	12.7	B	13.3	B
Westbound	10.7	B	10.6	B	10.6	B	10.6	B
Northbound	70.6	E	157.8	F	155.4	F	155.4	F
Northwestbound (N Street)	0.0	A	0.0	A	0.0	A	0.0	A
<b>K Street &amp; New Jersey Avenue, NW</b>								
<b>Overall</b>	<b>23.9</b>	<b>C</b>	<b>31.4</b>	<b>C</b>	<b>33.5</b>	<b>C</b>	<b>30.5</b>	<b>C</b>
Eastbound	12.3	B	22.1	C	22.2	C	22.1	C
Westbound	16.9	B	43.1	D	48.7	D	40.9	D
Northbound	32.6	C	26.4	C	26.4	C	26.4	C
Southbound	--	--	18.9	B	18.9	B	18.9	B
<b>Pierce Street &amp; First Place, NW</b>								
Eastbound					8.4	A	8.4	A
Northbound			<b>For Future Use</b>		5.3	A	5.3	A
Southbound					0.0	A	0.0	A
<b>L Street &amp; First Place, NW</b>								
Eastbound					0.6	A	--	--
Westbound			<b>For Future Use</b>		--	--	0.0	A
Southbound					8.8	A	8.7	A
<b>First Place &amp; Garage Driveway, NW</b>								



Intersection & Approach	Existing Conditions (2018)		Future without Development Conditions (2021)		Future with Development Conditions (2021)		Future with Development Conditions (2021) with Reconfigured L Street	
	AM Peak Hour		AM Peak Hour		AM Peak Hour		AM Peak Hour	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Eastbound					9.0	A	9.0	A
Northbound			<b>For Future Use</b>		7.3	A	7.3	A
Southbound					0.0	A	0.0	A

**Table 8: PM Peak Hour LOS Results**

Intersection & Approach	Existing Conditions (2018)		Future without Development Conditions (2021)		Future with Development Conditions (2021)		Future with Development Conditions (2021) with Reconfigured L Street	
	PM Peak Hour		PM Peak Hour		PM Peak Hour		PM Peak Hour	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
<b>New York Avenue &amp; First Street, NW</b>								
<b>Overall</b>	<b>71.2</b>	<b>E</b>	<b>87.8</b>	<b>F</b>	<b>89.9</b>	<b>F</b>	<b>88.8</b>	<b>F</b>
Eastbound	11.9	B	11.9	B	11.9	B	12.0	B
Westbound	8.0	A	15.0	B	15.0	B	15.0	B
Northbound	<b>75.6</b>	<b>E</b>	<b>87.7</b>	<b>F</b>	<b>87.5</b>	<b>F</b>	<b>88.1</b>	<b>F</b>
Southbound	<b>475.6</b>	<b>F</b>	<b>589.1</b>	<b>F</b>	<b>599.3</b>	<b>F</b>	<b>598.6</b>	<b>F</b>
<b>North Capitol Street &amp; M Street</b>								
<b>Overall</b>	<b>17.4</b>	<b>B</b>	<b>35.9</b>	<b>D</b>	<b>36.1</b>	<b>D</b>	<b>36.0</b>	<b>D</b>
Eastbound	37.6	D	41.3	D	41.6	D	41.8	D
Northbound	8.8	A	48.6	D	49.2	D	49.1	D
Southbound	14.7	B	15.1	B	15.3	B	15.3	B
Southbound (From Service Road)	10.6	B	10.5	B	10.6	B	10.7	B
<b>North Capitol Street &amp; L Street</b>								
<b>Overall</b>	<b>29.7</b>	<b>C</b>	<b>110.9</b>	<b>F</b>	<b>110.0</b>	<b>F</b>	<b>103.1</b>	<b>F</b>
Eastbound	35.0	C	36.8	D	38.0	D	34.7	C
Westbound	48.7	D	<b>478.1</b>	<b>F</b>	<b>470.0</b>	<b>F</b>	<b>399.7</b>	<b>F</b>
Northbound	13.8	B	13.4	B	13.4	B	14.2	B
Southbound	41.5	D	47.0	D	49.6	D	<b>61.8</b>	<b>E</b>
<b>North Capitol Street &amp; K Street</b>								
<b>Overall</b>	<b>35.3</b>	<b>D</b>	<b>37.1</b>	<b>D</b>	<b>39.7</b>	<b>D</b>	<b>34.1</b>	<b>C</b>
Eastbound	52.9	D	50.8	D	50.9	D	51.2	D
Westbound	44.4	D	46.2	D	47.1	D	46.2	D
Northbound	20.5	C	21.5	C	21.5	C	21.5	C
Southbound	29.0	C	36.7	D	44.5	D	24.9	C
<b>First Street &amp; M Street, NW</b>								
<b>Overall</b>	<b>24.6</b>	<b>C</b>	<b>23.2</b>	<b>C</b>	<b>23.4</b>	<b>C</b>	<b>24.1</b>	<b>C</b>
Eastbound	14.8	B	16.3	B	17.0	B	16.7	B
Northbound	<b>80.8</b>	<b>F</b>	<b>80.8</b>	<b>F</b>	<b>80.8</b>	<b>F</b>	<b>84.0</b>	<b>F</b>
Southbound	14.0	B	9.2	A	9.4	A	9.5	A



Intersection & Approach	Existing Conditions (2018)		Future without Development Conditions (2021)		Future with Development Conditions (2021)		Future with Development Conditions (2021) with Reconfigured L Street	
	PM Peak Hour		PM Peak Hour		PM Peak Hour		PM Peak Hour	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
<b>First Street &amp; Pierce Street, NW</b>								
Eastbound	11.1	B	11.7	B	13.2	B	13.1	B
Westbound	--	--	--	--	13.7	B	13.8	B
Northbound	1.7	A	1.7	A	1.7	A	1.7	A
Southbound	0.0	A	0.0	A	0.5	A	1.1	A
<b>First Street &amp; L Street, NW</b>								
Eastbound	11.4	B	12.7	B	12.7	B	12.2	B
Westbound	12.1	B	12.7	B	14.6	B	18.5	C
Northbound	0.9	A	0.9	A	0.8	A	0.9	A
Southbound	0.1	A	1.0	A	1.6	A	0.0	A
<b>First Street &amp; K Street, NW</b>								
<b>Overall</b>	<b>13.7</b>	<b>B</b>	<b>16.0</b>	<b>B</b>	<b>19.2</b>	<b>B</b>	<b>15.2</b>	<b>B</b>
Eastbound	3.3	A	4.6	A	4.6	A	4.6	A
Westbound	12.1	B	17.1	B	24.2	C	12.6	B
Northbound	39.9	D	39.9	D	40.0	D	40.0	D
Southbound	46.2	D	46.0	D	46.6	D	51.6	D
<b>M Street &amp; First Terrace, NW</b>								
Eastbound	0.0	A	0.0	A	--	--	--	--
Northbound Right	9.9	A	9.8	A	--	--	--	--
<b>M Street &amp; First Place, NW</b>								
Eastbound TR	0.0	A	0.0	A	0.0	A	0.0	A
Northbound Right	--	--	--	--	11.0	B	11.1	B
<b>North Capitol Street (SB) and New York Avenue</b>								
<b>Overall</b>	<b>16.0</b>	<b>B</b>	<b>21.9</b>	<b>C</b>	<b>21.9</b>	<b>C</b>	<b>22.0</b>	<b>C</b>
Eastbound	20.3	C	20.4	C	20.4	C	20.5	C
Westbound	5.1	A	17.6	B	17.7	B	17.7	B
Southbound	33.6	C	48.8	D	48.8	D	49.1	D
<b>North Capitol Street (NB) and New York Avenue</b>								
<b>Overall</b>	<b>23.4</b>	<b>C</b>	<b>354.6</b>	<b>F</b>	<b>353.5</b>	<b>F</b>	<b>352.8</b>	<b>F</b>
Eastbound	8.0	A	8.6	A	8.6	A	8.6	A
Westbound	9.0	A	9.0	A	9.0	A	9.0	A
Northbound	140.7	F	1311.6	F	1304.7	F	1304.7	F
Northwestbound (N Street)	0.0	A	0.0	A	0.0	A	0.0	A
<b>K Street &amp; New Jersey Avenue, NW</b>								
<b>Overall</b>	<b>25.5</b>	<b>C</b>	<b>28.1</b>	<b>C</b>	<b>28.3</b>	<b>C</b>	<b>26.7</b>	<b>C</b>
Eastbound	31.0	C	31.9	C	32.0	C	30.3	C
Westbound	33.9	C	36.7	D	37.3	D	34.0	C
Northbound	17.7	B	22.3	C	22.3	C	22.3	C
Southbound	--	--	18.0	B	18.0	B	18.0	B





Intersection & Approach	Existing Conditions (2018)		Future without Development Conditions (2021)		Future with Development Conditions (2021)		Future with Development Conditions (2021) with Reconfigured L Street	
	PM Peak Hour		PM Peak Hour		PM Peak Hour		PM Peak Hour	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
<b>Pierce Street &amp; First Place, NW</b>								
Eastbound					8.6	A	8.6	A
Northbound			<b>For Future Use</b>		5.1	A	5.1	A
Southbound					0.0	A	0.0	A
<b>L Street &amp; First Place, NW</b>								
Eastbound					3.3	A	--	--
Westbound			<b>For Future Use</b>		--	--	0.0	A
Southbound					8.7	A	9.2	A
<b>First Place &amp; Garage Driveway, NW</b>								
Eastbound					9.1	A	9.1	A
Northbound			<b>For Future Use</b>		7.4	A	7.4	A
Southbound					0.0	A	0.0	A

**Table 9: AM Peak Hour Queueing Results (in feet)**

Intersection & Lane Group	Storage Length (ft)	Existing Conditions (2018)		Future without Development Conditions (2021)		Future with Development Conditions (2021)		Future with Development Conditions (2021) with Reconfigured L Street	
		AM Peak Hour		AM Peak Hour		AM Peak Hour		AM Peak Hour	
		50th %	95th %	50th %	95th %	50th %	95th %	50th %	95th %
<b>New York Avenue &amp; First Street, NW</b>									
Eastbound TR	715	170	197	176	204	176	204	194	223
Westbound TR	850	504	m552	564	621	563	621	563	621
Northbound LTR	125	272	396	312	m388	321	m396	320	m#413
Southbound LTR	250	235	#335	~360	#488	~365	#494	~365	#485
<b>North Capitol Street &amp; M Street</b>									
Eastbound (To NB N Cap)	230	306	#490	~485	#718	~496	#731	~509	#746
Eastbound LTR	230	174	234	~509	#650	~517	#659	~520	#661
Northbound Thru	275	97	159	136	198	139	203	141	204
Northbound Right	275	94	190	121	m224	122	226	122	227
Southbound Thru	1375	474	582	632	#835	635	#838	635	#839
Southeastbound Right (From Service Road)	350	84	124	86	135	88	137	117	177
<b>North Capitol Street &amp; L Street</b>									
Eastbound LTR	825	7	m21	78	m135	88	m154	9	28
Westbound LTR	775	79	150	123	#242	106	#219	119	207
Northbound TR	350	137	160	143	165	142	165	155	178
Southbound LT	575	26	20	89	m113	89	m114	121	m153



Intersection & Lane Group	Storage Length (ft)	Existing Conditions (2018)		Future without Development Conditions (2021)		Future with Development Conditions (2021)		Future with Development Conditions (2021) with Reconfigured L Street	
		AM Peak Hour		AM Peak Hour		AM Peak Hour		AM Peak Hour	
		50th %	95th %	50th %	95th %	50th %	95th %	50th %	95th %
<b>North Capitol Street &amp; K Street</b>									
Eastbound Left	100	78	141	84	m146	84	m146	83	m141
Eastbound Thru	725	229	320	262	359	260	359	270	m371
Eastbound Right	90	3	m15	9	m37	9	m37	9	m36
Westbound Left	100	43	77	47	83	47	83	47	83
Westbound TR	800	238	308	241	312	242	312	242	312
Westbound Right	90	--	--	--	--	--	--	--	--
Northbound LTR	350	204	241	216	277	216	278	216	276
Southbound TR	350	172	246	188	362	189	377	178	m300
<b>First Street &amp; M Street, NW</b>									
Eastbound LTR	300	309	365	773	904	790	925	692	807
Northbound TR	275	139	219	147	230	156	241	162	250
Southbound LT	125	35	m46	52	m51	52	m52	50	m50
<b>First Street &amp; Pierce Street, NW</b>									
Eastbound LR/LTR	585	--	7	--	8	--	10	--	8
Westbound LTR	485	--	--	--	--	--	10	--	9
Northbound LT/LTR	275	--	2	--	2	--	2	--	2
Southbound TR/LTR	275	--	0	--	0	--	0	--	0
<b>First Street &amp; L Street, NW</b>									
Eastbound LTR	485	--	4	--	5	--	6	--	4
Westbound LTR	825	--	5	--	6	--	15	--	19
Northbound LTR	365	--	2	--	2	--	2	--	2
Southbound LTR	275	--	0	--	8	--	8	--	0
<b>First Street &amp; K Street, NW</b>									
Eastbound LTR	350	117	165	70	100	70	100	70	100
Westbound LTR	725	68	81	64	101	69	107	59	95
Northbound LTR	350	93	151	89	156	89	156	91	159
Southbound LTR	365	92	151	108	#194	114	#213	125	#243
<b>M Street &amp; First Place, NW</b>									
Eastbound Thru	215	--	0	--	0	--	0	--	0
Northbound Right	350	--	1	--	1	--	2	--	2
<b>M Street &amp; First Terrace, NW</b>									
Eastbound TR	475	--	0	--	0	--	--	--	--
Northbound Right	350	--	--	--	--	--	--	--	--
<b>North Capitol Street (SB) and New York Avenue</b>									
Eastbound TR	850	217	244	224	m248	224	m248	241	m272



Intersection & Lane Group	Storage Length (ft)	Existing Conditions (2018)		Future without Development Conditions (2021)		Future with Development Conditions (2021)		Future with Development Conditions (2021) with Reconfigured L Street	
		AM Peak Hour		AM Peak Hour		AM Peak Hour		AM Peak Hour	
		50th %	95th %	50th %	95th %	50th %	95th %	50th %	95th %
Westbound Left	250	32	m72	48	m93	50	m95	58	m104
Westbound Thru	50	45	47	403	m81	402	m81	402	m81
Southbound LT	375	67	112	~528	#739	~528	#739	~544	#757
Southbound Right	375	157	#309	130	#303	130	#303	130	#303
<b>North Capitol Street (NB) and New York Avenue</b>									
Eastbound TR	50	36	50	387	m395	387	m395	396	m415
Westbound TR	825	252	270	246	269	247	269	247	269
Northbound LT	225	189	264	~395	#595	~395	#595	~395	#595
Northbound Right	225	0	49	0	52	0	69	0	69
Northwestbound Right (from N Street)	725	0	0	0	0	0	0	0	0
<b>K Street &amp; New Jersey Avenue, NW</b>									
Eastbound LT/LTR	550	68	94	90	125	90	125	90	125
Westbound TR/LTR	350	144	187	346	#521	368	#543	332	#513
Northbound Left	100	149	230	127	206	127	206	127	206
Northbound TR	375	183	219	302	382	302	382	302	382
Southbound Left	100	--	--	11	34	11	34	11	34
Southbound TR	275	--	--	57	100	57	100	57	100
<b>Pierce Street &amp; First Place, NW</b>									
Eastbound LR	500					--	1	--	1
Northbound LT	300			For Future Use		--	2	--	2
Southbound TR	300					--	0	--	0
<b>L Street &amp; First Place, NW</b>									
Eastbound LT	485					--	1	--	--
Westbound TR	275			For Future Use		--	--	--	0
Southbound LR	300					--	5	--	5
<b>First Place and Garage Driveway, NW</b>									
Eastbound LR	50					--	10	--	10
Northbound LT	250			For Future Use		--	1	--	0
Southbound TR	25					--	0	--	0

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

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

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



**Table 10: PM Peak Hour Queueing Results (in feet)**

Intersection & Lane Group	Storage Length (ft)	Existing Conditions (2018)		Future without Development Conditions (2021)		Future with Development Conditions (2021)		Future with Development Conditions (2021) with Reconfigured L Street	
		PM Peak Hour		PM Peak Hour		PM Peak Hour		PM Peak Hour	
		50th %	95th %	50th %	95th %	50th %	95th %	50th %	95th %
<b>New York Avenue &amp; First Street, NW</b>									
Eastbound TR	715	287	321	292	326	292	326	297	331
Westbound TR	850	282	325	343	886	343	885	343	885
Northbound LTR	125	317	m#474	321	m#509	321	m#510	325	m#500
Southbound LTR	250	~684	#912	~862	#1101	~877	#1115	~866	#1105
<b>North Capitol Street &amp; M Street</b>									
Eastbound (To NB N Cap)	230	205	314	216	329	217	331	217	331
Eastbound LTR	230	151	208	210	282	213	286	216	289
Northbound Thru	275	84	92	183	m193	185	m195	183	m194
Northbound Right	275	64	82	~628	m#777	~629	m#781	~631	m#789
Southbound Thru	1375	252	312	267	331	273	338	275	340
Southeastbound Right (From Service Road)	350	54	83	51	84	54	89	59	96
<b>North Capitol Street &amp; L Street</b>									
Eastbound LTR	825	10	m27	25	m55	30	m59	4	17
Westbound LTR	775	107	188	~611	#833	~608	#830	~592	#816
Northbound TR	350	227	287	257	321	257	321	264	330
Southbound LT	575	212	283	253	#381	262	#403	288	#477
<b>North Capitol Street &amp; K Street</b>									
Eastbound Left	100	111	166	99	161	99	162	98	m155
Eastbound Thru	725	252	300	256	302	254	302	261	309
Eastbound Right	90	--	--	--	--	--	--	--	--
Westbound Left	100	40	74	41	76	41	76	41	76
Westbound TR	800	261	#410	272	#431	277	#441	272	#431
Westbound Right	90	3	41	3	41	3	41	5	43
Northbound LTR	350	161	199	190	233	190	233	190	233
Southbound TR	350	303	m384	~381	m369	~438	m376	316	m296
<b>First Street &amp; M Street, NW</b>									
Eastbound LTR	300	238	286	308	365	337	400	328	388
Northbound TR	275	178	#298	178	#298	178	#298	187	#317
Southbound LT	125	44	m32	39	m22	40	m22	40	m22
<b>First Street &amp; Pierce Street, NW</b>									
Eastbound LR/LTR	585	--	7	--	7	--	9	--	9
Westbound LTR	485	--	--	--	--	--	4	--	4
Northbound LT/LTR	275	--	2	--	2	--	2	--	2



Intersection & Lane Group	Storage Length (ft)	Existing Conditions (2018)		Future without Development Conditions (2021)		Future with Development Conditions (2021)		Future with Development Conditions (2021) with Reconfigured L Street	
		PM Peak Hour		PM Peak Hour		PM Peak Hour		PM Peak Hour	
		50th %	95th %	50th %	95th %	50th %	95th %	50th %	95th %
Southbound TR/LTR	275	--	0	--	0	--	1	--	2
<b>First Street &amp; L Street, NW</b>									
Eastbound LTR	485	--	10	--	10	--	11	--	10
Westbound LTR	825	--	5	--	5	--	6	--	49
Northbound LTR	365	--	1	--	1	--	1	--	1
Southbound LTR	275	--	0	--	2	--	3	--	0
<b>First Street &amp; K Street, NW</b>									
Eastbound LTR	350	38	50	61	83	61	83	61	83
Westbound LTR	725	146	m198	556	m630	599	m#772	156	m195
Northbound LTR	350	79	144	79	145	79	145	79	145
Southbound LTR	365	134	205	129	212	133	217	147	#254
<b>M Street &amp; First Place, NW</b>									
Eastbound Thru	215	--	0	--	0	--	0	--	0
Northbound Right	350	--	0	--	0	--	1	--	1
<b>M Street &amp; First Terrace, NW</b>									
Eastbound TR	475	--	0	--	0	--	--	--	--
Northbound Right	350	--	--	--	--	--	--	--	--
<b>North Capitol Street (SB) and New York Avenue</b>									
Eastbound TR	850	270	m281	273	m283	273	m283	276	m286
Westbound Left	250	47	m107	59	m73	71	m81	73	m82
Westbound Thru	50	33	m36	496	m360	495	m360	495	m360
Southbound LT	375	139	216	218	#354	218	#354	220	#356
Southbound Right	375	0	25	0	25	0	25	0	25
<b>North Capitol Street (NB) and New York Avenue</b>									
Eastbound TR	50	68	72	98	103	98	103	98	104
Westbound TR	825	129	146	131	148	132	150	132	150
Northbound LT	225	~385	#586	~2039	#2304	~2039	#2304	~2039	#2304
Northbound Right	225	0	23	0	35	0	45	0	0
Northwestbound Right (from N Street)	725	0	0	0	0	0	0	0	0
<b>K Street &amp; New Jersey Avenue, NW</b>									
Eastbound LT/LTR	550	228	286	218	279	218	279	218	279
Westbound TR/LTR	350	196	262	145	m224	173	m205	202	268
Northbound Left	100	106	164	116	188	116	188	116	188
Northbound TR	375	129	155	272	343	272	343	272	343
Southbound Left	100	--	--	24	63	24	63	24	63
Southbound TR	275	--	--	62	104	62	104	62	104



Intersection & Lane Group	Storage Length (ft)	Existing Conditions (2018)		Future without Development Conditions (2021)		Future with Development Conditions (2021)		Future with Development Conditions (2021) with Reconfigured L Street	
		PM Peak Hour		PM Peak Hour		PM Peak Hour		PM Peak Hour	
		50th %	95th %	50th %	95th %	50th %	95th %	50th %	95th %
<b>Pierce Street &amp; First Place, NW</b>									
Eastbound LR	500					--	2	--	3
Northbound LT	300	<b>For Future Use</b>				--	1	--	1
Southbound TR	300					--	0	--	0
<b>L Street &amp; First Place, NW</b>									
Eastbound LT	485					--	2	--	--
Westbound TR	275	<b>For Future Use</b>				--	--	--	0
Southbound LR	300					--	2	--	3
<b>First Place and Garage Driveway, NW</b>									
Eastbound LR	50					--	5	--	5
Northbound LT	250	<b>For Future Use</b>				--	2	--	2
Southbound TR	25					--	0	--	0

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

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

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

**Table 11: AM Peak Hour LOS Results with Mitigations**

Intersection & Approach	Existing Conditions (2018)		Future without Development Conditions (2021)		Future with Development Conditions (2021)		Future with Development Conditions (2021) with Reconfigured L Street		Future with Development Conditions (2021) with Reconfigured L Street with Mitigations	
	AM Peak Hour		AM Peak Hour		AM Peak Hour		AM Peak Hour		AM Peak Hour	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
<b>First Street &amp; K Street, NW</b>										
<b>Overall</b>	<b>12.7</b>	<b>B</b>	<b>12.8</b>	<b>B</b>	<b>13.4</b>	<b>B</b>	<b>13.9</b>	<b>B</b>	<b>14.0</b>	<b>B</b>
Eastbound	9.1	A	7.2	A	7.2	A	7.2	A	8.3	A
Westbound	6.0	A	6.5	A	7.0	A	6.1	A	7.3	A
Northbound	41.2	D	40.6	D	40.7	D	41.0	D	38.4	D
Southbound	43.5	D	50.9	D	52.4	D	59.1	E	51.3	D



**Table 12: PM Peak Hour LOS Results with Mitigations**

Intersection & Approach	Existing Conditions (2018)		Future without Development Conditions (2021)		Future with Development Conditions (2021)		Future with Development Conditions (2021) with Reconfigured L Street		Future with Development Conditions (2021) with Reconfigured L Street (Mitigated)	
	<i>PM Peak Hour</i>		<i>PM Peak Hour</i>		<i>PM Peak Hour</i>		<i>PM Peak Hour</i>		<i>PM Peak Hour</i>	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
<b>North Capitol Street &amp; L Street</b>										
<b>Overall</b>	<b>29.7</b>	<b>C</b>	<b>110.9</b>	<b>F</b>	<b>110.0</b>	<b>F</b>	<b>103.1</b>	<b>F</b>	<b>100.1</b>	<b>F</b>
Eastbound	35.0	C	36.8	D	38.0	D	34.7	C	34.7	C
Westbound	48.7	D	478.1	F	470.0	F	399.7	F	399.7	F
Northbound	13.8	B	13.4	B	13.4	B	14.2	B	21.8	C
Southbound	41.5	D	47.0	D	49.6	D	61.8	E	48.1	D

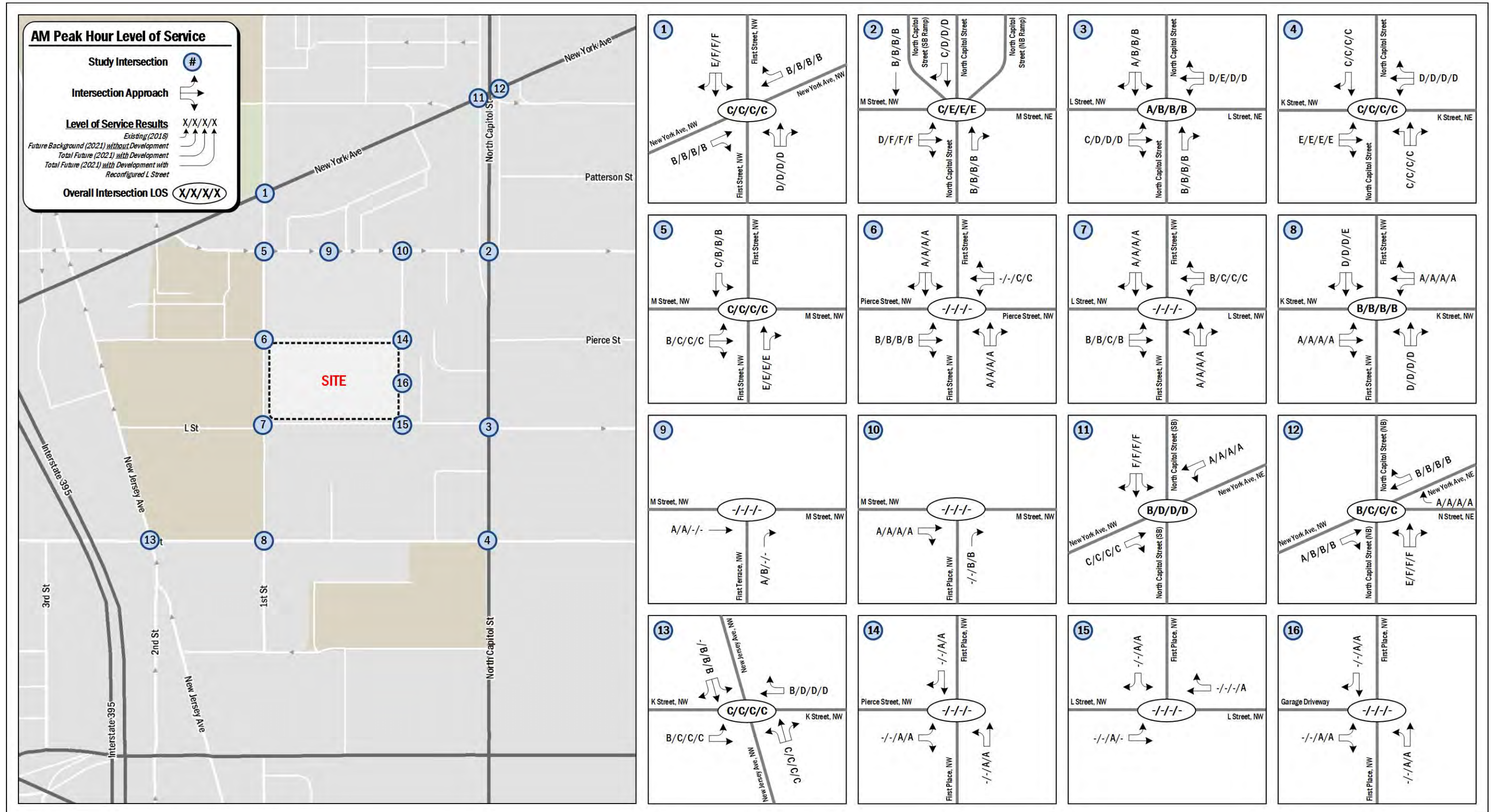


Figure 26: Morning Peak Hour Capacity Analysis Results



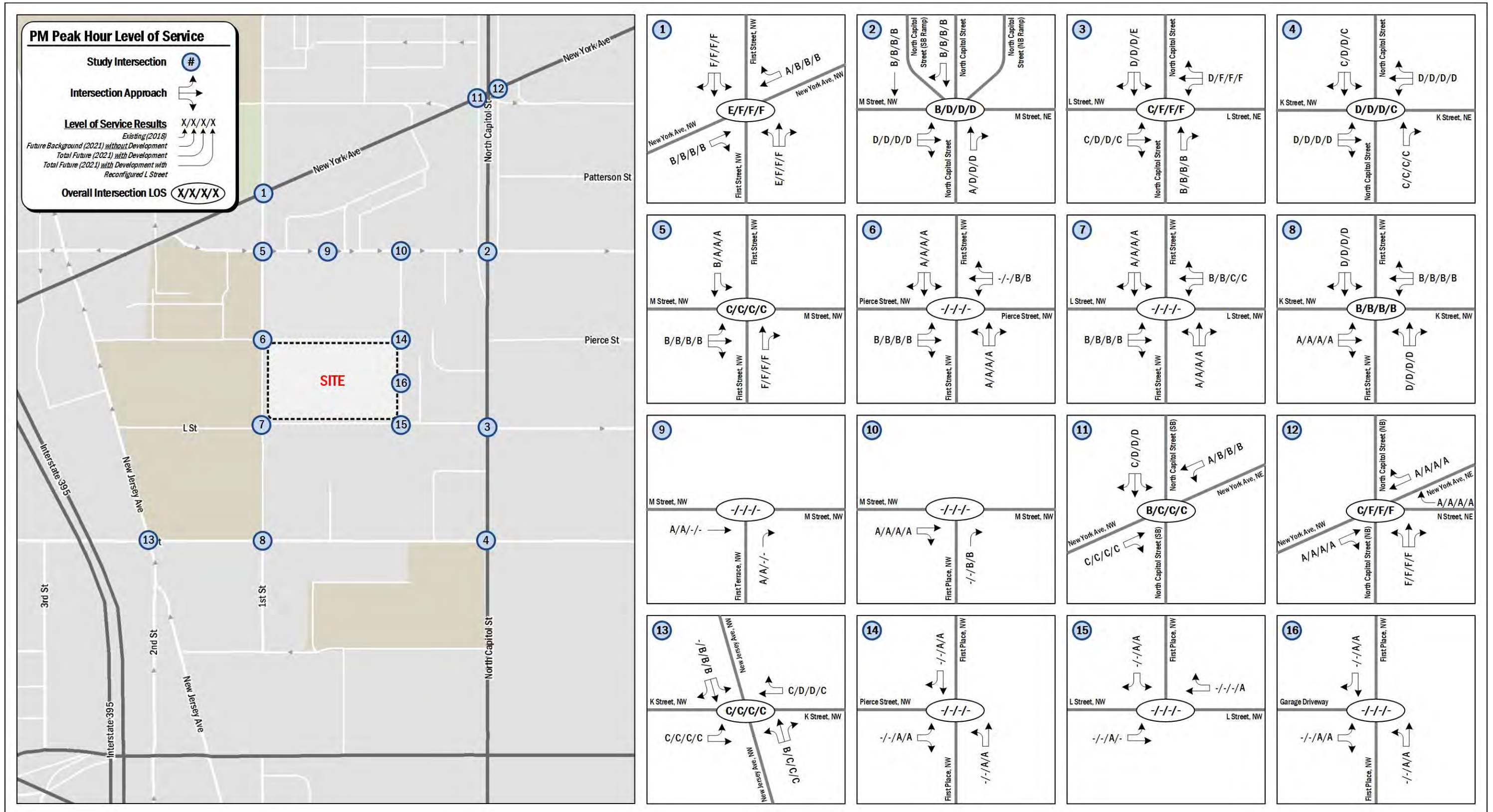


Figure 27: Afternoon Peak Hour Capacity Analysis Results



## TRANSIT

This section reviews existing and proposed transit facilities in the vicinity of the site, discusses accessibility to transit, and evaluates the overall transit impacts of the Sursum Corda project.

This chapter concludes that:

- The development site is approximately 0.4 miles from the NoMa-Gallaudet U Metrorail station, just over half a mile from the Mt Vernon Sq/7<sup>th</sup> Street-Convention Center Metrorail station and is surrounded by several Metrobus routes that travel along multiple primary corridors.
- The site is expected to generate a manageable amount of transit trips, and the existing service can accommodate these new trips.

### EXISTING TRANSIT SERVICE

The study area is well-served by both Metrorail and Metrobus. Combined, these transit services provide local and regional transit connections and link the site with major cultural, residential, employment, and commercial destinations throughout the region. Figure 28 identifies the major transit routes, stations, and stops in the study area.

The NoMa-Gallaudet U Metrorail station is located approximately 0.4 miles from the development site and is served by the Red Line. The Red Line travels south from Shady Grove, travels through downtown DC, and continues north to Glenmont. The site is also just over half a mile from the Mt Vernon Sq/7<sup>th</sup> St-Convention Center Metrorail Station which serves the Green and Yellow lines. The Green and Yellow Lines travel through the District core and serve destinations in the District, Virginia and Maryland. The Green line terminates to the south at Branch Avenue station in Maryland and to the north in Greenbelt, Maryland. The Yellow Line terminates to the north at Fort Totten near the border of Maryland and the District and to the south in Huntington, Virginia.

Trains run approximately every three minutes during the morning and afternoon peak periods. They run about every 5 to 6 minutes during weekday non-peak periods, every 10 to 15 minutes on weekday evenings after 7 pm and 6 to 16 minutes on the weekends.

The site is also serviced by Metrobus along multiple primary corridors. These bus lines connect the site to many areas of the District, including several Metrorail stations serving all six Metrorail lines. Table 13 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 13: Metrobus Route Information**

Route Number	Route Name	Service Hours	Headway	Walking Distance to Nearest Bus Stop
80	North Capitol Street Line	Weekdays: 4:30 am - 1:20 am Weekends: 4:40 am - 12:15 am	15 - 30 min	< 0.1 miles (< 2 minutes)
96	East Capitol Street-Cardozo Line	Monday-Saturday: 4:45 am - 3:55 am Sundays: 5:00 am - 1:25 am	10 - 30 min	< 0.1 miles (< 2 minutes)
D3	Ivy City-Dupont Circle Line	Weekdays: 4:15 am - 1:00 am Weekends: 5:00 am - 1:00 am	15 - 30 min	0.25 miles (5 minutes)
D4	Ivy City-Franklin Square Line	Weekdays: 4:15 am - 1:00 am Weekends: 5:00 am - 1:00 am	15 - 30 min	0.1 miles (2 minutes)
P6	Anacostia-Eckington Line	Monday-Saturday: 5:15 am - 2:00 am Sundays: 6:45 am - 12:15 am	12 - 30 min	directly adjacent to the site



**Table 14: Transit Stop Requirements**

Feature	Basic Stop	Enhanced Service Bus Stop	Transit Center
Bus Stop Sign	Yes	Yes	Yes
ADA 5'x8' Landing Pad - at a minimum, a clear, unobstructed, paved boarding area that is 8 feet deep (perpendicular to the curb) by 5 feet wide (parallel to the curb) and compliant with the ADA Accessibility Guidelines (ADAAG)	Yes	Yes	Yes
Sidewalk - connected by a paved sidewalk that is at least 4 feet wide	Yes	Yes	Yes
Lighting - adequate lighting either from street lights, lights from an adjacent business, or shelter lighting (particularly stops that are served in the evenings)	Evening Service	Yes	Yes
Seating	Trip Generator Based	Yes	Yes
Information Case - detailed schedule information on services	Yes	Yes	Yes
Trash Receptacle - trash receptacle (particularly at locations that are close to fast food establishments and convenient stores)	Site Specific	Yes	Yes
Shelter(s) - shelter with interior seating if there are 50 or more boardings per day (including transfers)	1 (50+ boardings/day)	1	2+
System Map	Contingent on Shelter	Yes	Yes
Real-time Display (LED + Audio)	Optional	Yes	Yes
Interactive Phone System On-Site - real time bus arrival information through an interactive phone and push button audio system	No	No	Yes
Expanded Boarding & Alighting Area (Rear-door Access)	No	Site Specific	Yes
Bus Bay (Pull Off)	No	Site Specific	Yes



**Table 15: Transit Stop Inventory**

Location	Stop ID	Routes Served	Features							
			Sign	ADA Landing Pad	Side-walk	Street Light-ing	Info Case	Seating	Shelter	Trash Recep.
M Street & First Place NW (EB)	1001338	96	●	●	●	●				
North Capitol Street & M Street (NB)	1001328	80, P6	●	●	●	●	●	●	●	●
North Capitol Street & Pierce Street (SB)	1001306	80, 96, P6	●	●	●	●				
North Capitol Street & K Street (NB)	1001269	80, P6	●	●	●	●				●
North Capitol Street & K Street (SB)	1001206	80, 96	●	●	●	●				●
K Street & North Capitol Street (WB)	1003657	D4	●	●	●	●				●
K Street & North Capitol Street (EB)	1003648	D4	●	●	●	●				●
K Street & First Street NW (EB)	1003649	D4, P6	●	●	●	●				●
K Street & New Jersey Avenue NW (WB)	1003639	D4, P6	●	●	●	●		●	●	●
New Jersey Avenue & K Street NW (NB)	1001260	96	●	●	●	●	●	●	●	●
New Jersey Avenue & Pierce Street NW (NB)	1001301	96	●	●	●	●	●	●	●	●

**PROPOSED TRANSIT SERVICE**

**MoveDC**

Due to growth of population, jobs, and retail in several neighborhoods in the District and the potential for growth in other neighborhoods, the District’s infrastructure is challenged with the need for transportation investments to support the recent growth and to further strengthen neighborhoods. In order to meet these challenges and capitalize on future opportunities, DDOT has developed a plan to identify transit challenges and opportunities and to recommend investments. *MoveDC* is a long-range plan that provides a vision for the future of DC’s transportation system, specifically in a way that expands transportation choices while improving the reliability of all transportation modes.

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

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

**WMATA and DDOT Transit Studies**

WMATA and DDOT have published two Metrobus studies: the *Metrobus North Capitol Street Line Study: Route 80* in October 2013 and the *Metrobus Service Evaluation Study: East Capitol Street-Cardozo Line (Route 96/97)* in January 2013. The *North Capitol Street Line Study* evaluates additional express route that is considered for the 80 Line. This route would likely have 15 minute headways, which would add four new buses per



hour to the North Capitol Street Corridor. Currently it is only expected to operate during peak periods on weekday, but there is potential for adding mid-day, late night, and weekend service in the future. The majority of recommendations in the *East Capitol-Cardozo Line Study* would not impact the development; however, it is possible that 96 buses traveling southbound will be rerouted to New Jersey Avenue as part of the New Jersey Avenue two-way conversion. This would relocate southbound 96 stops slightly further from the site, but still within a quarter mile.

### SITE-GENERATED TRANSIT IMPACTS

The proposed development is projected to generate 124 transit trips (25 inbound, 99 outbound) during the morning peak hour and 146 transit trips (94 inbound, 52 outbound) during the afternoon peak hour.

US Census data was used as a basis for determining the distribution of those taking Metrorail and those taking Metrobus. The site lies on the far east side of TAZ 20203 which shows that approximately 15 percent of transit riders used Metrorail and the remaining 85 percent use Metrobus. Given the sites position within the TAZ, it is expected that the Metrorail split for the site will be higher than the overall TAZ. It was assumed that approximately 50 percent of transit trips would be via Metrorail and 50 percent via Metrobus.

WMATA studied capacity of Metrorail stations in its *Station Access & Capacity Study*. The study analyzed the capacity of Metrorail stations for their vertical transportation, for example the capacity of the station at elevators, stairs, and escalators to shuttle patrons between the street, mezzanine, and platforms. The study also analyzed stations capacity to process riders at fare card gates. For both analyses, vertical transportation and fare card gates, volume-to-capacity ratios were calculated for existing data (from 2005) and projections for the year 2030. According to the study, high volume-to-capacity ratios were not observed at the NoMa-Gallaudet U Station in 2005 nor are they expected by 2030. However, this station had only been open for approximately one year when data was collected.

WMATA also studied capacity along Metrobus routes. DC's *Transit Future System Plan (2010)* lists the bus routes with the highest load factor (a ratio of passenger volume to bus capacity). A load factor is considered unacceptable if it is over 1.2 during peak periods or over 1.0 during off-peak or weekend periods. According to this study, two of the Metrobus routes that travel near the site, the D3 Line and the X1 line, exceed acceptable load factors. The remaining four lines do not experience any existing capacity concerns. Based on this information and the peak period headways of the surrounding Metrobus routes, it is not expected that site-generated transit trips will cause detrimental impacts to Metrobus service.

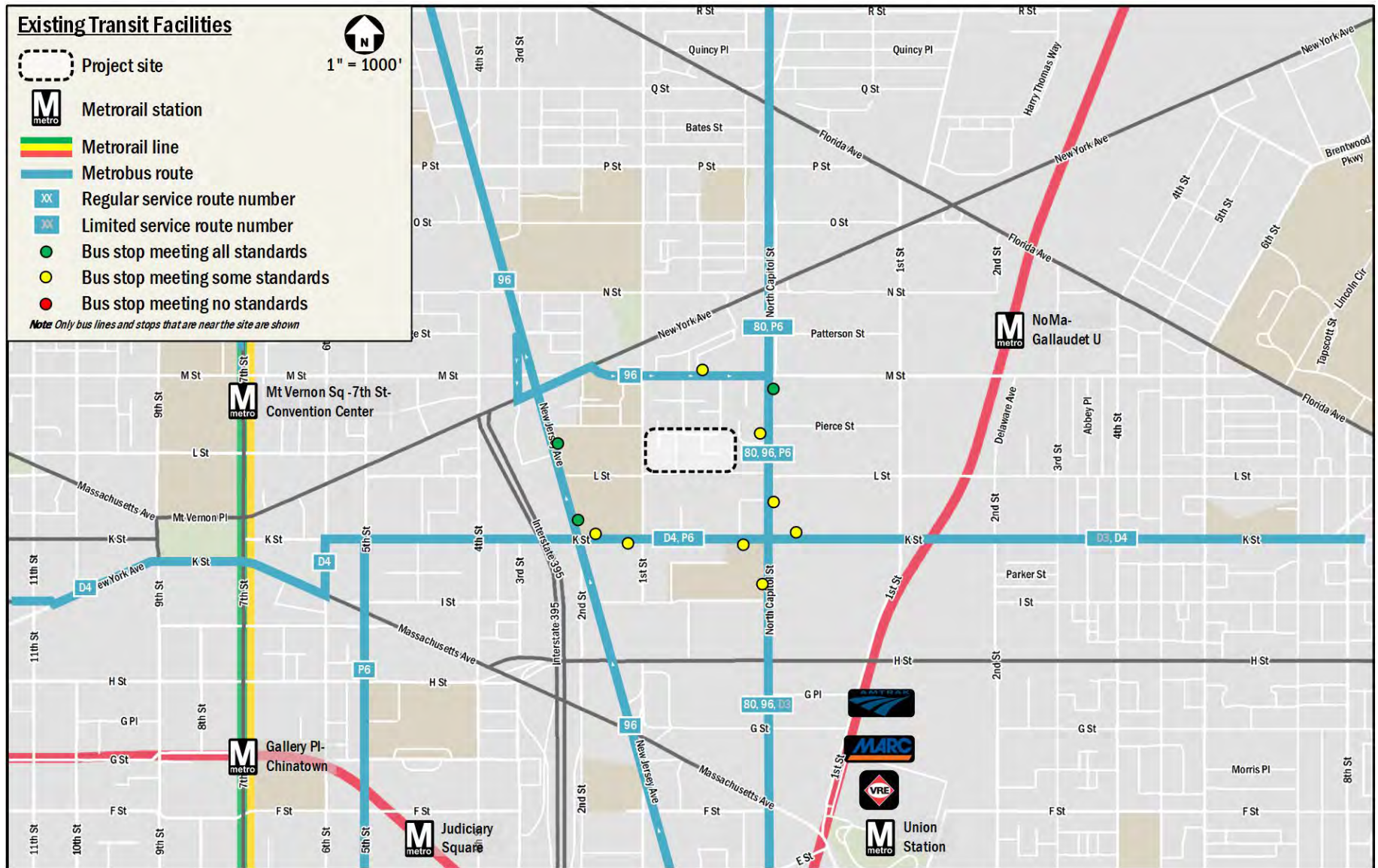


Figure 28: Existing Transit Service



## PEDESTRIAN FACILITIES

This section summarizes the existing and future pedestrian access to the site and reviews walking routes to and from the site.

The following conclusions are reached within this chapter:

- The existing pedestrian infrastructure surrounding the site provides an excellent walking environment. There are some barriers near the site, but overall there is a well-connected pedestrian network.
- The site will improve the overall pedestrian environment on site by providing improved or new sidewalks along the interior and perimeter of the site, most notably along First Street and L Street where sidewalks do not currently meet DDOT standards, and by constructing a public pedestrian plaza through the site.
- Additional pedestrian improvements will be made off-site that will enhance pedestrian safety and improve the pedestrian connectivity in the neighborhood.

### PEDESTRIAN STUDY AREA

Facilities within a quarter-mile of the site were evaluated as well as routes to the NoMa-Gallaudet U Metrorail station portals. The site is easily accessible to Metrorail along M Street and several Metrobus stops along M Street, New Jersey Avenue, North Capitol Street, K Street, and H Street. There are some barriers and areas of concern within the study area that negatively impact the quality of and attractiveness of the walking environment. This includes I-395 and the Red Line Metrorail tracks which create some limitations to the number of pedestrian connections available to the east and west. Figure 29 shows suggested pedestrian pathways, walking time and distances, and barriers or areas of concern.

**Table 16: Sidewalk Requirements**

Street Type	Minimum Sidewalk Width	Minimum Buffer Width
Residential (Low to Moderate Density)	6 ft	4 ft (6 ft preferred for tree space)
Residential (High Density)	8 ft	4 ft (6 ft preferred for tree space)
Commercial (Non-downtown)	10 ft	4 ft
Downtown	16 ft	6 ft

## PEDESTRIAN INFRASTRUCTURE

This section outlines the existing and proposed pedestrian infrastructure within the pedestrian study area.

### Existing Conditions

A review of pedestrian facilities surrounding the planned development shows that many facilities meet DDOT standards and provide a quality walking environment. Figure 30 shows a detailed inventory of the existing pedestrian infrastructure surrounding the site. Sidewalks, crosswalks, and curb ramps are evaluated based on the guidelines set forth by DDOT's *Public Realm Design Manual* in addition to ADA standards. Sidewalk widths and requirements for the District are shown below in Table 16.

Within the area shown, there are a variety of roadway types ranging from low to moderate density residential, like the area surrounding the existing site, high density residential, such as the new apartment buildings near the Metro, and non-downtown commercial, such as the office buildings along K Street. Most of the sidewalks surrounding the site comply with DDOT standards; however, there are some areas that do not have adequate sidewalks or lack sidewalks completely. Some of these sidewalks, such as those along M Street and Patterson Street will likely be improved as part of the background developments and the Sursum Corda development itself will result in pedestrian improvements around the perimeter of and within the site.

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

### SITE IMPACTS

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



### **Pedestrian Trip Generation**

The planned development is expected to generate 25 walking trips (5 inbound, 20 outbound) during the morning peak hour and 29 walking trips (19 inbound, 10 outbound) during the afternoon peak hour. The origins and destinations of these trips are likely to be:

- Employment opportunities where residents can walk to work
- Retail locations in the vicinity of the site
- Employees and patrons of the Sursum Corda development
- Nearby neighborhood destinations, such as schools or community gathering areas

In addition to these trips, the transit trips generated by the site will also generate pedestrian demand between the site and nearby transit stops. About 50 percent of these will be walking to the NoMa-Gallaudet U Metrorail station located approximately 0.4 miles from the site and the rest will be walking to Metrobus stops, which are primarily located along M Street, North Capitol Street, K Street, New Jersey Avenue, and H Street.

### **On-Site Pedestrian Infrastructure**

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

Within the site, and consistent with the Stage 1 PUD, the development will provide new or improved sidewalks along the interior and perimeter of the site. This will be particularly beneficial along First Street where insufficient pedestrian facilities currently exist, and along L Street where no sidewalks exist and the roadway functions more like an alley than a street.

In addition, a public north-south pedestrian plaza will be implemented through the center of the site, providing an additional pedestrian connection that enhances the overall pedestrian environment in the vicinity of the site. As part of Phase 1, the pedestrian plaza will be constructed between L Street and the new private extension of Pierce Street.

### **Off-Site Pedestrian Infrastructure**

In addition to pedestrian improvements within the site and along the perimeter, the Applicant will improve the northern pedestrian crosswalk at the intersection of L Street and North Capitol Street, such that the crosswalk no longer enters the west side of the street at the L Street curb cut, in the event that this improvement has not yet been completed by DDOT.

The review of pedestrian infrastructure also noted deficiencies at the intersection of First Street and L Street NW. Although this intersection does not meet all-way stop sign warrants, this report recommends enhancements to curb ramps and crosswalk markings be performed at this location to improve the pedestrian environment.



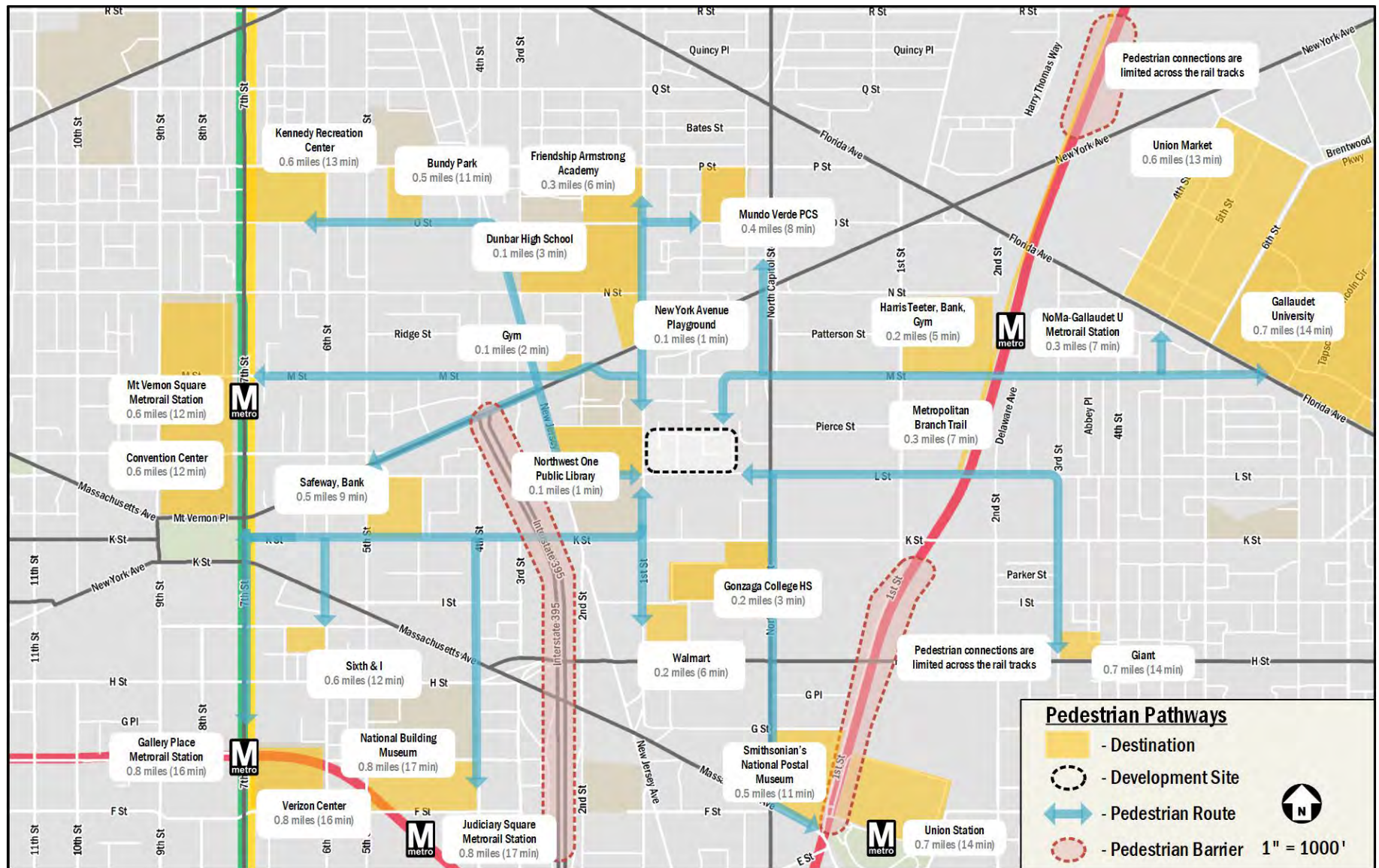


Figure 29: Pedestrian Pathways

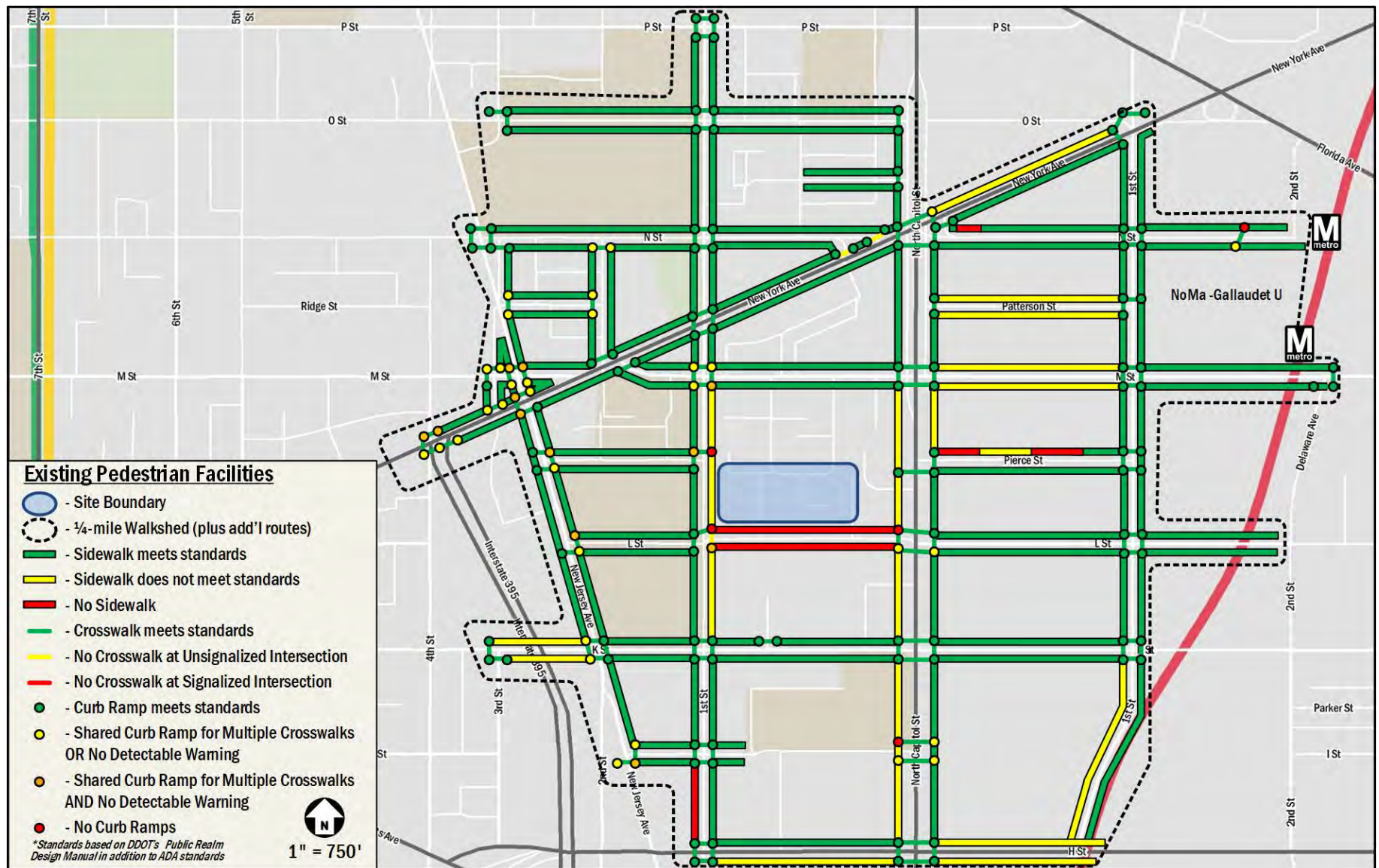


Figure 30: Existing Pedestrian Infrastructure



## BICYCLE FACILITIES

This section summarizes existing and future bicycle access, reviews the quality of cycling routes to and from the site, and presents recommendations.

The following conclusions are reached within this chapter:

- The site has access to several on- and off-street bicycle facilities including the Metropolitan Branch Trail.
- New north-south bicycle lanes will be constructed near the site along New Jersey Avenue as part of the *New Jersey Avenue Safety Upgrades & Two-Way Conversion Project*.
- The site is not expected to generate a significant amount of bicycle trips, therefore all site-generated bike trips can be accommodated on existing infrastructure.
- The development site will include long-term bicycle parking within the parking garages and short-term bicycle parking within the site and along the perimeter of the site that meet zoning requirements. The Applicant has also agreed to install a Capital Bikeshare station within the perimeter of the site.

### EXISTING BICYCLE FACILITIES

The site has access to existing on- and off-street bicycle facilities. The Sursum Corda development is located just blocks from the Metropolitan Branch Trail that runs along the Metrorail Red Line and several north-south and east-west bicycle lanes and cycle tracks. Although none of these facilities are directly adjacent to the site, lower-volume local streets can typically be used to access these facilities. Figure 31 illustrates existing and proposed bicycle facilities in the area, as well as anticipated access routes to and from the site.

No bike parking is provided along the perimeter of the site under existing conditions.

The Capital Bikeshare program provides an additional cycling option for residents, employees, and visitors throughout the District. The Bikeshare program has placed over 500 bicycle-share stations across Washington, DC, Arlington County, the City of Alexandria, and Fairfax County in Virginia, and Montgomery County and Prince George's County in Maryland with over 4,300 bicycles provided. Within a quarter-mile of the site there are three (3) Capital Bikeshare stations that house a

total of 48 docks. Figure 31 illustrates these and other Capital Bikeshare locations in the area.

In addition to Capital Bikeshare, DDOT has engaged in pilot programs with several dockless bikeshare and electric scooter share companies, allowing an additional option for point-to-point transportation. Bicycle and scooter availability is tracked through mobile phone applications for each company individually.

### PROPOSED BICYCLE FACILITIES

#### MoveDC

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

##### Tier 1

Investments should be considered as part of DDOT's 6-year Transportation Improvement Program (TIP) and annual work program development, if they are not already included. Some projects may be able to move directly into construction, while others become high priorities for advancement through the Project Development Process.

##### Tier 2

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

##### Tier 3

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

##### Tier 4

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

Due to the timeline of the Sursum Corda development, this report focuses on the Tier 1 and Tier 2 recommendations within the vicinity of the site. These include a cycletrack along M Street NW/NE between First Street NE and Thomas Circle



NW and an off-street bicycle trail along New York Avenue between M Street NW and the Maryland state line.

Although these projects are discussed in the MoveDC plan, they are not currently funded or included in DDOT's Transportation Implementation Plan thus they will not be assumed as complete for this analysis.

In addition to the MoveDC plan, the *New Jersey Avenue Safety Upgrades & Two-Way Conversion Project* will implement north and southbound bicycle lanes along New Jersey Avenue between K Street and N Street NW.

## SITE IMPACTS

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

### **Bicycle Trip Generation**

The planned development is expected to generate six (6) bicycle trips (1 inbound, 5 outbound) during the morning peak hour and seven (7) bicycle trips (5 inbound, 2 outbound) during the afternoon peak hour. Although bicycling will be an important mode for getting to and from the site, with facilities located on site and routes to and from the site, the impacts from bicycling will be relatively less than impacts to other modes.

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

The project will provide amenities that cater to cyclists including long-term and short-term bicycle racks. Phase 1 will supply 188 secure long-term bicycle spaces. These spaces will be directly accessible from the First Place NW and from the parking garage access.

Short-term bicycle parking will be provided along the perimeter of the site near the primary pedestrian access points. The Phase 1 plans propose to include 15 bicycle racks along Pierce Street NW and L Street NW, providing a total of 30 short-term bicycle parking spaces.

Additionally, the Applicant has agreed to fund the installation (and one year of operations) of a Capital Bikeshare station within the perimeter of the site. The station is proposed to be located near the corner of First Street and L Street NW.

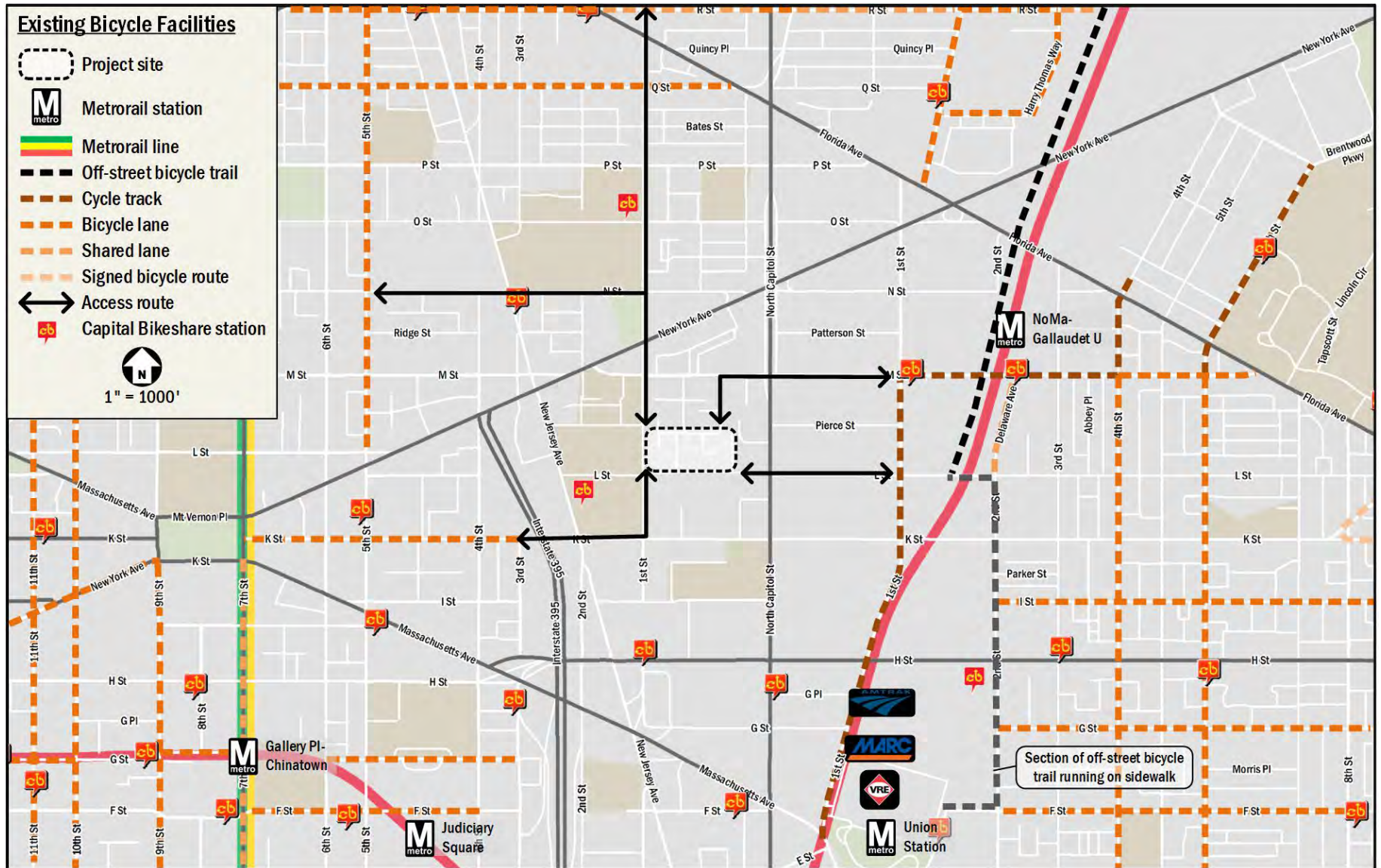


Figure 31: Existing and Proposed Bicycle Facilities



## CRASH DATA ANALYSIS

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

### SUMMARY OF AVAILABLE CRASH DATA

A crash analysis was performed to determine if there was an abnormally high crash rate at any study area intersection. DDOT provided the last three years of intersection crash data, from 2015 to 2017, for the study area. This data was reviewed and analyzed to determine the crash rate at each location. For intersections, the crash rate is measured in crash per million-entering vehicles (MEV). The crash rates per intersections are shown in Table 17.

According to the Institute of Transportation Engineers' *Transportation Impact Analysis for Site Development*, a crash rate of 1.0 or higher is an indication that further study is required. As shown in Table 17, seven (7) intersections in the

study area meets this criterion. The project should be developed in a manner to help alleviate, or at a minimum not add to, the conflicts at this intersection.

A rate over 1.0 does not necessarily mean there is a significant problem at an intersection, but rather it is a threshold used to identify which intersections may have higher crash rates due to operational, geometric, or other deficiencies. Additionally, the crash data does not provide detailed location information. In some cases, the crashes were located near the intersections and not necessarily within the intersection.

For the seven (7) intersections with elevated crash rates, the crash type information from the DDOT crash data was reviewed to see if there is a high percentage of certain crash types. Generally, the reasons for why an intersection has a high crash rate cannot be derived from crash data, as the exact details of each crash are not represented. However, some summaries of crash data can be used to develop general trends or eliminate possible causes. Table 18 contains a breakdown of crash types reported for the seven (7) intersections with a crash rate over 1.0 per MEV.

**Table 17: Intersection Crash Rates**

Intersection	Total Crashes	Ped Crashes	Bike Crashes	Rate per MEV*
1. New York Avenue & First Street NW	135	3	1	<b>2.56</b>
2. North Capitol Street & M Street	43	4	0	0.89
3. North Capitol Street & L Street	28	0	0	0.73
4. North Capitol Street & K Street	81	3	4	<b>1.67</b>
5. First Street & M Street NW	38	1	1	<b>2.06</b>
6. First Street & Pierce Street NW	8	0	1	<b>1.49</b>
7. First Street & L Street NW	8	0	1	<b>1.42</b>
8. First Street & K Street NW	24	1	3	0.88
9. M Street & First Terrace NW	14	1	0	<b>1.09</b>
10. M Street & First Place NW	9	0	1	0.70
11/12. North Capitol Street & New York Avenue	191	14	7	<b>3.61</b>
13. K Street & New Jersey Avenue NW	26	0	2	0.70

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



**Table 18: Crash Type Breakdown**

Intersection		Rate per MEV	Right Angle	Left Turn	Right Turn	Rear End	Sideswipe	Head On	Parked	Fixed Object	Ran Off Road	Ped. Involved	Backing	Non-Collision	Under/Over Ride	Unspecified	Total
1.	New York Ave & First St NW	<b>2.56</b>	2 1%	2 1%	0 0%	16 12%	41 30%	0 0%	4 3%	0 0%	0 0%	1 1%	0 0%	1 1%	0 0%	68 50%	<b>135</b>
4.	North Capitol St & K St	<b>1.67</b>	2 2%	1 1%	2 2%	6 7%	24 30%	0 0%	1 1%	1 1%	0 0%	0 0%	0 0%	1 1%	0 0%	43 53%	<b>81</b>
5.	First St & M St NW	<b>2.06</b>	0 0%	1 3%	0 0%	2 5%	14 37%	0 0%	0 0%	0 0%	0 0%	1 3%	0 0%	0 0%	0 0%	20 53%	<b>38</b>
6.	First St & Pierce St NW	<b>1.49</b>	0 0%	1 13%	0 0%	1 13%	1 13%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	5 63%	<b>8</b>
7.	First St & L St NW	<b>1.42</b>	0 0%	1 13%	0 0%	1 13%	1 13%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	5 63%	<b>8</b>
9.	M St & First Terr NW	<b>1.09</b>	0 0%	0 0%	0 0%	0 0%	2 14%	0 0%	4 29%	1 7%	0 0%	0 0%	0 0%	0 0%	0 0%	7 50%	<b>14</b>
11/12.	North Capitol St & New York Ave	<b>3.61</b>	3 2%	6 3%	3 2%	12 6%	70 37%	0 0%	1 1%	0 0%	0 0%	2 1%	1 1%	0 0%	0 0%	93 49%	<b>191</b>

**POTENTIAL IMPACTS**

This section reviews the seven (7) locations with existing crash rates over 1.0 MEV and reviews potential impacts of the proposed development.

- *New York Avenue & First Street NW*  
 This intersection is over the threshold of 1.0 crashes per MEV, with a rate of approximately 2.56 crashes per MEV over the course of the 3-year study period. Most specified crashes at this intersection were sideswipes and rear end collisions. Sideswipe crashes can often occur when a vehicle makes a last-second lane change or in a location with a significant presence of on-street parking. Rear end collisions can often occur when vehicles make frequent stops and starts.
- *North Capitol Street & K Street*  
 This intersection is over the threshold of 1.0 crashes per MEV, with a rate of approximately 1.67 crashes per MEV over the course of the 3-year study period. Most specified crashes at this intersection were sideswipes. Sideswipe crashes can often occur when a vehicle makes a last-second lane change or in a location with a significant presence of on-street parking.

- *First Street & M Street NW*  
 This intersection is over the threshold of 1.0 crashes per MEV, with a rate of approximately 2.06 crashes per MEV over the course of the 3-year study period. Most specified crashes at this intersection were sideswipes. Sideswipe crashes can often occur when a vehicle makes a last-second lane change or in a location with a significant presence of on-street parking.
- *First Street & Pierce Street NW*  
 This intersection is over the threshold of 1.0 crashes per MEV, with a rate of approximately 1.49 crashes per MEV over the course of the 3-year study period. Due to relatively low traffic volume at this intersection, there is no discernable pattern among the specified crash types.
- *First Street & L Street NW*  
 This intersection is over the threshold of 1.0 crashes per MEV, with a rate of approximately 1.42 crashes per MEV over the course of the 3-year study period. Due to relatively low traffic volume at this intersection, there is no discernable pattern among the specified crash types.



- *M Street & First Terrace NW*

This intersection is over the threshold of 1.0 crashes per MEV, with a rate of approximately 1.09 crashes per MEV over the course of the 3-year study period. Most specified crashes at this intersection were parked crashes. Parked crashes can often occur in locations with a significant presence of on-street parking.

First Terrace NW will be eliminated as part of the development.

- *North Capitol Street & New York Avenue*

This intersection is over the threshold of 1.0 crashes per MEV, with a rate of approximately 3.61 crashes per MEV over the course of the 3-year study period.

Most specified crashes at this intersection were sideswipes and rear end collisions. Sideswipe crashes can often occur when a vehicle makes a last-second lane change or in a location with a significant presence of on-street parking. Rear end collisions can often occur when vehicles make frequent stops and starts.

North Capitol Street & New York Avenue is one of the 101 intersections throughout the District where DDOT is planning to ban right turns on red in 2019.

The safety concerns at these intersections are primarily due to existing lane configurations and operations. The site-generated traffic at these intersections is minimal; thus, improvements are not recommended outside of those discussed in the Traffic Operations section.





## SUMMARY AND CONCLUSIONS

This report is a Comprehensive Transportation Review (CTR) of the Second-Stage Planned Unit Development (PUD) for Phase 1 of the Sursum Corda development. The report reviews the transportation aspects of the project's PUD application (Zoning Commission Case Number 15-20C). This report concludes that **the project will not have a detrimental impact** to the surrounding transportation network if all planned site design elements and mitigation measures are implemented.

### Proposed Project

The project, which will redevelop the existing Sursum Corda Cooperate housing development, is in the NoMa neighborhood of Northwest Washington, DC. The site is generally bounded by M Street to the north, First Place to the west, L Street to the south, and First Place and an existing alley to the east.

A Stage 1 PUD (for Phases 1 and 2) was previously approved by the Zoning Commission on May 9, 2016 by Zoning Commission Order No. 15-20. The Stage 1 PUD proposed a mixed-use development containing a mixture of residential, retail, office, and community space. As analyzed in the Stage 1 CTR, Phase 1 of the development was proposed to include 430 residential units, 8,315 square feet of community space, and 272 parking spaces. Phase 2 of the development was proposed to include 712 residential units, 23,225 square feet of retail space, 17,880 square feet of office space, and 474 parking spaces. This resulted in an overall development program of 1,152 residential units, 8,315 square feet of community space, 23,225 square feet of retail space, 17,880 square feet of office space, and 746 parking spaces.

The Stage 2 PUD for Phase 1 eliminates the non-residential uses on site and proposes 562 residential units and 300 parking spaces. Although not included in this Stage 2 PUD application, Phase 2 of the development now proposes to include 569 residential units, 19,100 square feet of retail space, and 446 parking spaces. This results in a total of 1,131 residential units, 19,100 square feet of retail space, and 746 parking spaces.

Vehicular access to Phase 1 of the development, including parking and loading access, will be from First Place NW via two curb cuts. This is considered an improvement over the Stage 1 PUD plan which included one (1) curb cut on First Place NW and one (1) curb cut on L Street NW. Based on the District's

initiative to reestablish L Street NW as a more important multi-modal connector, the site access is better suited along First Place NW which will handle lower volumes.

### Multi-Modal Impacts and Recommendations

#### *Transit*

The site is well-served by regional and local transit services such as Metrorail and Metrobus. The site is 0.4 miles from the NoMa-Gallaudet U Metrorail station serving the Red Line, and just over half a mile from the Mt Vernon Sq/7<sup>th</sup> Street-Convention Center Metrorail Station serving the Yellow and Green Lines. Metrobus stops are located near the site along M Street, North Capitol Street, New Jersey Avenue, and K Street.

Although the development will be generating new transit trips on the network, the existing facilities have enough capacity to handle the new trips. There is, however, an existing P6 bus stop along the perimeter of the site that the Applicant has agreed to improve as part of the public space improvements of the development.

#### *Pedestrian*

The site is surrounded by a well-connected pedestrian network. Although some areas of deficiency exist, most will be addressed as part of this redevelopment or other background developments. Most roadways within a quarter-mile radius provide sidewalks, crosswalks, and curb ramps that meet DDOT standards, particularly along primary walking routes. There are some pedestrian barriers surrounding the site such as limited connectivity to the east and west due to I-395 and Metrorail's Red Line tracks.

As a result of the planned development, pedestrian facilities along the perimeter of the site will be greatly improved, particularly along First Street and L Street. The east side of First Street and the north side of L Street currently do not meet DDOT standards and will be brought into compliance as part of the development. The development will ensure that sidewalks along the interior of the site also meet DDOT width requirements and provide an adequate pedestrian environment.

#### *Bicycle*

The site has adequate access to existing on-and off-street bicycle facilities. The Metropolitan Branch Trail travels along the Metrorail Red Line tracks and several east-west and north-south bicycle facilities surround the site.



On site, the planned development will provide 188 secure, long-term bicycle parking and provide 30 short-term bicycle spaces (in the form of 15 bicycle racks) within the interior and along the perimeter of the site. The Applicant will also fund the installation of a Capital Bikeshare station on-site to further increase the accessibility of cycling as an alternate mode of transportation.

#### *Vehicular*

The Sursum Corda site is well-connected to regional roadways such as I-395, as well as arterials such as North Capitol Street, New York Avenue, and H Street, and an existing network of collector and local roadways.

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

The following conclusions were made as part of the vehicular capacity analysis:

- Under existing conditions, the majority of intersections in the study area operate at acceptable conditions.
- Future areas of concern for roadway capacity are primarily along commuter routes such as North Capitol Street and New York Avenue
- Two intersections meet the criteria for triggering mitigations in the future scenario with a reconfigured L Street and can be effectively mitigated through signal timing adjustments. Vehicular impacts will be further studied as part of the Stage 2 PUD application for Phase 2 of the development.
- Overall, this report concludes that the project will not have a detrimental impact to the surrounding transportation network.

#### **Transportation Demand Management (TDM) Plan**

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 typically focuses on reducing the demand of single-occupancy, private

vehicles during peak period travel times or on shifting single-occupancy vehicular demand to off-peak periods.

Consistent with the Stage 1 PUD approval, the Applicant will implement a TDM plan that includes the following measures:

- TDM Leaders
- TDM marketing program
- Unbundled parking costs
- Dedicated car-sharing parking spaces in the garage
- Transportation Information Center Displays
- Short- and long-term bicycle parking
- Capital Bikeshare station on site

#### **Summary and Recommendations**

Overall, this report concludes the following:

- The site is close to the NoMa-Gallaudet Metrorail Station, Mt Vernon Sq/7<sup>th</sup> St-Convention Center Metrorail Station, and Metrobus stops along major corridors. The site also has immediate access to bike facilities and a well-connected pedestrian network. Overall, the site has excellent access to regional and local transportation options.
- The amount of parking and loading facilities proposed on-site is expected to accommodate the project's demand.
- The project will supply long-term and short-term bicycle facilities that meet or exceed zoning requirements.
- The project will include improved sidewalk facilities within and along the perimeter of the site, resulting in an improved pedestrian environment for the site as well as the surrounding neighborhood.
- Two intersections meet the criteria for triggering mitigations in the future scenario with a reconfigured L Street and can be effectively mitigated through signal timing adjustments. Vehicular impacts will be further studied as part of the Stage 2 PUD application for Phase 2 of the development.
- The project will implement a robust Transportation Demand Management (TDM) Plan and a Loading Management Plan.

Based on these features and the technical analysis contained within, this report concludes that **the proposed project will not have a detrimental impact** on the surrounding transportation



network if all planned site design elements and mitigation measures are implemented.