
Transportation Impact Study

1244 South Capitol St. SE

Washington, DC

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EXECUTIVE SUMMARY

This report is a Transportation Impact Study (TIS) for the 1244 South Capitol St. SE development. Located in Ward 6 in Southeast Washington, DC, south of M Street SE and north of N Street SE between Van Street SE and South Capitol Street, the proposed site plan consists of residential units and retail, with just over 272,000 square feet of overall development.

Design Review

The proposed site is located within a high-quality transportation network, with excellent access to local and regional roadways, both rail and bus transit, quality bicycle connections, and pedestrian accommodations. The transportation features of the site plan were designed to take advantage of the transportation network surrounding the site and conform to DDOT's general guidelines.

The development program consists of a residential-based development with retail, with approximately 272,000 square feet of overall development. The development program consists of approximately 290 residential units and 25,811 square feet of retail. In summary, the site plans include the following features:

- Vehicular access to the site will be located along Van Street SE, a local roadway. This includes two curb cuts, which will provide access to the underground parking garage and the loading area.
- By providing vehicular access from a local, low-volume roadway, the site minimizes impacts to public space.
- There will be one loading dock located along Van Street, with two 30-foot berths and one 20-foot loading space.
- The amount of loading facilities contained within the development will be able to accommodate the expected truck activity.
- The Applicant is proposing a loading management plan to mitigate impacts of truck maneuvers at the loading dock.
- The amount of parking provided will be sufficient without the consequence of encouraging driving as a mode.
- The project will include short-term public bicycle spaces on streets, near building entrances, and in public places.
- The project will also include secured long-term bicycle parking within the parking garage.
- The Transportation Demand Management (TDM) plan for 1244 South Capitol St. SE is based on the DDOT expectations for TDM programs. The Applicant proposes the following TDM measures:
 - The Applicant will comply with Zoning requirements to provide bicycle parking/storage facilities.
 - The Applicant will identify a project's TDM Leader (for planning, construction, and operations). The TDM Leader will work with residents to distribute and market various transportation options.
 - The Applicant will dedicate two spaces in the garage for car sharing services to use with right of first refusal. These spaces will be convenient to the garage entrance, available to members of the car sharing 24 hours a day, seven days a week, without restrictions (the garage may be gated – members of the service would have access to the spaces via a key pad combinations to a pass code system or other similar device).
 - The Applicant agrees to host a transportation mobility fair six months after the building has opened. The fair will be advertised to all residents. The onsite TDM coordinator will work with DDOT's goDCgo team to organize representatives who are experts in the non-auto transportation options that serve the site. Each person who attends the event will be educated on the various options and representatives will work with attendees to help them tailor the use of non-auto options to their specific transportation needs. Based on the

turnout of the transportation fair and feedback gleaned by the onsite TDM coordinator, a determination will be made if the event will be repeated the following year.

Roadway Capacity Review

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

The analyses concluded that the 1244 South Capitol St. SE development will not have an adverse impact on the surrounding transportation network. All of the locations in the study with unacceptable levels of delay occur in scenarios with and without the development of the project -- these capacity issues will occur regardless of development.

Traffic conditions are generally favorable within the study area, both with and without development, with the following exceptions:

- The eastbound approach of M Street at South Capitol Street southbound operates under unacceptable conditions during the existing morning peak hour. The addition of the background trips, inherent growth along M Street, and site-generated traffic volumes exacerbates this failing operation. Additionally, this intersection falls within the scope of the District's South Capitol Street EIS and the preferred alternative developed for that study contains improvements to this intersection. This report defers to the conclusions from the EIS.
- The westbound approach of M Street at South Capitol Street northbound is projected to operate under unacceptable conditions during the afternoon peak hour in the 2017 Background conditions. The addition of site-generated traffic volumes exacerbates this failing operation. Additionally, this intersection falls within the scope of the District's South Capitol Street EIS and the preferred alternative developed for that study contains improvements to this intersection. This report defers to the conclusions from the EIS.
- The southeastbound thru lane of the South Capitol Street southbound ramp at N Street operates under unacceptable conditions during the existing morning and afternoon peak hours. The addition of the background trips and site-generated traffic volumes exacerbates this failing operation. Additionally, this intersection falls within the scope of the District's South Capitol Street EIS and the preferred alternative developed for that study contains improvements to this intersection. This report defers to the conclusions from the EIS.
- During the morning peak hour, the west- and northbound approaches of the South Capitol Street and Potomac Avenue intersection operate under unacceptable conditions. During the afternoon peak hour, the east- and westbound approaches of the South Capitol Street and Potomac Avenue intersection operate under unacceptable conditions. The level of delay along these approaches also causes the overall intersection to operate under unacceptable conditions during the morning and afternoon peak hours. The addition of the background trips and site-generated traffic volumes exacerbates this failing operation. Additionally, this intersection falls within the scope of the District's South Capitol Street EIS and the preferred alternative developed for that study contains improvements to this intersection. This report defers to the conclusions from the EIS.
- The northbound approach of Van Street SE at M Street SE is projected to operate under unacceptable conditions during the afternoon peak hour in the 2017 Background conditions. The addition of the site-generated traffic volumes exacerbates this failing operation. One potential improvement at this location would be the installation of a traffic signal. However, based on the capacity analysis, traffic volumes, and traffic signal spacing along M

Street, a traffic signal is not warranted or feasible. It is highly likely that drivers that encounter delays at this intersection will change their driving patterns to avoid the intersection in the future and use other paths on the street grid. Thus, no improvements are recommended at this intersection.

All of the intersections with failing levels of service (regardless of scenario) are studied in the South Capitol Street FEIS, with the exception of the intersection of M Street SE and Van Street SE. The FEIS preferred alternative contains improvements at each of these intersections, although they are expected to be in place after 2017 and are thus not incorporated into the analysis. As stated previously, the goal of the South Capitol Street FEIS is to address the problems of the corridor in a way that both addresses the transportation issues, while also revitalizing the surrounding neighborhoods south of the National Mall and transforming the roadway into a grand urban gateway in to the District.

The future South Capitol Street corridor will correct design deficiencies, improving safety issues for all users, including drivers, transit riders, pedestrians, and bicyclists, as well as providing key connections in the local, regional, and national transportation network. Since the goals of the FEIS are not solely based on improving vehicular levels of service, the delays shown along South Capitol Street are not necessarily expected to be mitigated after construction of the preferred alternative. This report defers to the conclusions reached in the FEIS and recommends the preferred alternative be implemented in the long-term. Therefore, no improvements are recommended along the South Capitol Street corridor.

To reiterate, all of the locations in the study with unacceptable levels of delay occur in scenarios with and without the development of the project – these capacity issues will occur regardless of development. The Transportation Demand Management (TDM) Plan and well-designed site plan lead to minimal trip generation for the proposed 1244 South Capitol St. SE development. Thus, the impacts of the proposed development are negligible and non-detrimental to the study area.

Impact to Non-Auto Modes Review

In addition to the vehicular capacity analysis, the following report examines transportation demand for all major modes of travel and includes trip generation projections for transit, bicycling and walking. A review of projected demand and the local services came to the following conclusions:

- The 1244 South Capitol St. SE development will not have a negative impact to local transit service. Based on findings presented in transit studies from WMATA and DDOT, both the Navy Yard Metrorail station and local bus services can accommodate the projected future ridership generated by the 1244 South Capitol St. SE development.
- Based on the trip generation estimates for walking and the quality of the routes near the project's location, taking into account the streetscapes that will be redeveloped and improved, the 1244 South Capitol St. SE development will not have a negative impact to pedestrian facilities in the study area.
- Based on the trip generation estimates for bicycling and the quality of the routes near the project's location, the 1244 South Capitol St. SE development will not have a negative impact to bicycle facilities in the study area.

INTRODUCTION

This report presents the findings for the 1244 South Capitol St. SE development. The development is located in Ward 6 in near Southeast Washington, DC, south of M Street SE, and north of N Street SE between Van Street SE and South Capitol Street. The proposed site plan consists of a residential based development with retail, with just over 272,000 square feet of overall development. The development program consists of 290 residential units and approximately 25,800 square feet of retail.

The purpose of this report is to:

1. Review the transportation elements of the development site plan, supplementing the material provided in the site plans that accompany the development application, and demonstrate that the site conforms to DDOT's general policies of promoting non-automobile modes of travel and sustainability. The Design Review section of the report covers this topic.
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. The Impacts Review section of the report contains this analysis.
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 describes what improvements to the transportation network are needed to mitigate adverse impacts. The Impacts Review section of the report contains this analysis.

This report contains three sections as follows:

- **Introduction & Site Review**

This section provides a summary of major transportation features near and adjacent to the 1244 South Capitol St. SE site. This includes reviewing roadways, transit facilities, bicycle facilities, and future developments and District initiatives. This section contains information on the site to help establish a reference for the following sections.

- **Design Review**

This section provides a summary of the internal transportation features of the 1244 South Capitol St. SE site. This section is meant to supplement the details provided in the site plan package contained in the development application and reviews such items as the general parking strategy of the site, bicycle accommodations, and transportation demand management (TDM).

- **Impacts Review**

This section provides a review of the impacts development of the 1244 South Capitol St. SE site could have to each mode within the transportation network. For each mode, and where necessary, a list of recommendations and mitigation measures are compiled.

SITE LOCATION AND MAJOR TRANSPORTATION FEATURES

The 1244 South Capitol St. SE development is located in the near Southeast portion of Washington, DC, in Ward 6. The proposed development is located in an area of the District near several major private and public developments and roadway infrastructure projects, including The Yards at Southwest Federal Center, the Southwest Waterfront Development, the South Capitol Street infrastructure project, and the 11th Street Bridges project. The site is also adjacent to the Washington Nationals' Baseball Stadium.

The project site, as shown in Figure 1, is bounded by N Street SE to the south, private development to the north, Van Street SE to the east, and South Capitol Street to the west. The site is served by many regional roadways including Interstate 395 (I-395), Interstate 295 (I-295), and several interchanges and bridges. Arterials near the site include South Capitol Street and M Street. Major collector roadways include 1st Street SE and 8th Street SE. The site is also served by several public transportation sources, including Metrorail, Metrobus, the DC Circulator bus system, and Capital Bikeshare.

The project site also features a pedestrian network consisting of sidewalks and crosswalks along the local streets surrounding the project site. In addition to pedestrian accommodations, the site is also served by the on- and off-street bicycle network, which consists of bike lanes and signed bicycle routes along local roadways.

The 1244 South Capitol St. SE development is located adjacent to several other recently constructed or approved developments. Figure 2 shows the developments located adjacent to the proposed 1244 South Capitol St. SE development, including the DC Ballpark, Akridge Square 700, Ballpark Square, Hampton Ballpark, and One M Street developments. The "Developments" section later in this report provides an outline of the other projects that are proposed, approved, or under construction in the vicinity of the proposed development.

Roadways

As stated previously, the site is accessible via arterials, collector, and local streets. Figure 3 shows the roadway network hierarchy for the roadways in the vicinity of the proposed development. The immediate study area of the proposed development has several key local access roads. These include the following:

- **Potomac Avenue SE/SW**

Potomac Avenue is a four-lane roadway that runs east-west in the vicinity of the site. DDOT classifies it as a collector roadway with an average daily traffic volume of 5,800 vehicles in the vicinity of the proposed development. On-street parking is permitted on Potomac Avenue at all times on a portion of the roadway. Bike lanes are also provided on both sides of the roadway.

- **South Capitol Street**

South Capitol Street is a six- to eight-lane roadway that runs north-south in the vicinity of the site. DDOT classifies it as a principal arterial with an average daily traffic volume of 52,000 vehicles in the vicinity of the proposed development. North of N Street, South Capitol Street functions as a grade-separated roadway, and on-street parking is prohibited. South of N Street, South Capitol Street has been reconfigured from a grade-separated facility to a boulevard. On-street parking is prohibited south of M Street as well.

- **M Street SE/SW**

M Street is a six-lane east-west minor arterial that connects Maine Avenue SW to 11th Street SE. It has an average daily traffic volume of 19,100 vehicles in the vicinity of the proposed development. M Street has a six-lane cross-

section with a median, which is converted into center turn lanes at several intersections. Limited parking is available along both sides of the street, but parking is generally prohibited at these locations during peak hours.

- **N Street/Tingey Street**

N Street is a two-lane roadway that runs east-west in the vicinity of the site. DDOT classifies it as a local roadway in the vicinity of the proposed development. West of New Jersey Avenue, the roadway is named “N Street.” Within the limits of The Yards, east of New Jersey Avenue, the roadway is named “Tingey Street”. On-street parking is permitted on N Street during off-peak periods.

- **Half Street SE**

Half Street is a local north-south street, which connects N Street and I Street SE. On-street parking is permitted on both sides of the roadway, north of M Street. During Washington Nationals’ games, Half Street is closed to vehicular traffic between M Street and N Street.

- **1st Street SE**

First Street is a four-lane roadway that runs north-south in the vicinity of the site. On-street parking is permitted on 1st Street at all times on the eastern side of the roadway. Bike lanes are also provided on both sides of the roadway.

- **New Jersey Avenue SE**

New Jersey Avenue is a two-lane roadway that runs north-south in the vicinity of the site. DDOT classifies it as a local roadway with an average daily traffic of 5,200 vehicles in the vicinity of the proposed development. South of M Street, on-street parking is permitted on New Jersey Avenue at all times on the eastern side of the roadway; on-street parking is also permitted at all times on both sides of New Jersey Avenue north of M Street.

- **Half Street SW**

Half Street is a local street that is one-way southbound from M Street SW to P Street SW. Beyond M Street, Half Street becomes a two-way roadway as it extends to I Street northbound and V Street southbound where it terminates. Restricted residential parking lines both sides of the roadway.

Two major infrastructure projects are located near the proposed development: the 11th Street Bridges Improvement Project and the South Capitol Street Improvement Project. The majority of the future roadway changes outlined by these projects will not affect the roadway network immediately surrounding the project site. However, both projects will improve access to the proposed development by reducing congestion on the roadway network and providing additional mobility in the study area. These projects are outlined in greater detail later in this report.

The study area for the M Street SE/SW Transportation Study also encompasses the proposed 1244 South Capitol St. SE development. The study includes potential improvements for the near-, mid-, and long-term in order to address the current and future transportation challenges along M Street SE/SW and in the surrounding area. The study is outlined in greater detail later in this report.

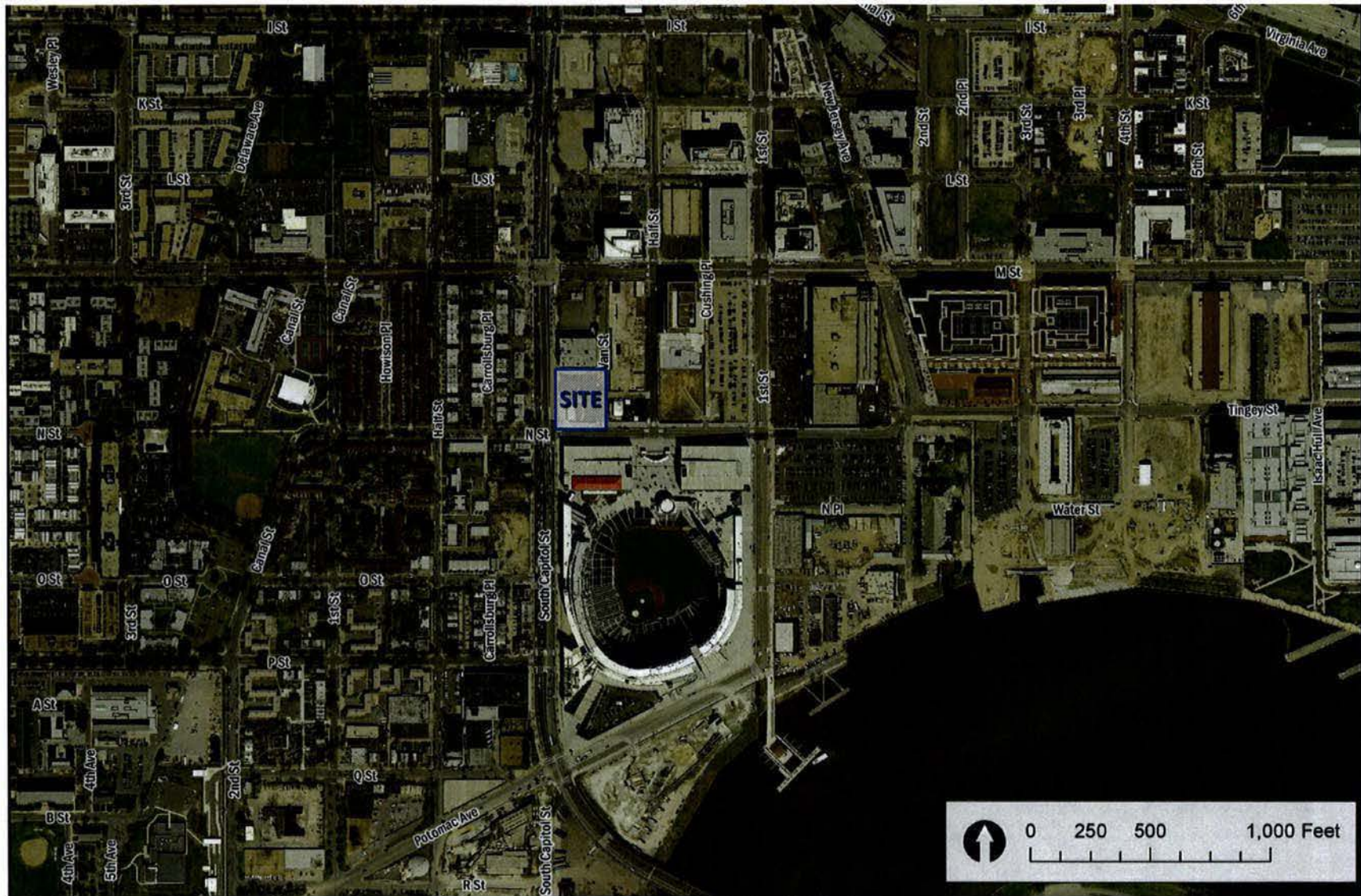


Figure 1: Site Location



Figure 2: Adjacent Developments

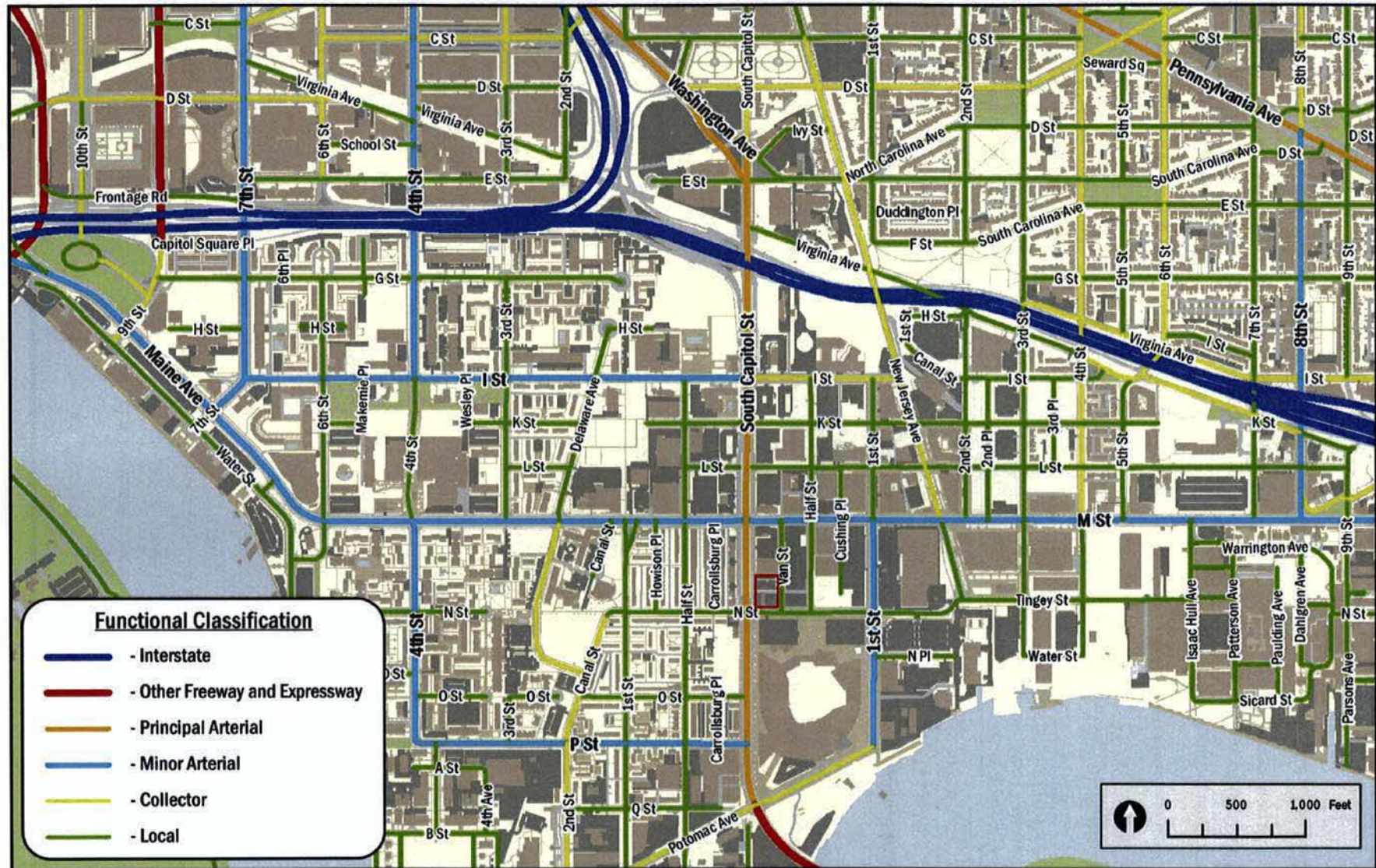


Figure 3: Functional Classification

Car-Sharing

Three car sharing companies serve the District: Zipcar, Enterprise CarShare, and Daimler's Car2Go. All three services are private companies that provide registered users access to a variety automobiles. Zipcar has a few locations near project site, but Hertz on Demand does not.

Table 1 lists the car-sharing locations provided by Zipcar in the study area and the number of vehicles available.

Table 1: Carshare Locations and Vehicles

Carshare Location	Number of Vehicles
<i>Zipcar</i>	
3 rd & N Street NE (Lot L at The Yards)	1 vehicle
Capitol Park Towers – 301 G Street SW	1 vehicle
825 New Jersey Avenue SE (Colonial Parking)	5 vehicles
<i>Enterprise CarShare</i>	
N Place SE/First Street SE – by Nationals Stadium	5 vehicles
Half Street/I Street SE, 3 blocks Navy Yard Metro	4 vehicles
Total Number of Carshare Vehicles	16 vehicles

Car-sharing is also provided by Car2Go in DC. Unlike Zipcar, which requires a two-way trip, Car2Go can be used for one-way rentals. Car2Go currently has a small fleet of vehicles located throughout the District. Car2Go vehicles may park in any non-restricted Metered curbside parking space or Residential Parking Permit location in any zone throughout the defined "Home Area". Members do not have to pay the meters or pay stations. Vehicle availability is tracked through their website. While no Car2Go car-sharing vehicles are permanently located within the study area, they provide an additional option for car-sharing patrons.

Transit

The study area is served by heavy rail, commuter bus, DC Circulator bus, and local bus service. Combined, these transit services provide local, city wide, and regional transit connections and link the site with major cultural, residential, employment, and commercial destinations throughout the region. Figure 4 identifies existing transit service in the study area.

The Metrobus and Metrorail systems provide public transportation access to 1244 South Capitol St. SE development site. The nearest Metrorail station is Navy Yard, located approximately 600 feet from the northeast corner of the proposed development at the intersection of Half Street and M Street. An additional portal is provided at the intersection of New Jersey Avenue and M Street, approximately a third of a mile away. The Green line serves the Navy Yard station running approximately every 6 minutes during the morning and afternoon peak periods and every 15 to 20 minutes during the weekday off-peak periods and on weekends.

Metrobus service is accessible to the site, with stops on M Street and other surrounding roadways. The majority of the Metrobus lines that serve the site converge at the Navy Yard Metrorail station. These routes connect the site with several destinations throughout downtown DC and the surrounding areas. The DC Circulator bus is also accessible to the site, with stops provided near the intersection of 4th Street and M Street SE. Table 2 shows a summary of the bus route information for the lines that serve the site, including service hours, headways, and average weekday ridership.

Table 2: Bus Route Information

Route Number	Route Name	Service Hours ¹	Headway ¹	Distance to nearest bus stop
74	Convention Center-Southwest Waterfront Line	5:00 am – 1:00 am	15-20 min	0.25 miles
A9	Martin Luther King Jr Ave Limited Line	Weekdays: 6:00 – 9:45 am, 3:30– 7:30 pm	15-20 min	0.30 miles
A42, 46, 48	Anacostia-Congress Heights Line	Late night extension of A2, 6, 8 line Weekdays: 12:00 am – 6:00 am Weekends: 12:00 am – 8:00 am	30 min	0.10 miles
V7, 8, 9	Minnesota Ave-M Street Line	4:30 am – 1:30 am	30 min	0.10 miles
P6	Anacostia-Eckington Line	Weekdays: 5:00 am – 2:00 am Saturday: 5:30 am – 2:00 am Sunday: 6:30 am – 12:30 am	15-30 min	0.10 miles
P17, 19	Oxon Hill-Fort Washington Line	Monday – Saturday NB: 5:00 am – 10:00 am Monday – Saturday SB: 3:00 pm – 8:00 pm	20-30 min for each route	0.15 miles
W9	South Capitol Street Limited Line	Weekdays: 6:15 – 9:30 am, 3:15 – 6:30 pm	15-30 min	0.15 miles
W13	Bock Road Line	Monday – Saturday NB: 5:00 am – 9:00 am Monday – Saturday SB: 3:30 pm – 8:00 pm	20-30 min	0.15 miles
DC Circulator	Union Station-Navy Yard	Winter Hours (October 1 – March 31) Weekdays: 6:00 am – 7:00 pm Summer Hours (April 1 – September 30) Weekdays: 6:00 am – 9:00 pm Saturdays: 7:00 am – 9:00 pm Extended service on Nationals game days	10 min	0.30 miles

There are several methodologies for calculating bus Level of Service (LOS). One such method is based on peak period service frequencies, or how many times per hour a user can catch a bus. Higher frequencies contribute to more convenient service and lower overall travel time for riders because wait time is reduced. Under this method, which is described in Transit Cooperative Research Program (TCRP) Transit Capacity and Quality of Service Manual, 2nd Edition, 2003, LOS A is defined by an average headway of less than 10 minutes (more than 6 buses per hour), which is a service level that is frequent enough that passengers generally do not need to consult route schedules. LOS F is defined by an average headway of more than 60 minutes (less than one bus per hour).

Peak hour LOS for each route within the study area is presented in Table 3.

¹ WMATA route schedules, <http://wmata.com/bus/timetables/>

Table 3: Bus Route Level of Service

Route Number	Route Name	Peak Hour Headway ²	Transit LOS ³
74	Convention Center-Southwest Waterfront Line	15-20 min	C
A9	South Capitol Street Line	15-20 min	C
A42, 46, 48	Anacostia-Congress Heights Line	n/a (late-night service only)	n/a
V7, 8, 9	Minnesota Ave-M Street Line	10-15 min	B
P6	Anacostia-Eckington Line	15-20 min	C
P17, 19	Oxon Hill-Fort Washington Line	20 min	C
W9	South Capitol Street Limited Line	15-30 min	D
W13	Bock Road Line	20 min	C
DC Circulator	Union Station-Navy Yard	10 min	B

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

The streetcar system element of the plan includes three routes that travel near the project site. The streetcar system will consist of modern low-floor vehicles that operate on surface tracks embedded in the roadways, which will mostly operate in travel lanes that are shared with automobiles. Stops will generally be located every ¼- to ½-mile along the routes. The District's streetcar plan includes two planned lines that are expected to terminate in Buzzard Point. The planned routes for these lines will connect Buzzard Point with Takoma to the north and with Anacostia to the south. They are part of the 22 mile priority system that also includes the Georgetown Waterfront to Benning Road Line. The two pertinent streetcar lines have an estimated completion date of 2020.

² WMATA route schedules, <http://wmata.com/bus/timetables/>

³ Transit Cooperative Research Program (TCRP) *Transit Capacity and Quality of Service Manual*, 2nd Edition, 2003. Exhibit 3-12.

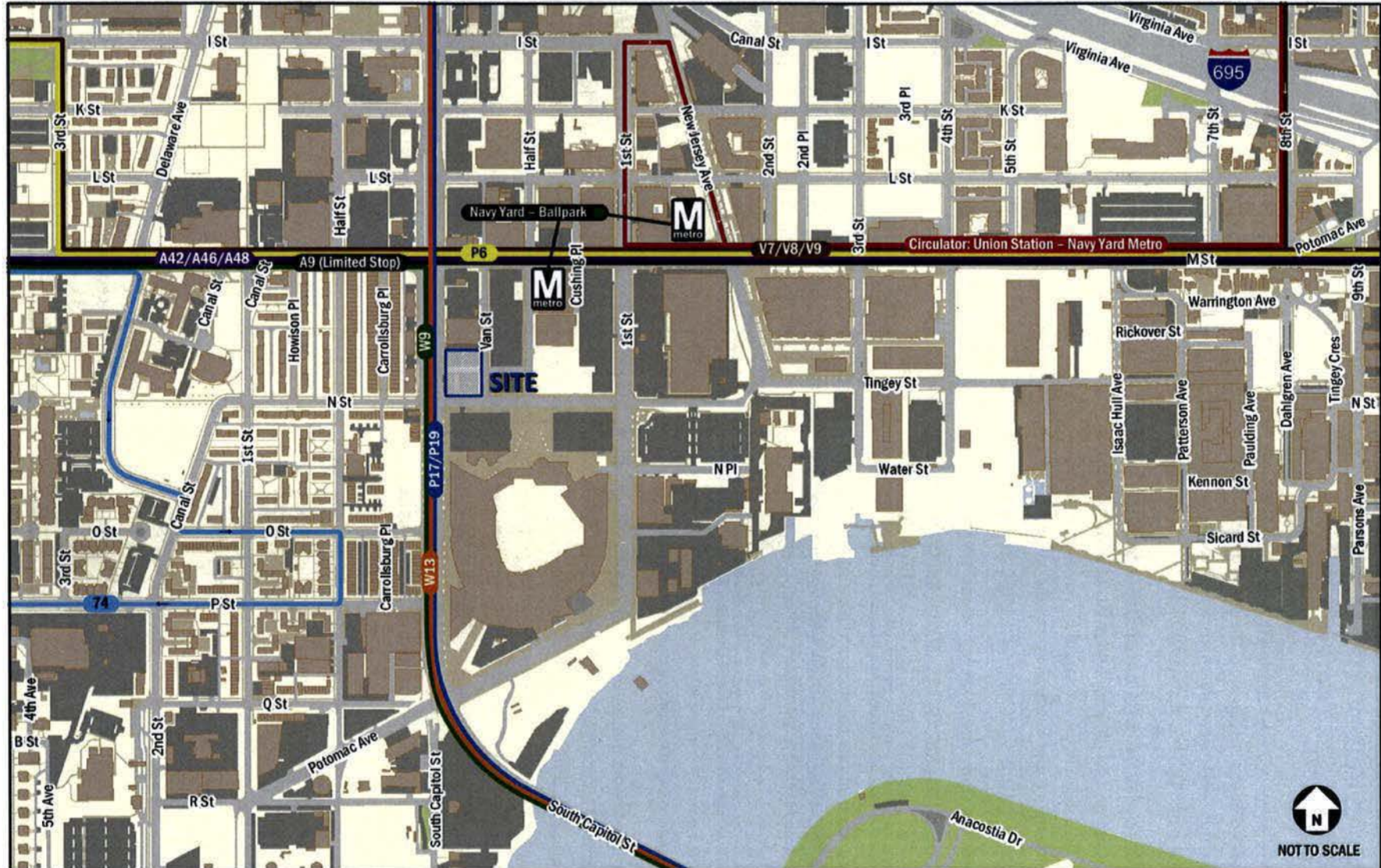


Figure 4: Existing Transit Service

Bicycle Facilities

Within the study area, bicyclists have access to multi-use trails, on-street bike lanes, signed bike routes, and local and residential streets that facilitate cycling. The site is directly served by these facilities. The bicycle network generally provides good conditions for local trips and there are several routes for trips between the study area and Northern Virginia, Northwest Washington DC, and destinations south of the Anacostia River.

For cyclists, the most attractive routes are those that have good cycling conditions and provide direct routing between origins and destinations. Conditions in the study area that contribute to good cycling conditions includes minimal changes in topography, multi-use trails that separate bicycle traffic from vehicle traffic, on-street bicycle lanes that designate bicycle rights-of-way, multiple Capital Bikeshare stations, local and collector streets with low traffic volumes and speeds, sidewalks that permit bicycle traffic and provide routing through barriers, and bicycle parking.

Within the existing study area, cycling conditions are good and provide attractive conditions for commuters and recreational riders alike. The existing conditions provide a good environment for cycling include low traffic volumes and speeds, wide travel lanes, the Anacostia Riverwalk Trail, four Capital Bikeshare stations, and ample bicycle parking. Bike lanes are provided along 1st Street and I Street, near the site, with bike lanes at 4th Street SW, 4th Street SE, and 6th Street SE that provide connections to the north side of the District. A direct connection to the Anacostia Riverwalk Trail is provided along Potomac Avenue at South Capitol Street to cross the Frederick Douglass Bridge across the Anacostia River. A second connection to the Trail is provided along Potomac Avenue at Diamond Teague Park to travel along the Anacostia River and through The Yards Park. On weekdays, the Trail is open south of the Navy Yard to provide connection to the Trail further east and across the 11th Street Bridge. A portion of the Trail to connect to Diamond Teague Park and travel along the Anacostia River and 2nd Street SW is proposed. In addition to bike lanes and the off-street trail, on-street signed bicycle routes are provided along P Street SW and Half Street SW west of the site.

This portion of the District has several major roads with high traffic volumes and speeds, man-made and natural barriers, and a lack of existing bicycle facilities. Generally, poor cycling conditions in the study area result when bicycle routes use or cross streets with high traffic volumes and speeds, barriers that increase the distance between origins and destinations or block access, intersection geometries that create conflicting bicycle, vehicle and pedestrian desire lines, freeway access ramps, and gaps in the bicycle network. These conditions reduce the attractiveness of cycling in the study area and may discourage people from using bicycles. There are some routes with barriers to cycling along them and entire roadway corridors that have poor cycling conditions that reduce the overall quality of cycling conditions and limit the number of routes that directly link the site with destinations throughout the District and region. Figure 5 illustrates bicycle facilities in the study area. In the study area, the greatest barrier to cycling is South Capitol Street, which is difficult to cross due to high traffic volumes.

There is ample bicycle parking directly surrounding Nationals Park; however, in most other areas bike parking is limited. Some bicycle parking was observed in the study area though most cyclists typically use street signs, parking meters, or similar objects to secure their bicycles. This indicates that there is demand for additional bicycle parking facilities in the study area.

In addition to personal bike use, the Capital Bikeshare program has placed 300 bicycle share stations across Washington, DC, Arlington and Alexandria, VA, and most recently Montgomery County, MD with over 2,500 bicycles provided. In the vicinity of the proposed development, Capital Bikeshare stations have been placed in four locations. The locations and number of docks at each station are provided in Table 4.

Table 4: Capital Bikeshare Locations

Capital Bikeshare Location	Number of Docks
1 st & N Street, SE	39 docks
3 rd & Tingey Street, SE	19 docks
M Street & New Jersey Avenue, SE	17 docks
1 st & K Street, SE	15 docks
Total	90 docks

Pedestrian Facilities

Overall, the pedestrian facilities within the study area provide a good walking environment. Pedestrian access to the site is provided along M Street SE. Sidewalks, crosswalks, and curb ramps with detectable warnings are provided at most intersections in the study area. Pedestrian activity within the study area occurs along transit access routes, in the vicinity of transit stops, at commercial nodes along M Street, and, to a lesser extent, between residential neighborhoods and transit and commercial nodes. Nearly all streets in the study area have adequate sidewalks, planted buffers between sidewalks and the curb, and on-street parking that provides an additional buffer between pedestrians and vehicular traffic.

The bus stops located along M Street serve bus routes that provide local and commuter service between the study area and destinations downtown and in the surrounding area. Pedestrians access these bus stops along the local pedestrian network at the site and within the residential and commercial neighborhoods located adjacent to the site. There is some pedestrian activity between transit stops and residential areas throughout the day.

There are some barriers and areas of concern within the study area that negatively impact the quality and attractiveness of walking, including walking distances between the site and some major destinations, manmade and natural barriers that increase walking distances, and roadway conditions that reduce the quality of walking conditions, including narrow sidewalks along several streets, lengthy freeway underpasses, and lengthy crossings at some intersections. Walking distances between the site and major transit and commercial destinations in the area, such as Half Street and M Street, will not have a significant impact on the pedestrian activity because access routes generally provide good walking conditions and walking is a convenient and quick option as compared to other modes.

Future Projects & Developments

District Initiatives

Both the 11th Street Bridges project and the South Capitol Street Improvement project are currently underway in the vicinity of the project site. These projects are summarized below.

11th Street Bridges Project

The purpose of the 11th Street Bridges project is to reduce congestion and improve mobility across the Anacostia River on the 11th Street Bridges (11th Street Bridge and Officer Welsh Bridge) and on the local streets in the vicinity of the project. Additionally, the project will increase the safety of vehicular, pedestrian, and bicycle traffic in the Anacostia area; correct design deficiencies in the existing infrastructure; and upgrade evacuation routes for security movements into and out of the nation's capital and military installations.

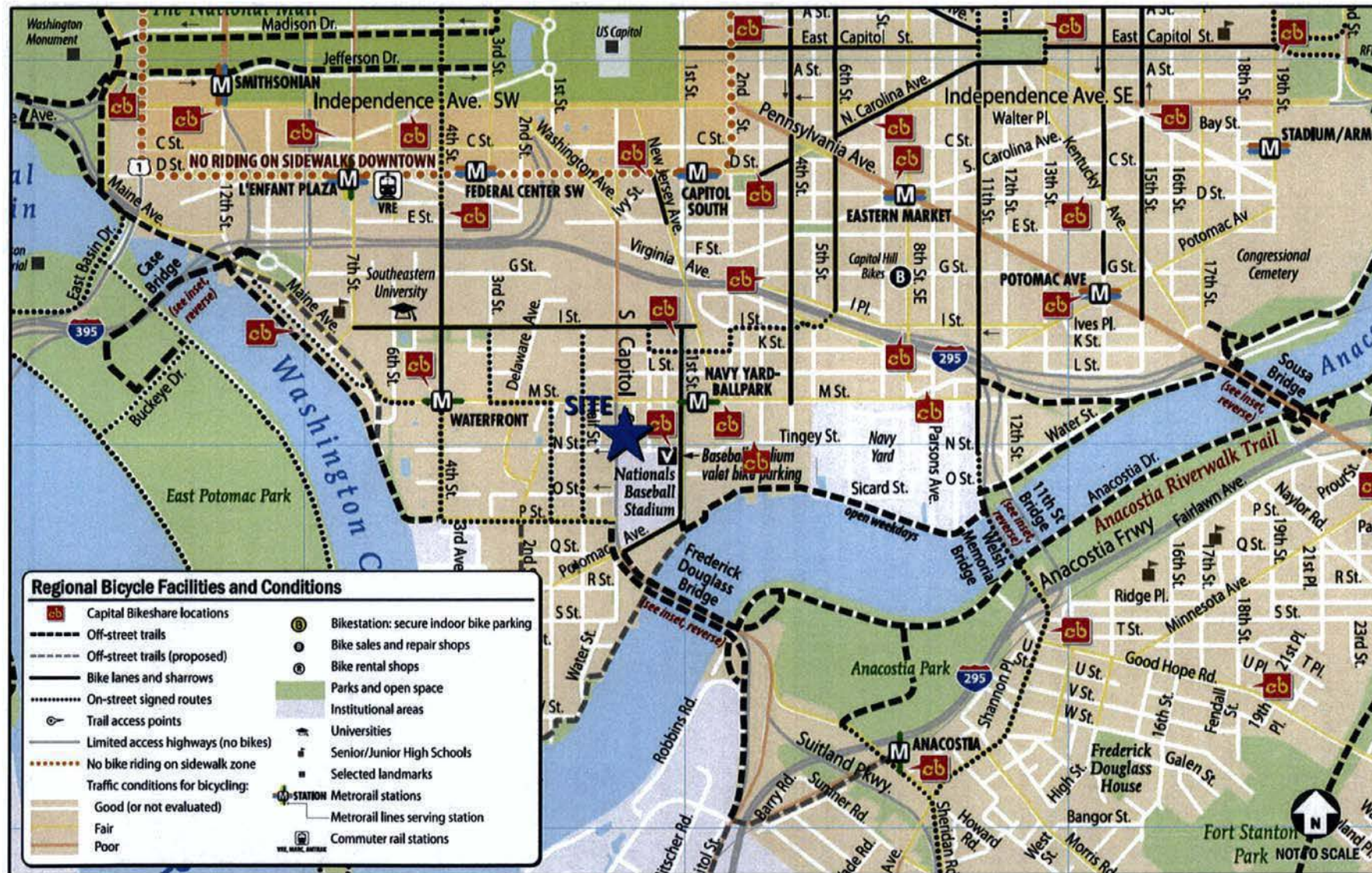


Figure 5: Regional Bicycle Facilities and Conditions

The Phase I Alternative Design includes complete construction of three new river crossings and two new Anacostia Freeway interchanges on the east and west sides of the Anacostia River. The proposed improvements will no longer require traffic to use the neighborhood streets (Martin Luther King, Jr. Avenue, Good Hope Road, and Minnesota Avenue) to access the 11th Street Bridges because there will be a direct connection for trips between the Southeast/Southwest Freeway (I-395) and the Anacostia Freeway (I-295) from the north and a seamless connection to I-295 northbound at the southern end of the 11th Street Bridges complex where none exists today.

In addition to the vehicular improvements, a 14-foot shared-use path will be provided on the downstream side (southwest) of the 11th Street Bridge from O Street to Good Hope Road. No sidewalk will be provided on the upstream side of the bridge due to safety concerns for pedestrians. Direct pedestrian access will be maintained between the bridges and the waterfront on both sides of the river, and bicycle facilities will be connected to the Anacostia Riverwalk Trail along both banks of the river. The DC Bicycle Master Plan will also be implemented in the study area. All pathways for pedestrians and bicycles will meet AASHTO policy and ADA standards for construction.

The 11th Street Bridges project will also improve transit connectivity in the study area by providing movements that are currently missing from the 11th Street Bridge complex to the Anacostia Freeway (I-295). The project will also remove some traffic from the local street system, particularly in the historic Anacostia area, allowing for transit to operate under more favorable traffic conditions. In addition to proposed improvements, the low-speed local bridge will be designed and constructed so as not to preclude the implementation of a possible future streetcar system on 11th Street between M Street and Martin Luther King, Jr. Avenue.

South Capitol Street Project

The purpose of the South Capitol Street project is to improve safety, mobility, and accessibility and to support economic development in the vicinity of the project. The project will: (1) correct the design and deteriorating condition of the transportation infrastructure which creates safety concerns for vehicular, pedestrian, and bicycle traffic and transit riders; (2) construct missing critical regional roadway connections for vehicles, pedestrians, and bicycles; (3) correct mobility barriers that limit access to activity centers in the study area; and (4) support economic growth in order to improve the density of employment and residential development. Ultimately, the goal of the South Capitol Street projects is to address the problems of the corridor in a way that both addresses the transportation issues, while also revitalizing the surrounding neighborhoods south of the National Mall and transforming the roadway into a grand urban gateway in to the District. The future South Capitol Street corridor will correct design deficiencies, improving safety issues for all users, including drivers, transit riders, pedestrians, and bicyclists, as well as providing key connections in the local, regional, and national transportation network.

The Preferred Alternative from the Final Environmental Impact Statement includes rebuilding South Capitol Street as a six-lane boulevard with a landscaped median west of the Anacostia River. Along South Capitol Street, at-grade intersections will be reconstructed at I, N, O, P, K, L, and M Streets. The existing ramp from northbound South Capitol Street to I-395 will also be reconstructed as an at-grade interaction. A four- to five-lane traffic oval will be constructed to connect South Capitol Street, Potomac Avenue, R Street, and Q Street. The existing Frederick Douglas Memorial Bridge will be replaced and will include bicycle and pedestrian access. An additional traffic circle will be constructed to connect South Capitol Street, Suitland Parkway, and Howard Road, and several other roadway improvements are included on the eastern/southern side of the Anacostia River.

In addition to vehicular improvements, streetscape design features will be added to project area streets, including South Capitol Street, New Jersey Avenue, and Suitland Parkway. The reconstruction of South Capitol Street will also include

pedestrian and bicycle facilities, which will consist of widened sidewalks, widened curbside lanes on some streets for bicycle travel, and increased pedestrian- and bicycle-oriented elements such as street trees, benches, and decorative streetlights. The proposed bicycle routes through the project area will consist primarily of signed bicycle routes that connect to local activity centers, as well as other area facilities such as the Anacostia Riverwalk Trail.

The South Capitol Street project will also improve access to transit already in the corridor by providing additional pedestrian and bicycle facilities, streetscape, and pedestrian-friendly amenities. The Preferred Alternative will also provide linkages between transit nodes and the local and regional bicycle network, and will support future transit (streetcar and bus service) throughout the corridor. The Preferred Alternative will be better equipped to accommodate the proposed future Anacostia Line of the streetcar transit system due to the proposed wide sidewalks, streetlights, signed bike routes, and multi-use trails.

M Street SE/SW Transportation Study

The purpose of the M Street SE/SW Transportation Study is to prepare for the substantial new growth along the M Street/Maine Avenue corridor in the near Southeast and Southwest Waterfront area. The study area is projected to see in excess of 36 million square feet of development concentrated within a 0.78 square mile core area. The premise of the study is to better integrate the area of development with the surrounding neighborhoods and to improve multimodal travel and the public realm within the neighborhood. The study area encompasses an area of approximately 1.7 square miles along the M Street SE/SW corridor and the Southwest Waterfront from 12th Street SE to 14th Street SW. The study considers existing and future transportation conditions, reviews the planned future land uses in the study area, and develops solutions for the transportation network in order to promote livable communities and to encourage reinvestment within the study area. The study recommends improvements for three conditions: near term (2013-2016), mid-term (2015-2021), and long-term (2020 and beyond).

The Draft report recommends several potential near-term projects and policy updates. The policy updates include suggestion to improve travel demand management (TDM) strategies, parking systems and regulations, transit policies, motor coach and commuter bus staging/parking, freight loading and truck routes, bicycle and pedestrian policies, and sustainable design. Potential low-cost operational and system management projects include signing and pavement marking improvements, signal timing optimization along M Street, pedestrian and Anacostia Riverwalk Trail connectivity improvements, bicycle network improvements, transit service improvements, parking changes, and sustainability and low-impact development improvements.

For the mid-term, three multimodal projects are proposed and investigated: Alternative 1 – M Street “Main Street”, Alternative 2 – “Balanced Links” and Alternative 3 – M Street “Mobility Arterial”. Alternative 1 includes prioritizing non-automobile transportation and establishing M Street as a core premium transit corridor, which would reduce M Street to two vehicular lanes in each direction with an exclusive outer transit lane. Alternative 2 balances the transit network to provide wider coverage to the entire study area by allocating new transit services to parallel corridors while creating new bicycle facilities along the M Street corridor. Alternative 3 focuses on preserving M Street as a primarily vehicular corridor with less emphasis on alternative modes by implementing operational improvements to maximize vehicular throughput, maintaining three vehicular travel lanes in each direction, and providing a shared outer lane for streetcar and transit. The three alternatives from the Draft report will be used to develop and analyze potential “hybrid” alternatives to be implemented in the mid-term.

The long-term improvements focus on potential new connections to complete the street grid in the study area if future development (beyond 2035) were to occur in areas not currently available. The long-term options include roadway

improvements in the Buzzard Point area, as well as improvements to east-west connectivity, Metrorail station capacity improvements, along with Yellow line improvements, commuter rail enhancements, and multimodal transfer centers. These options would all require further study and significant agency coordination and public involvement. The study projects that the options could possibly be implemented between 2020 and 2040.

Background Developments

There are several other projects proposed, approved, or under construction located in the vicinity of the proposed development. The majority of these projects are mixed-use, consisting of office, residential, and retail development, as outlined below. A map of the locations of these developments is included as Figure 6.

- **Akridge at Half Street**

The Akridge at Half Street development is currently approved and awaiting construction. It consists of a mix of office, residential, and retail uses located in multiple buildings south of M Street SE between Van Street SE and Half Street SE. All aspects of the development are projected to be complete between 2015 and 2016.

- **Arthur Capper/Carrollsbury and Capitol Quarter**

The Arthur Capper/Carrollsbury development is currently under construction and a significant portion of the project has been completed. It consists of a mix of residential sites located north of M Street SE and office sites located along M Street SE between 2nd Street SE and 7th Street SE. The development is projected to be fully completed by 2022.

- **The Yards at Southeast Federal Center**

The Yards at Southeast Federal Center development is currently under construction and partially completed. It consists of a mix of office, residential, and retail sites located south of M Street SE between 1st Street SE and 5th Street SE. The remaining portions of the development are projected to be completed by 2027.

- **Congressional Square**

Congressional Square (formerly The Plaza on K) consists of a mix of office and retail uses located north of K Street SE between Half Street SE and 1st Street SE. The first phase of the development is expected to be completed by 2016, with a second phase to be completed in 2018.

- **RiverFront on the Anacostia**

The RiverFront on the Anacostia (formerly Florida Rock) development consists of office, residential, retail, and hotel uses located along Potomac Avenue east of South Capitol Street. The first phase of the development, which includes the residential and a portion of the retail uses, is expected to be completed in 2016. The later phases of the development, which include the office, hotel, and remainder of the retail uses, are expected to be completed by 2018.

- **Velocity (Square 699N)**

The Velocity development is a residential building located north of L Street SE between Half Street SE and 1st Street SE. The development is anticipated to be completed by 2014. An additional phase of development, which consists of office and retail uses, is planned, with an expected completion in 2019.

- **Park Chelsea (Square 737)**

The Park Chelsea development is a mix of residential and retail uses located between H Street SE and I Street SE, west of 2nd Street SE. The first phase of development (Park Chelsea) is anticipated to be completed in 2014, with a final completion in 2017

- **800 New Jersey Avenue SE (Square 737)**

The 800 New Jersey Avenue development is a mix of residential and retail uses (including a grocery store) located between H Street SE and I Street SE, west of 2nd Street SE. The first phase of development is anticipated to be completed in 2017

- **Gallery at Capitol Riverfront (1111 New Jersey Avenue)**

The Gallery at Capitol Riverfront development consists of a mix of office and retail uses located along New Jersey Avenue north of M Street SE. The development is projected to be completed by 2016

- **Half Street/Monument Properties**

The Half Street development is currently approved and awaiting construction, following the construction of Phase I of the development. The remaining development consists of a mix of residential, retail, and hotel uses located north of N Street SE at Half Street SE, which is projected to be completed between 2015 and 2017

- **50 M Street**

The 50 M Street development is a mix of office and retail uses located north of M Street SE between Half Street SE and 1st Street SE. The development is anticipated to be completed by 2016

- **1 M Street**

The One M Street development is a mix of office and retail uses located south of M Street SE between South Capitol Street and Van Street SE. The development is anticipated to be completed by 2017

- **Square 701**

Square 701 is a mixed-use development located south of M Street SE between Half Street SE and 1st Street SE. The PUD consists of a mix of office, residential, hotel, and ground-level retail and is projected to be completed in 2015

- **1000 South Capitol Street**

The 1000 South Capitol Street development is an office building located north of K Street SE between South Capitol Street and Half Street SE. The development is anticipated to be completed by 2017.

- **1100 South Capitol Street**

The 1100 South Capitol Street development is an office building located north of M Street SE between South Capitol Street and Half Street SE. The development is anticipated to be completed by 2018

- **WMATA Chiller Plant**

The WMATA Chiller Plant Apartments are a mix of residential and retail uses located north of M Street SE between South Capitol Street and Half Street SE. The development is anticipated to be completed by 2017

- **The Randall School**

The Randall School development is a renovated building consisting of a mix of residential and retail uses located north of I Street SW at Half Street SW. The development is anticipated to be completed by 2016

- *Camden South Capitol*

The Camden South Capitol development is a mix of residential and retail uses located west of South Capitol Street between N and O Streets SW. The development was recently completed and is partially occupied.

- *Building 170*

The Building 170 redevelopment, which is located at 250 Tingey Street SE, adjacent to The Yards at Southeast Federal Center development, consists of retail uses. The building redevelopment is projected to be completed in 2014.

- *Hampton Inn*

The Hampton Inn development consists of hotel located south of M Street SE between Half Street SE and 1st Street SE. The development is anticipated to be completed by 2015.

- *100 V Street SW*

The 100 V Street SW development, located west of 1st Street SW, between T and V Streets SW, consists of office uses. The development is projected to be completed in 2020.

- *20 K Street SE*

The 20 K Street SE development consists of residential uses and is located north of K Street, between South Capitol Street and Half Street SE. The development is anticipated to be completed by 2016.

- *DC Water Occupied Sites*

The DC Water PUD consists of a mixed-use development containing a movie theater, residential uses, and ground-level retail. Phase 1 of the development (the movie theater) is expected to be completed by 2016, with full completion in 2027.

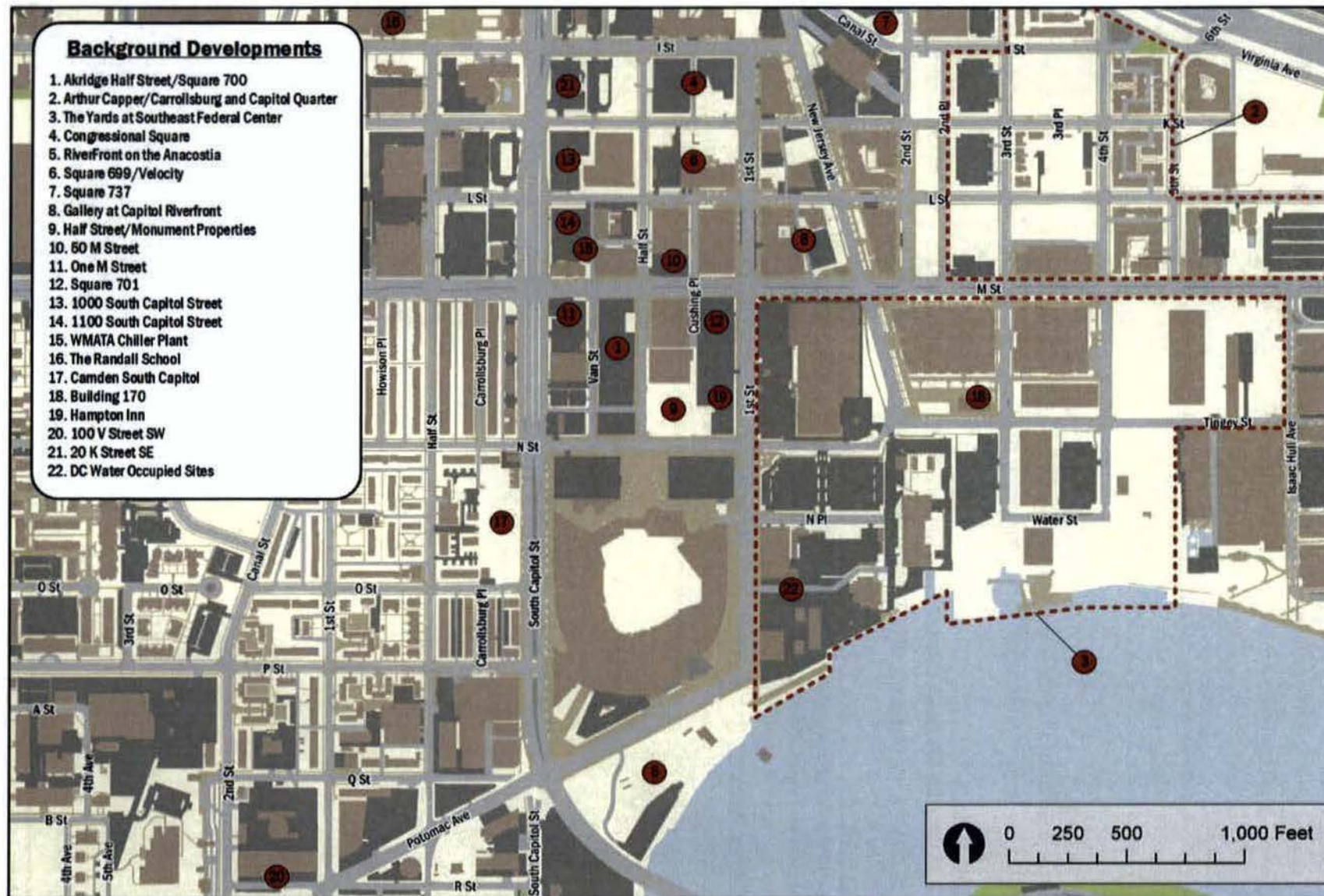


Figure 6: Background Development Map

DESIGN REVIEW

This report section provides an overview of the on-site transportation features of the proposed 1244 South Capitol St SE development. It supplements the information provided in the site plans package that accompanied the Zoning Application, which includes several illustrations of site circulation and layout.

The proposed 1244 South Capitol St SE development will replace an existing vacant site owned by DC Realty (The site previously operated as a gas station). There are currently four curb cuts provided along the site boundary: one along South Capitol Street, one along N Street, and two along Van Street. A few on-street parking spaces are provided along the roadways surrounding the site. Figure 7 identifies the existing curb cuts and on-street parking surrounding the site.

The proposed 1244 South Capitol St SE development consists of one residential building with ground-level retail. Figure 8 provides an overview of the project's development program. Figure 9 shows the site access plan.

Site Access and Internal Circulation

Vehicular Access

All vehicular access to the site will be located from Van Street, which is a small local roadway between Half Street and South Capitol Street that connects M and N Streets. Van Street operates as an alley north of M Street to L Street. As shown in Figure 9, two curb cuts are proposed to provide vehicular access to the 1244 South Capitol St SE development. The southernmost curb cut will provide access to the underground parking garage, while the northernmost curb cut will provide access to the loading area. Changes to the on-street parking regulations surrounding the site are not proposed.

Vehicular access is placed along Van Street as it is the lowest hierarchy roadway in the study area. In the study area, Van Street acts like an alley; site access and loading facilities for neighboring parcels are located along Van Street. For the proposed development, access off of Van Street is the most logical option, as curb cuts cannot be provided from the South Capitol Street northbound ramp along the west side of the site or from N Street along the south side of the site due to Section 11-16 of the Zoning Regulations for the Capitol Gateway Overlay District.

Loading

The development proposes one loading area to service the project, as noted on Figure 9. The loading facilities will accommodate two 30-foot trucks, and a 20-foot service vehicle, in addition to a typical 35 to 40 foot trash truck, all accessed via Van Street.

According to Section 2201.1 in the DC zoning requirements, an apartment building with more than 50 dwelling units is required to provide one 55-foot loading bay and one 20-foot service and delivery space. In addition, based on Section 2201.2 there will be no required loading bay for the commercial uses because they comprise of less than 10 percent of the total development area. Due to the size of the residential units, 55-foot truck will not be used for move-in and move-outs. Therefore, the development proposes to instead include two 30-foot loading bays and one 20-foot service space. Additionally, the narrow width of Van Street makes accommodating 55-foot trucks infeasible via a loading dock.

Based on the experience of residential building managers that manage buildings within the District, rental apartments have an average turnover of 18 months, with two trucks per turnover (one move out and one move in). Based on this information and the proposed development program of 290 apartment style residential units, there will be approximately 32 deliveries per month or just over one delivery per day. There will also likely be 3 to 4 deliveries from USPS and UPS/FedEx per day for the residential portion of the development.

General retail stores are expected to have 3 van-sized deliveries per week. Although final retail tenants and spaces are not yet finalized, at this time it is anticipated that there will be two retail establishments. Based on the assumptions, the site would be projected to generate six deliveries per week or just under one delivery per day. Overall the site is expected to generate 5 to 7 deliveries per day, which can be accommodated by the number of loading docks provided by the development.

Access for the loading facilities will be provided from a curb cut located along Van Street, north of the parking garage entry. All loading will be accessed from Van Street. Figure 10 and Figure 11 show the turning maneuvers for a 30-foot single-unit truck and Figure 12 shows the turning maneuvers for a typical garbage truck. As shown in the figures, both vehicles can easily access and egress the turning bay without any issues.

This development is proposing a loading management plan due to the back-in maneuvers used to access the loading dock. These back-in maneuvers are not standard for street operations, and although Van Street acts like an alley, it is technically designated a street. Due to the limited width of Van Street and the geometry of the site, a loading dock using head-in/head-out maneuvers is not feasible. Thus, this development is proposing back-in/head-out maneuvers, combined with the proposed loading management plan is as follows:

- Building Management will require that all tenants schedule deliveries in advance to the extent possible.
- Deliveries will be permitted between 7:00 AM and 4:00 PM, seven days a week, except for when events occur at Nationals Park. Deliveries cannot be scheduled for the period between two (2) hours when an event begins and one (1) hour after an event is completed (including during the event itself).
- A representative of Building Management will supervise all deliveries to the loading dock, for 30-foot trucks or larger (this does not apply to delivery vans). Building management will not schedule deliveries during Nationals Park events as defined above when there could be heavier than typical pedestrian traffic on Van Street.
- Building management will post a sign in a highly visible location within the loading area that states that all loading activities must be scheduled through building management.
- Trucks using the loading dock 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.

Parking

The proposed parking supply will meet zoning requirements. Based on current District zoning laws for residential and retail developments in the study area, the minimum parking for the project is one space per 3 dwelling units for the residential land use and one space per 750 square feet in excess of 3,000 square feet for the retail uses. This leads to a minimum requirement of 97 spaces for the residential and 31 spaces for the retail uses for a total of 128 spaces. The proposed development will satisfy the zoning requirements by supplying 139 parking spaces. This amount of parking on site reaches a balance between accommodating all users while not encouraging driving as a mode.

Bicycle Facilities

As stated previously, the site is directly served by multi-use trails, signed bicycle routes, and local streets that accommodate cycling. Notably, adjacent to the site are bike lanes on Potomac Avenue, 1st Street SE, and I Street, and the Anacostia Riverwalk Trail is located near the site.

The project will include short-term public bicycle spaces on streets, near building entrances, and public places. These short-term spaces will include inverted U-racks placed in high-visibility areas. The Applicant is willing to work with DDOT in selecting locations for the racks in Public Space.

The project will also include secured long-term bicycle parking within the parking garage. The garage plans identify 110 secure, long-term spaces in the parking garage. According to the *DC Zoning Regulations and Bicycle Commuter and Parking Expansion Act of 2007*, all residential developments must provide at least one secure bicycle parking space for each 3 residential units. In addition, the number of bicycle parking spaces for all other land uses shall amount to 5 percent of the automobile parking spaces required. Based on these regulations, the development must provide 97 bicycle parking spaces for the residential portion of the development and 2 bicycle parking spaces for the retail portion of the development. The development meets the requirements, and will also provide short-term parking along its perimeter.

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.

TDM's importance within the District is highlighted within section T-3.1 of the DC Comprehensive Plan, where it has its own dedicated section including TDM policies and actions. As stated in the Plan, the Washington DC, metropolitan region is a leader in developing and implementing TDM strategies. Typical TDM programs include:

- Carpooling/vanpooling, employee shuttles, and improvements that encourage bicycling and walking
- Financial incentives, such as preferential parking for ride-sharers and transit subsidies
- Congestion avoidance strategies, such as compressed work weeks, flexible work schedules and telecommuting

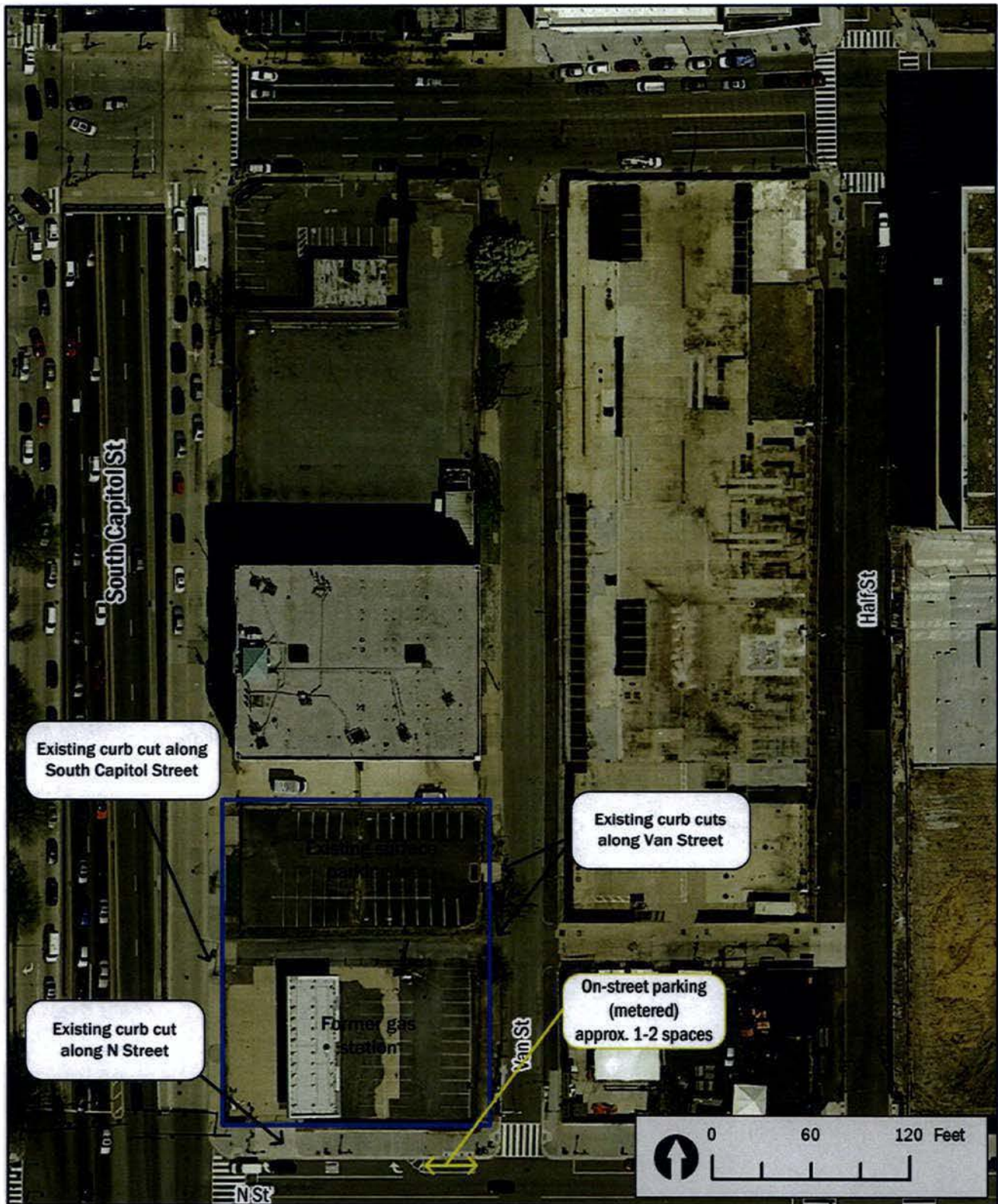


Figure 7: Existing Site Diagram

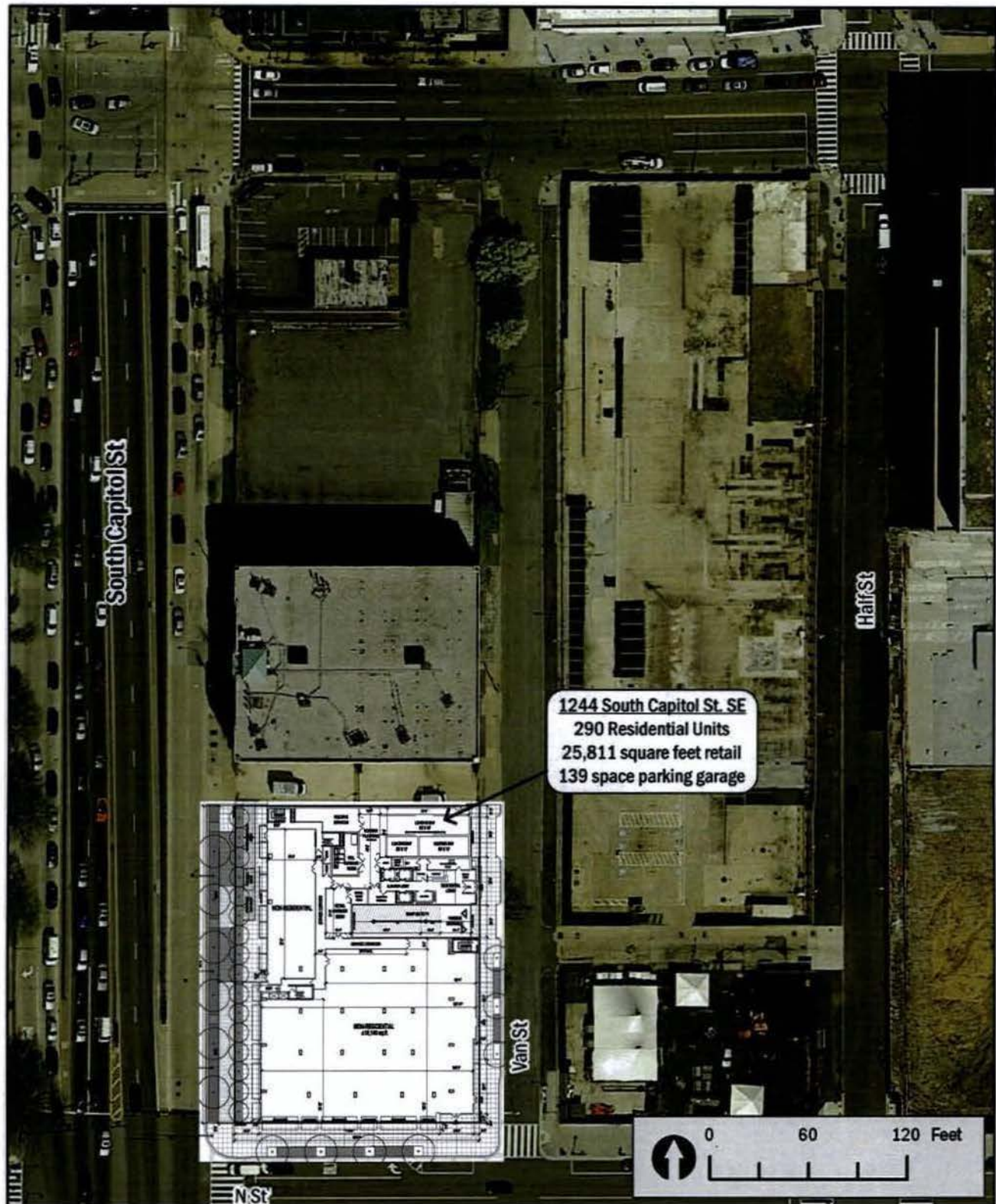


Figure 8: Proposed Development Plan

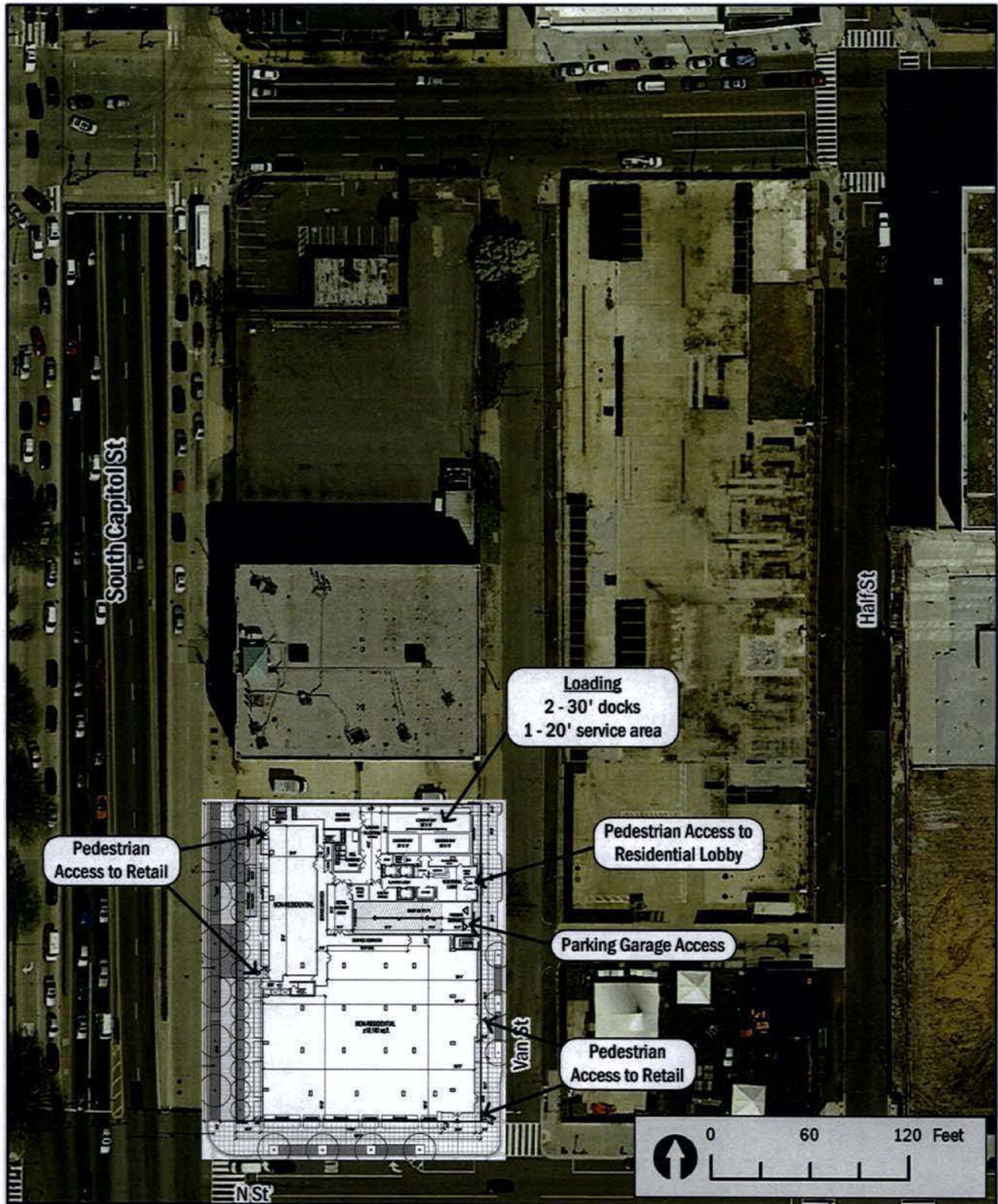


Figure 9: Proposed Site Access

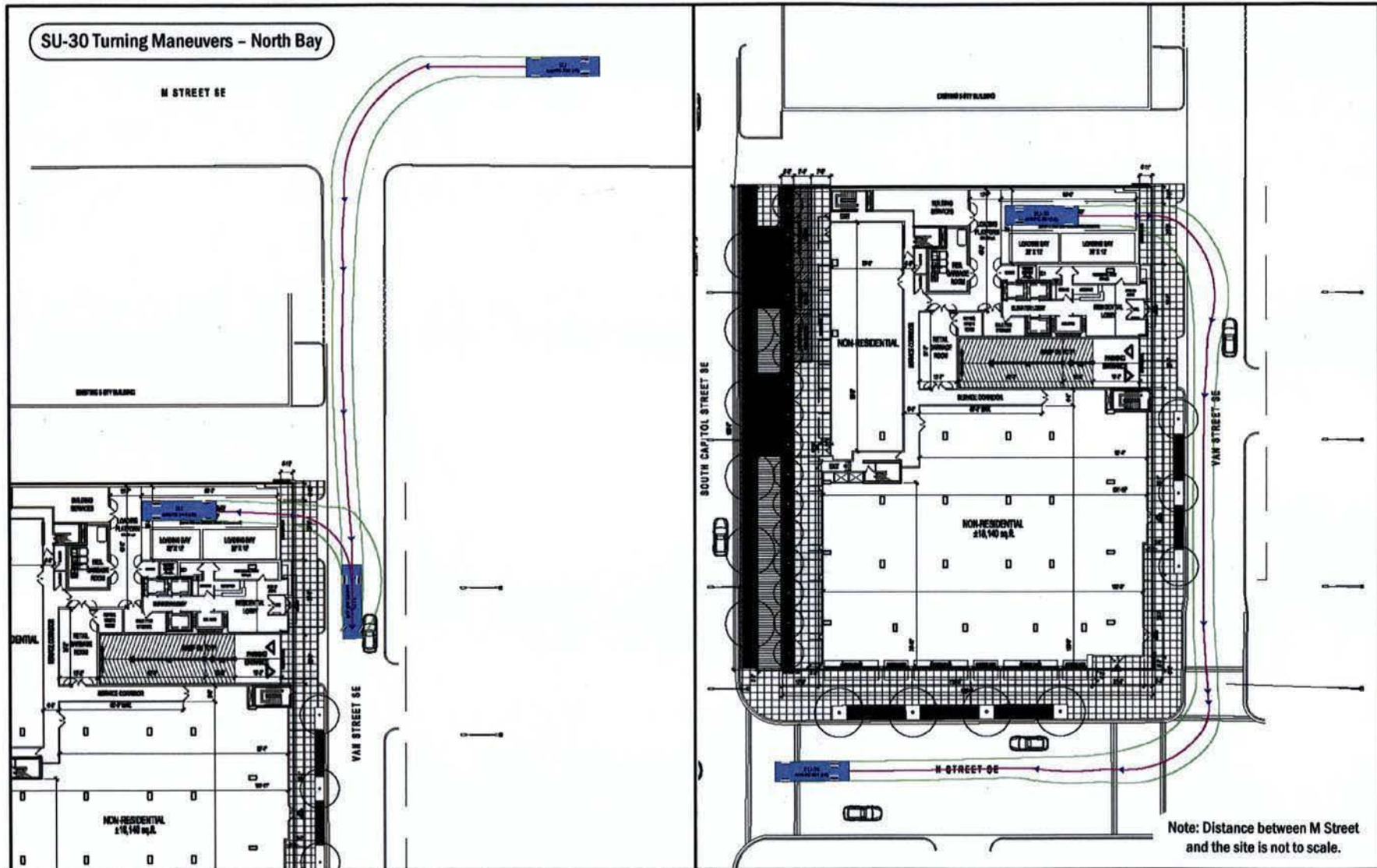


Figure 10: SU-30 Turning Maneuvers – North Bay

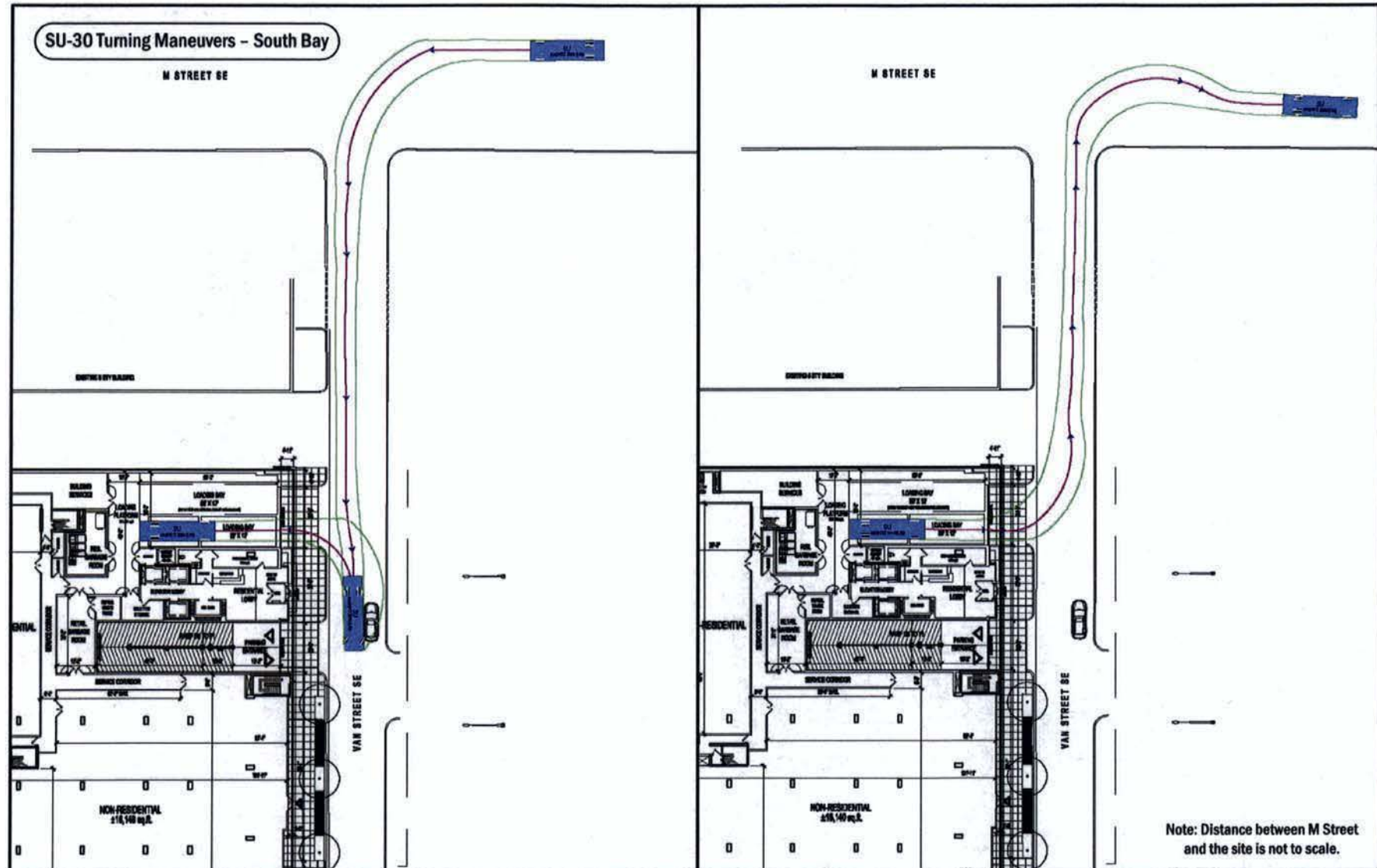


Figure 11: SU-30 Turning Maneuvers

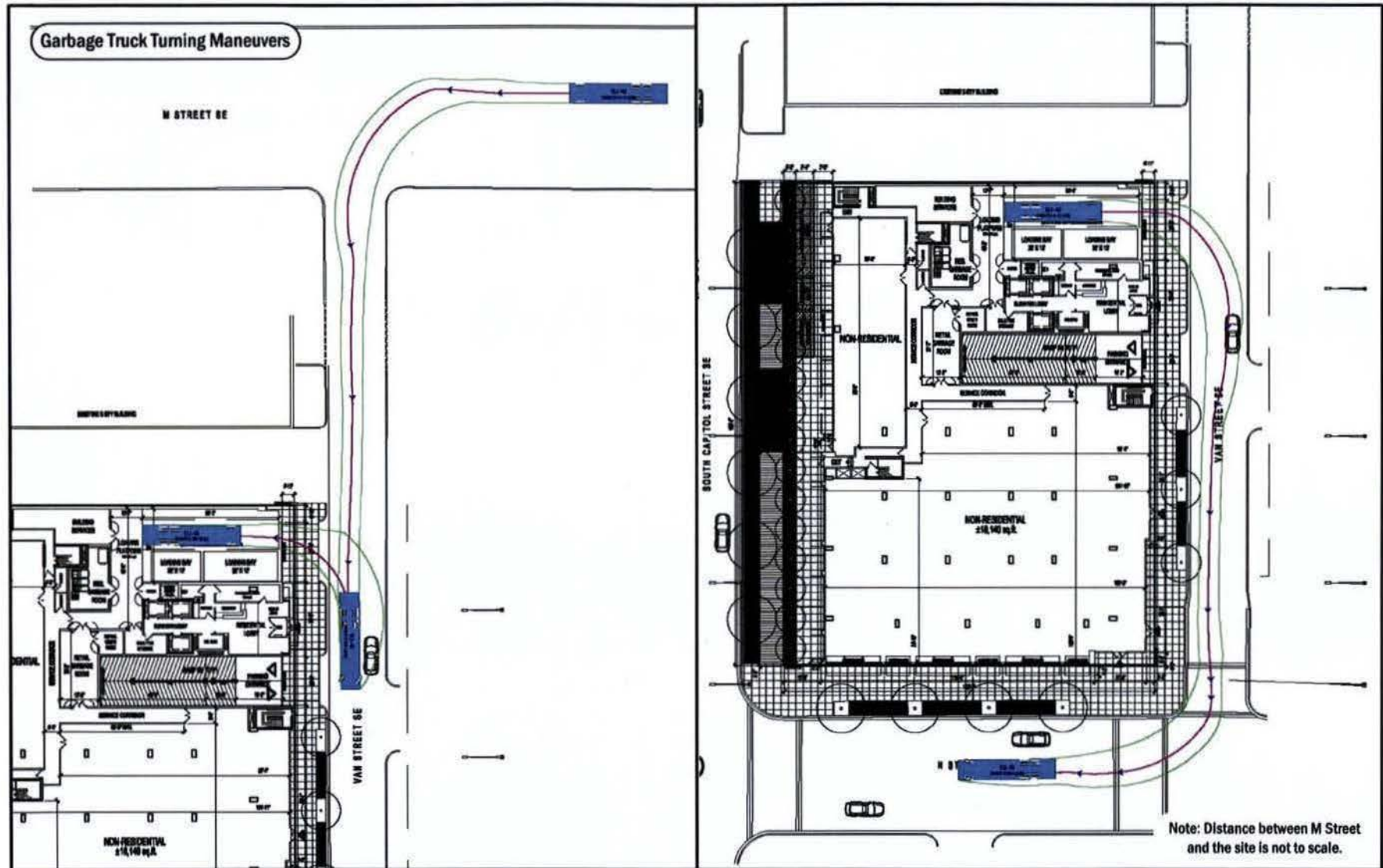


Figure 12: Garbage Truck Turning Maneuvers

DDOT TDM Expectations for District Development Proposals

The District of Columbia is quickly growing and attracting new residential, commercial, and retail development and redevelopment, which are generating significant additional vehicular traffic to, from, and within the District. In order to meet the District's goals of reducing automobile trips and accommodation travel through the complete transportation network, DDOT is developing a systematic approach and process for integrating TDM in to the development and redevelopment permit process.

Currently, TDM is handled on a project-to-project basis, with a one-size-fits-all framework to development. This approach does not allow for maximization of TDM opportunities or provide a process for consistent application of TDM goals.

This Final Report includes a TDM Recommendations Matrix, which outlines the expected TDM measures that development proposed are expected to include. The matrix breaks down development proposals by their type (for example by-right vs. PUD), and by the amount of peak hour trip generation.

This report recommends that detailed TDM plans be submitted at the time of their application submissions. It is highly likely that DDOT TDM expectations and requirements, as well as changes in transportation options (for example, the growth of Capitol Bikeshare and the DC Circulator in recent years); will change the landscape of TDM planning.

The trip generation for the proposed 1244 South Capitol St. SE development places it within the "Proposal consistent with the Zoning Code and project generates Between 50 and 200 peak hour auto trips" category of the TDM Recommendations Matrix (Table 2) from the DDOT TDM report.

According to the TDM Recommendations Matrix, the following five TDM measures are required based on the type of development.

- During construction, maintain or coordinate relocation of any existing bus stops at the developer's expense.
- Comply with Zoning requirements to provide bicycle parking/storage facilities.
- Require all parking costs be unbundled from the cost of lease or purchase. Parking costs must be set at no less than the charges of the lowest fee garage located within ¼ mile.
- Post all TDM commitments on-line, publicize availability, and allow the public to see what commitments have been promised.
- Identify a project's TDM Leader (for planning, construction, and operations). Provide DDOT/Zoning Enforcement with annual TDM Leader contact updates.

In addition to the five measures above, three TDM measures are designated as expected with the option to substitute potential other TDM measures.

- Provide website links to CommuterConnections.com and goDCgo.com on developer and property management websites.
- Provide an on-site business center to residents with access to copier, fax, and internet services.
- Install a Transportation Information Center Display (kiosk) containing printed materials related to local transportation alternatives, and maintain a stock of materials at all times.

Proposed TDM Plan

The Transportation Demand Management (TDM) plan for the 1244 South Capitol St. SE development is based on the DDOT expectations for TDM programs.

The Applicant proposes the following TDM measures:

- The Applicant will comply with Zoning requirements to provide bicycle parking/storage facilities. This includes secure parking located in the garage for residents.
- The Applicant will identify a project's TDM Leader (for planning, construction, and operations). The TDM Leader will work with residents in the building to distribute and market various transportation alternatives and options.
- The Applicant will dedicate two spaces in the garage for car sharing services to use with right of first refusal. These spaces will be convenient to the garage entrance, available to members of the car sharing 24 hours a day, seven days a week, without restrictions (the garage may be gated – members of the service would have access to the spaces via a key pad combinations to a pass code system or other similar device).
- The Applicant agrees to host a transportation mobility fair six months after both the building has opened. The transportation fair will be advertised to all residents. The onsite TDM coordinator will work with DDOT's goDCgo team to organize representatives who are experts in the non-auto transportation options that serve the site. Each person who attends the event will be educated on the various options and representatives will work with attendees to help them tailor the use of non-auto options to their specific transportation needs. Based on the turnout of the transportation fair and feedback gleaned by the onsite TDM coordinator, a determination will be made if the event will be repeated the following year.

IMPACTS REVIEW

This section of the report focuses on the influence and impact site generated traffic will have on the local transportation network, with the following purpose:

- To 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 are expected to travel to and from.
- To 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 analysis of intersection delays. These delays are compared to the acceptable levels of delay set by DDOT standards to determine if the site will negatively impact the study area. The report describes what improvements to the transportation network are needed to mitigate adverse impacts.

Site Transportation Demand

This section summarizes the trip generation and mode split assumptions for the 1244 South Capitol St. SE PUD. Several documents were consulted in order to make the assumptions outlined in this document, including:

- *Design and Engineering Manual*. DDOT, 2012.
- *Transportation Planning Handbook*. 3rd Edition. Institute of Transportation Engineers (ITE), 2009.
- *Trip Generation Manual*. 9th Edition. Institute of Transportation Engineers (ITE), 2012.
- *Trip Generation Handbook*. 2nd Edition. Institute of Transportation Engineers (ITE), 2004.
- *Summary of Travel Trends: 2009 National Household Travel Survey (2009 NHTS)*. U.S. Department of Transportation, Federal Highway Administration (USDOT, FHWA), 2009.
- *2005 Development-Related Ridership Survey: Final Report*. Washington Metropolitan Area Transit Authority (WMATA), 2006.
- *2010 State of the Commute Survey Report*. Commuter Connections, National Capital Region Transportation Planning Board, Metropolitan Washington Council of Governments, 2011.
- *2007-2011 American Community Survey*. U.S. Census Bureau. 2011.

Traditionally, trip generation for a proposed development is calculated based on the methodology outlined in the Institute of Transportation Engineers' (ITE) *Trip Generation*, 9th Edition. For this report, the methodology was supplemented to account for the urban nature of the site (*Trip Generation* provides data for non-urban, low transit use sites) and to generate trips for multiple modes. The following summarizes the methodology that was used in this study.

Base Trip Generation

The first step in calculating multi-modal trip generation was to use ITE *Trip Generation* to develop base vehicular-trip rates, which do not account for reductions due to mode split. The *Trip Generation Handbook*, 2nd Edition, which is included as a supplement to the ITE *Trip Generation Manual*, was also consulted for guidelines for estimating trip generation.

The data provided in the *Trip Generation Manual* consists of several types of analyses of trip generation data: the data plot, the weighted average trip generation rate, and the regression equation. The data plot consists of a graph of trip ends versus the independent variable (square feet, employees, dwelling units, etc.), and is provided when there are at least two data points. A weighted average trip generation rate, which assumes a linear relationship between the trip ends and the independent variable, is provided when available. The weighted average trip generation rate assumes a straight line passes through the origin (i.e. zero trips are generated for an independent variable of zero). For the weighted average, a standard deviation is also calculated, which measured how widely dispersed the data points are around the calculated average. As the standard deviation decreases, less dispersion of the data is present. A regression equation, which defines a line that “best fits” the data, is also provided when available. The regression equation also has a corresponding coefficient of determination (R^2), which is an estimate of how accurately the equation fits the data. As the value of R^2 increases towards 1.0, the accuracy of the equation improves. However, a regression equation is only provided when there are four or more data points and the R^2 value is greater than 0.50.

According to the *Handbook*, the following guiding principles are recommended for estimating trip generation for a proposed development:

- Use the regression equation when:
 - A regression curve and equation are provided;
 - The independent variable is within the range of data;
 - The data plot contains more than 20 data points OR the value of R^2 is 0.75 or higher; and
 - The standard deviation is greater than 110% of the weighted average rate.
- Use the weighted average rate when:
 - At least three data points are provided;
 - The independent variable is within the range of data;
 - The standard deviation is less than 110% of the weighted average rate;
 - The value of R^2 is less than 0.75 or no equation is provided; and
 - Weighted average rate falls within the data cluster in plot.

In addition to the guiding principles, the *Handbook* also notes that caution should be exercised when applying regression equations to low-value (near zero) independent variables. For low-value independent variables, the regression equation may produce a trip generation estimate that is illogical. This is because the regression equations typically yield y-intercepts, which yield to a trip generation projection when the independent variable is zero. Therefore, the weighted average should be used.

The PUD consists of residential and retail land uses. The following section summarizes the assumptions for the weekday peak hour trip generation for each of these land uses.

Residential Trips

The Residential trips for the apartments were projected based on Land Use (LU) 220 for Apartment. *Trip Generation* defines apartments as “rental dwelling units located in buildings with at least three other dwelling units”. The morning and afternoon weekday peak hour trips were generated based on the data provided for the peak hours of the adjacent roadway

network – one hour between 7:00 and 9:00 AM and between 4:00 and 6:00 PM, respectively. For the apartment land use, the weekday morning and afternoon peak hours of the generator typically correspond to the peak hours of the adjacent roadway network. Peak hour trips were projected using the regression equations provided based on average vehicle trip ends per dwelling unit. The regression equations were chosen for the apartment projections, due to the high (over 0.75) coefficient of determinations (R^2) for each time period according to the methodology outlined previously.

Retail Trips

For the trips generated by the on-street retail, LU 820 for Shopping Center was applied in lieu of individual trip rates—such as bank, pharmacy, and supermarket—for the non-Grocery Store retail uses because applying individual rates would not account for the interaction between the retail uses (shoppers visiting more than one store). The Shopping Center trip rate accounts for these uses and interactions.

The morning and afternoon weekday peak hour trips were generated based on the data provided for the peak hours of the adjacent roadway network – one hour between 7:00 and 9:00 AM and between 4:00 and 6:00 PM, respectively. *Trip Generation* provides information on the hourly variation of shopping center traffic for shopping centers with less than 100,000 square feet. For the weekday trips, the morning and afternoon peak hours of the shopping center typically do not coincide with the peak hours of the adjacent roadway network, so the peak hours of the adjacent roadway network were used to correspond with the time periods analyzed in the study. All of the trip projections were generated based on the average rates provided based on average vehicle trip ends per 1,000 square feet of gross leasable area. According to the *Trip Generation Handbook*, as outlined previously, the weighted average rate should be used to estimate trip rates for land uses with low value independent variables. This is due to the y-intercept of the regression equation, which can yield an illogical trip projection. Although the coefficient of determination (R^2) for the regression equations provided is high (above 0.75), the average rates were used due to the low square footage of retail provided (under 50,000 SF).

Total Base Trip Generation

Trips were generated for the proposed PUD based on (1) the methodology outlined previously, (2) the land uses outlined previously; and (3) the development program outlined previously.

Trip Generation was used to develop the base vehicular trip generation projections, not accounting for reductions due to non-vehicular mode splits. These calculations do no account for the synergy between the various uses on site (trips originating from within the development). As stated previously, this approach leads to a conservative analysis as it assumes that shoppers will not visit multiple stores (on-street retail and grocery) during one trip. Some of these internal trips—such as residents walking to the retail—will be accounted for in the trips assigned to non-vehicular modes.

Table 5 shows the base vehicular trips generated by the proposed PUD for the weekday morning and afternoon periods.

Table 5: Base Weekday Vehicular Trip Generation

Land Use	Size	Trip Generation					
		AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Residential	303 Dwelling Units	23	69	92	66	43	109
On-Street Retail	22,963 ⁴ Square Feet	14	9	23	42	44	86
Total Vehicle-Trips		37	78	115	108	87	195

⁴ The analysis for this project was performed on a slightly different iteration of the design.

Average Vehicle Occupancy

The next step in calculating the multi-modal trip generation is to convert the base vehicular trips to person trips. *Trip Generation* typically projects trips for suburban-based developments, where the primary mode of travel is by personal vehicle. Therefore, the vehicular trips are converted into person trips based on the average vehicular occupancy for each land use.

The average vehicular occupancy (AVO) rates are based on the rates published in the 2009 NHTS by the FHWA. Based on the information contained in the report, Table 6 shows the AVO assumed for each land use⁵ contained in the proposed development. As shown in Table 6, the AVO for the residential uses is based on the “To or From Work” trip purpose, as this applies to the majority of the trips generated by these uses. The AVO for the retail use is based on the “Shopping” trip purpose.

Table 6: Average Vehicle Occupancy

Land Use	Average Vehicle Occupancy
Residential	1.13 Persons/Vehicle
Retail	1.78 Persons/Vehicle

Total Person-Trip Generation

The total weekday peak hour person-trips were generated for the proposed OUD based on (1) the base vehicular trips shown previously in Table 5; and (2) the average vehicular occupancy rates shown previously in Table 6. In order to calculate the person-trips, the vehicular trips are multiplied by the average vehicular occupancy.

Table 7 shows the base person-trips generated by the proposed PUD for the weekday peak periods.

Table 7: Total Weekday Person-Trip Generation

Land Use	Average Vehicle Occupancy	Trip Generation					
		AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Residential	1.13 Persons/Vehicle	26	78	104	75	48	123
On-Street Retail	1.78 Persons/Vehicle	25	16	41	75	78	153
Total Person-Trips		51	94	145	150	126	276

Mode Split Assumptions

The next step in calculating multi-modal trip generation is to assemble mode split projections. This section describes how Gorove/Slade reached assumptions on the use of the following four modes of travel for the project’s transportation demand: transit (consisting of both Metrorail and Metrobus), walking, biking, and vehicle. Each land use was analyzed separately in order to account for varying mode splits. The mode split estimates for the PUD were developed using survey information contained in several sources: WMATA’s 2005 *Development-Related Ridership Survey*, Commuter Connections’ 2010 *State of the Commute Survey Report*, and results from the U.S. Census American Community Survey. The following describes in detail how the mode split assumptions were assembled based on information from these sources.

⁵ 2009 National Household Transportation Survey. “Table 16: Average Vehicle Occupancy for Selected Trip Purpose 1977, 1983, 1990, and 1995 NPTS, and 2001 and 2009 NHTS (Person Miles per Vehicle Mile” for 2009 data, Page 33. Federal Highway Administration (FHWA), 2010.

Residential Uses

Several sources provide mode split information that can be used to develop estimates for future residents of the PUD, including results from the 2007-2011 *American Community Survey* (ACS) portion of the U.S. Census, WMATA's *Ridership Survey* of residential sites within the District, and The *State of the Commute* report, which contains the average mode split of commuters that live in the District.

Data from the ACS was obtained from the U.S. Census Bureau online American Fact Finder. Data was collected for Census Tracts 64 and 72. The data shown is obtained from the "Means of Transportation to Work" data provided in the ACS.

The 2010 *State of the Commute Survey Report* (State of the Commute) was conducted by the Commuter Connections program, which is administered by the National Capital Region Transportation Planning Board (TPB) and the Metropolitan Washington Council of Governments (MWCOC). The State of the Commute survey is "a random sample survey of employed persons in the Washington metropolitan region". The survey documents trends in commuting behavior, such as commuter mode shares and average distance traveled. The data shown includes survey respondents that live within the District.

In addition to the Census and State of the Commute data outlined previously, data from the WMATA 2005 *Development-Related Ridership Survey* (Ridership Survey) was examined to determine the residential mode split for the PUD. The Ridership Survey includes survey data from various high-density commercial office and residential sites, retail and hotel sites, and entertainment side within the Washington metropolitan region. The survey included 49 sites distributed throughout the District, Northern Virginia, and southern Maryland. The data shown includes the "CBD" locations, which includes all residential sites surveyed within the District.

A summary of the mode splits from the three sources is shown in Table 8.

Table 8: Mode Split Information for Residential Uses

Information Source	Mode			
	<i>Train</i>	<i>Metrobus & Other Transit</i>	<i>Auto</i>	<i>Walk & Other</i>
2000 Census ⁶	20%	25%	33%	22%
State of the Commute ⁷	27%	14%	48%	11%
WMATA Ridership Survey ⁸	50%	6%	18%	26%

Of these three sources of information, the one that most closely contains the transportation characteristics of the proposed PUD would be the census information from the tracts where it is located. The sites that comprise the *Ridership Survey's* average mode splits do not compare well based on location and distance from the Metrorail station. The *State of the Commute* is an average for the entire District, and the difference between its mode splits and the census data make sense, given that the census tracts adjacent to the site have better bus than rail service and more employment in walking distance relative to the District as a whole.

Thus, this report uses the census information as a starting point for assembling residential mode split assumptions. The following steps were taken to assemble the mode split estimates, using this data as a starting point.

- The amount of transit use was assumed to be 45%, equal to the census tracts surrounding it (45%).

⁶ Weighted average for responses from census tracts 64 and 72

⁷ Survey respondents that live within the District

⁸ For 'CBD' locations, which includes all residential sites surveyed within the District

- The amount of cycling was set to 3%, to reflect the site's location near the Anacostia Riverfront Trail and the amount of residents located within a 10-15 minute bicycle ride from the site.
- Similarly, the walk mode split was set to 7% to reflect the amount of existing and future resident in walking distance of the site, compared to the District average as a whole. The total amount of bicycling and walking totals 10%, which is close to the 'Walk & Other' percentages observed in the *State of the Commute*.

Thus, the assumptions for residential mode split at the Square 701 are as follows:

- Vehicle: 45%
- Transit: 45%
- Walk: 7%
- Bike: 3%

Retail Uses

The main source of mode split information for retail sites is WMATA's *Ridership Survey*. Contained within the report are summaries of mode splits for five retail sites within the Metropolitan area, and one within the District. The one site within the District was the U Street area, which of all of the sites surveyed is the closest in characteristics to the 1244 South Capitol development, as it is a 'main street' retail area with ground floor retail mixed in with other land uses (as opposed to destination retail). Table 9 summarizes the mode split information for the U Street site and all of the retail sites surveyed.

Table 9: WMATA Ridership Survey Mode Split for Retail Sites

Retail Location	Mode			
	<i>Metrorail</i>	<i>Metrobus & Other Transit</i>	<i>Auto</i>	<i>Walk & Other</i>
U Street Site	44%	13%	19%	25%
All sites surveyed	29%	8%	36%	27%

Although the U Street site is closest in characteristics to the PUD, in order to maintain a conservative assumption, this report uses the mode splits for the all retail sites surveyed as a basis for assumptions. This report uses the following mode split assumptions for retail:

- Vehicle: 40%
- Transit: 40%
- Walk: 15%
- Bike: 5%

Summary

Table 10 summarizes the mode split assumptions.

Table 10: Mode Split Assumptions

Land Use	Mode Split			
	<i>Vehicle</i>	<i>Transit</i>	<i>Walk</i>	<i>Bike</i>
Residential	45%	45%	7%	3%
Retail	40%	40%	15%	5%

Multi-Modal Trip Generation

The next step in calculating the multi-modal trip generation is splitting the person-trips per land use into each of the four modes using the mode split assumptions described above. Following the base trip generation shown previously in Table 7, the person-trips are assigned to each mode (transit, walk, bike, and vehicle). Following the trip assignment, the person-trips assigned to the vehicular mode are divided by the average vehicle occupancy rates shown previously in Table 6 to obtain the total vehicular trips generated. The following sections show the trip assignment by land use.

Residential

According to Table 7, shown previously, the residential portion of the development is projected to generate the following total number of trips:

Table 7: Total Weekday Person-Trip Generation

Land Use	Size	Trip Generation					
		AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Residential	1.13 Persons/Vehicle	26	78	104	75	48	123
Total Person-Trips		26	78	104	75	48	123

Additionally, as shown previously, the residential trips are projected to have the following mode split:

- Vehicle: 45%
- Transit: 45%
- Walk: 7%
- Bike: 3%

Based on the number of person-trips and the mode split, Table 11 shows the trip assignment for the residential portion of the development for the weekday peak periods.

Table 11: Weekday Multi-Modal Trip Generation for Residential Trips

Mode	Percentage	Residential Trip Generation					
		AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Total Residential Person-Trips		26	78	104	75	48	123
Person-Trips by Transit	45 %	12	35	47	34	21	55
Person-Trips by Walking	7 %	2	5	7	5	4	9
Person-Trips by Bike	3 %	1	2	3	2	2	4
Person-Trips by Vehicle	45 %	11	36	47	34	21	55
Vehicular Trips	1.13 Persons/Vehicle	10	32	42	30	19	49
Total Residential Trips*		25	74	99	71	46	117

* - Combination of person-trips and vehicle-trips

Retail

According to Table 7, shown previously, the retail portion of the development is projected to generate the following total number of trips:

Table 7: Total Weekday Person-Trip Generation

Land Use	Size	Trip Generation					
		AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
On-Street Retail	1.78 Persons/Vehicle	25	16	41	75	78	153
Total Person-Trips		25	16	41	75	78	153

Additionally, as shown previously, the residential trips are projected to have the following mode split:

- Vehicle: 40%
- Transit: 40%
- Walk: 15%
- Bike: 5%

Based on the number of person-trips and the mode split, Table 11 shows the trip assignment for the residential portion of the development for the weekday peak periods.

Table 12: Weekday Multi-Modal Trip Generation for Residential Trips

Mode	Percentage	Residential Trip Generation					
		AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Total Retail Person-Trips		25	16	41	75	78	153
Person-Trips by Transit	40 %	10	6	16	30	31	61
Person-Trips by Walking	15 %	4	2	6	11	12	23
Person-Trips by Bike	5 %	1	1	2	4	4	8
Person-Trips by Vehicle	40 %	10	7	17	30	31	61
Vehicular Trips	1.78 Persons/Vehicle	6	4	10	17	17	34
Total Retail Trips*		21	13	34	62	64	126

* - Combination of person-trips and vehicle-trips

Summary

Table 13 shows a summary of weekday peak hour trip generation calculations by mode.

Table 13: Weekday Trip Generation for Proposed Development by Mode

Land Use	Trip Generation					
	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Vehicle Trips						
Residential	10	32	42	30	19	49
Retail	6	4	10	17	17	34
Total New Vehicle Trips	16	36	52	47	36	83
Transit Person-Trips						
Residential	12	35	47	34	21	55
Retail	10	6	16	30	31	61
Total New Transit Person-Trips	22	41	63	64	52	116

Land Use	Trip Generation					
	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Walking Person-Trips						
Residential	2	5	7	5	4	9
Retail	4	2	6	11	12	23
<i>Total New Walking Person-Trips</i>	<i>6</i>	<i>7</i>	<i>13</i>	<i>16</i>	<i>16</i>	<i>32</i>
Bicycling Person-Trips						
Residential	1	2	3	2	2	4
Retail	1	1	2	4	4	8
<i>Total New Bicycling Person-Trips</i>	<i>2</i>	<i>3</i>	<i>5</i>	<i>6</i>	<i>6</i>	<i>12</i>
Total Trips*	46	87	133	133	110	243

* - Combination of person-trips and vehicle-trips

Roadway Capacity and Operations

This section details the vehicular trips generated in the study area along the vehicular access routes, defines the analysis assumptions, analyzes the vehicular impacts of the proposed development, and makes recommendations for improvements where needed.

Scope of Analysis

The purpose of the vehicular capacity analysis is to determine the existing conditions of the intersections located in the immediate vicinity of the proposed development. The following intersections were selected, as shown in Figure 13:

1. South Capitol Street & Potomac Avenue
2. South Capitol Street & N Street
3. South Capitol Street SB & M Street
4. South Capitol Street NB & M Street
5. Van Street SE & M Street SE
6. Van Street SE & N Street SE
7. Half Street SE & M Street SE
8. Half Street SE & N Street SE
9. 1st Street SE & M Street SE
10. 1st Street SE & N Street SE
11. New Jersey Avenue SE & M Street SE
12. Half Street SW & M Street SE

Intersection capacity analyses were performed for the existing conditions at each intersection within the study area during the morning and afternoon peak hours, as well as for future conditions with and without the proposed development. The study scenarios are as follows:

- Existing Conditions
- Future Conditions without Development (2017 Background)
- Future Conditions with Development (2017 Future)

The *Synchro*, Version 7.0 software package was used to analyze the study intersections based on the Highway Capacity Manual (HCM) methodology. The *Synchro* model was compiled using signal timings provided by DDOT and with lane

configurations and traffic volumes collected by Gorove/Slade. The following sections review the assumptions made for the technical analyses, as summarized in Table 14.

Traffic Volume Assumptions

The following section reviews the traffic volume assumptions made and methodologies used in the roadway capacity analyses, summarized in Table 14.

Existing Conditions

The overall purpose of this study is to show what effect the proposed 1244 South Capitol St. SE development will have on the transportation system in the study area. The existing conditions in and around the site are characterized in order to provide a foundation for assessing the transportation implications of the proposed development. This is determined by examining the peak traffic hours, which are directly associated with the peaking characteristics of the site and the adjacent transportation system. These peaking characteristics are found through analysis of existing count data.

DDOT and National standards require that traffic counts be conducted on a weekday, not including Monday or Friday, when traffic conditions can be described as “typical”. This includes the consideration for adjacent uses, such as retail, special events, and recreation facilities and for major traffic generators, such as the area public school system or any large public or private institutions. Weekend and other off-peak periods are also often reviewed if the study area includes other uses that may be relatively inactive during the “typical” weekday.

The traffic counts conducted on “typical” day are used to determine the morning and afternoon “peak hour” of traffic within the study area. According to the Highway Capacity Manual (HCM) methodologies, a one-hour analysis period is preferred. Analysis periods that exceed one hour are not usually used because traffic conditions are typically not steady for long time periods and because the adverse impact of short peaks in traffic demand may not be detected in a long time period. The “peak hour” represents the worst-case scenario, when the system traffic volumes are the highest. The use of a “typical” weekday morning and afternoon peak hours are used to ensure that conclusions regarding adverse impacts and their respective mitigation measures would apply to the vast majority of time roadways are used in the study area. Although there may be times when volume flows exceed these conditions, such as during special events, holiday weekends, or other times depending on the study area and site location, it is the industry standard to design transportation infrastructure for the peak times during “typical” weekdays.

In order to ensure that the data collected contains the peak hour, traffic counts are taken for a period of several hours during the morning and afternoon peak periods. From these peak periods, a peak hour is derived for both the morning and the afternoon time periods. According to the Transportation Impact Analyses for Site Development Manual published by the Institute of Transportation Engineers (ITE), data is generally collected during the weekday morning (7:00 to 9:00 AM) and afternoon (4:00 to 6:00 PM) peak hours. Although this is the standard, Gorove/Slade usually collects data for a three-hour (or longer) period to ensure that the peak hour is contained within the data collection timeframe.

The peak period counts are analyzed to determine the one hour during the morning and afternoon periods that contains the highest cumulative directional traffic demands. From each peak period count, the morning and afternoon “peak hours” are determined by summing up the four fifteen-minute consecutive time periods in the study area that experience the highest cumulative traffic volumes.

Following the above guidelines, traffic counts, including vehicular and pedestrian volumes, were obtained by Gorove/Slade at the key study intersections between the hours of 6:30 AM and 9:30 AM for the morning peak period and between 4:00 PM and 7:00 PM for the afternoon peak period on the following dates:

- Wednesday, March 28, 2012;
- Tuesday, November 27, 2012;
- Tuesday, February 12, 2013; and
- Thursday, May 15, 2014.

All of these count dates represent “typical” weekdays when the DC public school systems were in session, as well as the surrounding counties in Maryland and Virginia. These “typical” weekdays also represent time periods that include normal operation for other major traffic generators in the study area. The results of the traffic counts are included in the Technical Attachments. The peak hour traffic volumes are shown on Figure 14. Figure 15 shows the peak hour pedestrian volumes collected.

Future Conditions without Development (2017 Background)

The 1244 South Capitol St. SE development is anticipated to be complete in 2017. The traffic projections for the future condition without the development consist of the traffic generated by background developments with planned completion by 2017, listed previously, and the inherent growth on the study area roadways added to the existing traffic volumes.

As outlined previously, there are several background developments located in the vicinity of the site. However, only those studies that are located within the study area, are approved, and are planned to be completed by the study year (2017) are included in the future background scenario. Table 14 shows a review of the background developments.

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

Based on these criteria, the following developments are included in capacity analysis:

- Akridge at Half Street (25 M Street, 1201 Half Street, and Half Street Residential);
- Riverfront on the Anacostia (Phase 1 only);
- Gallery at Capitol Riverfront;
- Half Street Phase II (Hotel and Residential);
- Square 701;
- Camden South Capitol;
- Hampton Inn; and
- DC Water Occupied Sites (Parcel F1 only).

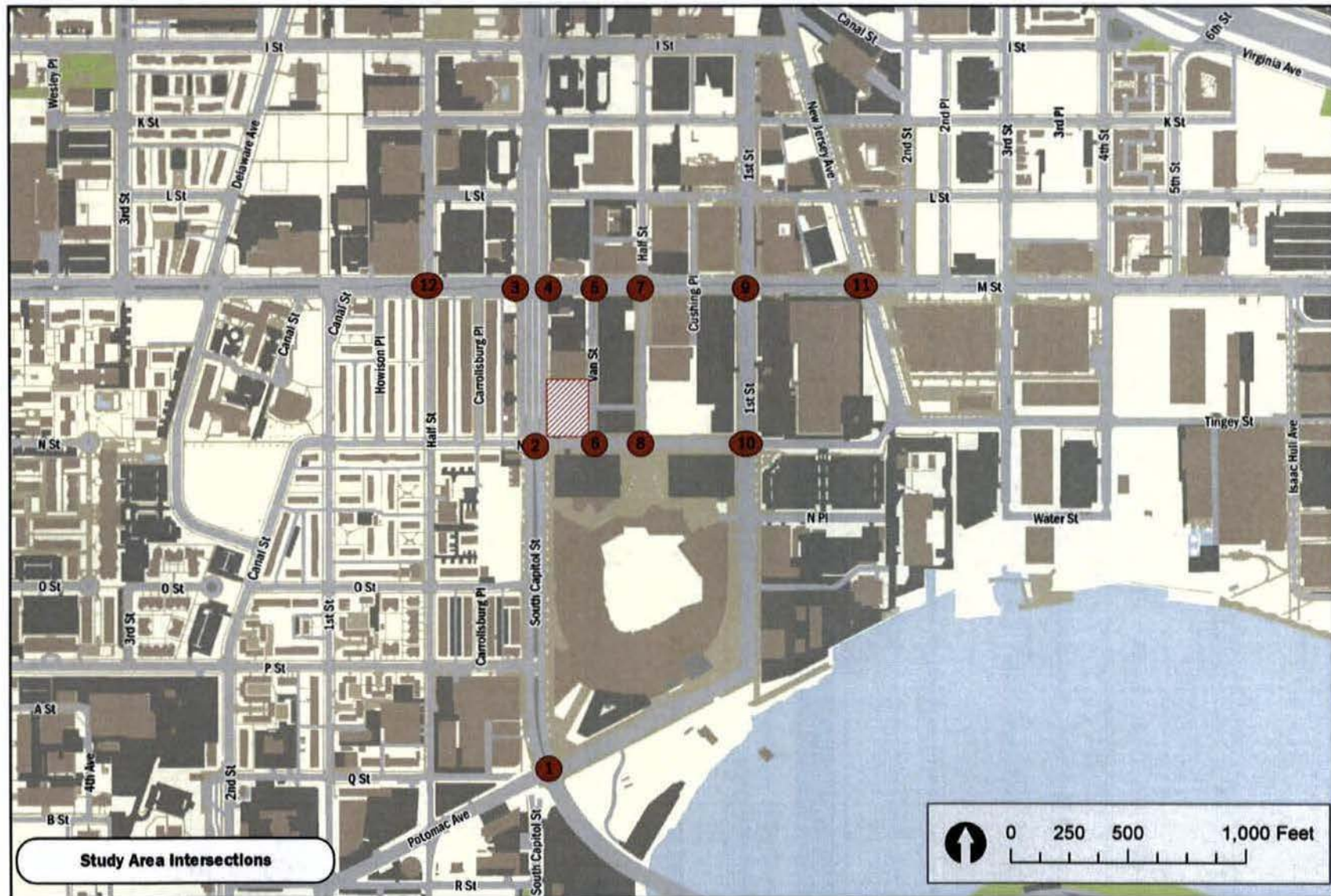


Figure 13: Study Area Intersections