



INTRODUCTION

This report is a TMP (Transportation Management Plan) for the new DC United Stadium in the Buzzard Point neighborhood of Washington, D.C. This TMP was prepared in coordination with a partnership between the District of Columbia government, including the DC Department of Transportation (DDOT), and the ownership of the DC United professional soccer club.

This TMP document is a planning-level report that summarizes the travel characteristics of Stadium patrons, reviews comparable stadiums, and outlines recommendations for each mode of transportation for accommodating game-day transportation needs. It is intended to be the guiding document that outlines transportation strategies that other transportation efforts and actions follow. As such, it will be updated several times prior to the expected inaugural season in 2017.

This report is written assuming that the new DC United Stadium will accommodate 20,000 patrons, although the Stadium has yet to be designed; current estimates of the Stadium's capacity range from 18,000 to 20,000. In addition, this study assumes the Stadium begins operations in the Spring of 2017, in time for the Major League Soccer (MLS) season. Overall, this study aims to provide all patrons with a positive game-day experience by minimizing vehicular impacts, promoting transit as an attractive mode of transportation, and providing a safe and effective bike and pedestrian environment, all while minimizing the impacts to surrounding neighborhoods.

This TMP is broken into the following sections:

- **Site Review:** This section reviews the site location, identifying the advantages and disadvantages it offers. Included in this section is a list of planned developments and District infrastructure projects in the area, as well as projected site conditions in 2017 and beyond.
- **Comparables Review:** This section provides background on Major League Soccer (MLS) and the other stadium facilities throughout the league. It contains a list of MLS stadia transportation features and draws conclusions on how elements from these venues could be brought to the DC United Stadium.
- **Event Patron Profile:** This section reviews existing data from soccer games at RFK and the proposed list of events at the new Stadium. Using the data, this section also

Other Transportation Documents

This TMP is just one of several transportation efforts/reports that will be performed for the new DC United Stadium. Other efforts will include a Transportation Impact Analysis (TIA) presented via an Environmental Mitigation Study (EMS) and a Transportation Operations Plan (TOP).

The TIA will contain a detailed technical review of intersection capacity, as well as impacts to other modes of travel on game-days. It is intended to identify the amount of additional transportation activity expected during game-days and will recommend mitigation measures to alleviate concerns. This will be included in the EMS for the new Stadium. This TMP document will be coordinated with the TIA by providing information on patron travel characteristics and strategies to manage demand.

The TOP, prepared closer to the stadium's opening, acts as an operations "how to" manual. It details special measures on game days, including signs, special traffic operations, and traffic control officer locations and duties. It is a detailed list of operational measures that happen on game-days. The TOP is intended to be a living document, so it always reflects current Stadium conditions. As future projects and developments, such as the South Capitol Street improvements are completed and future transit service is added, the TOP will be revised to reflect the changes to the area. In addition, transportation operations at the new Stadium will be monitored by DDOT and DC United over the first several seasons and changes will be made to the TOP based on these findings.

In addition to the transportation documents prepared specifically for the DC United Stadium, the District recently completed the *SE/SW Special Events Study*, which reviewed the long-term impacts of the new soccer stadium in conjunction with other large event venues (Nationals Park and Wharf Hall) for the year 2035. The Study found that if there were simultaneous events on weeknights at all of the venues, the roadways and transit systems would be over capacity. However, if events were to occur individually they would generate a manageable amount of transportation activity with the use of Traffic Control Officer (TCOs) stationed at critical intersections.



derives a projected game-day travel profile for the new Stadium. These projections will drive the development of solutions to accommodate patrons by mode. Also incorporated into this section is a review of how often soccer and baseball games overlapped between RFK and Nationals' Park in the last few seasons.

- **Management Plan Concepts:** This section reviews each mode of travel and presents solutions to accommodate demand on game-days. Recommendations are split between high- and low-priority, and within three categories: (1) infrastructure, (2) operations, and (3) marketing. The section begins with a discussion of general strategies that overarch each mode and then provides sections on parking, vehicular routing, transit, pedestrian, and bicycles.
- **Marketing Opportunities:** This section summarizes all of the marketing recommendations presented so far and identifies opportunities to work with new technologies, including tablet/phone apps and website strategies.
- **Next Steps and Implementation:** The TMP ends with a summary of thoughts on how each of the strategies contained within this report should be implemented over the next several years. Site Review

This section reviews the site location, identifying the advantages and disadvantages it offers. Included in this section is a list of planned developments and District infrastructure projects in the area. This section also projects site conditions in 2017 and beyond.

EXISTING FEATURES

Several major transportation facilities surround Buzzard Point, providing many high quality connections between the site area and regional destinations. Figure 1 contains a summary of these facilities. These include the Navy Yard and Waterfront Metrorail stations, served by the Green Line, and several highways, such as the SE/SW Freeway, I-395, I-295, and Suitland Parkway. Through these facilities, Buzzard Point is regionally accessible and has many of the positive benefits of a centralized urban location.

In addition to these facilities, the location of the Stadium within an urban setting and the proximity of Nationals' Park provide several advantages. Notably, (1) the improvements to the Navy Yard Metrorail portal that allow for greater flow of riders in and out of the station on game days and (2) the numerous parking lots that serve office space and/or events at Nationals' Park.

These existing facilities can aid significantly in accommodating patrons of the new Stadium.

SITE CONCERNS

Although Buzzard Point has quality regional transportation access, reaching the proposed site within Buzzard Point is not as direct. Figure 2 summarizes some concerns regarding the site.

First, the roadways in the area south of M Street SW and west of South Capitol Street have been developed in a manner that deters traffic from entering. These traffic measures include signs indicating that only local traffic should enter the area from the north and prohibiting left turns while traveling northbound on South Capitol Street. The objectives of these deterrents are to protect the residential community that exists north of the proposed site and minimize cut-through traffic from regional commuters.

Approach and departure routes to parking locations will need to be planned carefully to minimize disruptions to the residential community. This will become less difficult once construction of the proposed South Capitol Street and Potomac Avenue traffic oval is completed (details presented below), as that will become a proper gateway to the Buzzard Point site that does not require travel through the residential community. In addition, the Navy Yard Metrorail Station is the preferred transit portal because walking routes between the Waterfront Metrorail station and the proposed site will be primarily along residential streets.

Second, the major transportation features in near Southeast/Southwest, such as the parking lots serving Nationals' Park and the Metrorail station portals, are mostly within a 10-15 minute walk from the proposed site, about 5 minutes longer than the walk between RFK and the Stadium/Armory Metrorail station. A significant proportion of event patrons can and will walk these distances, but in order to provide a quality game-day experience, it will be necessary to implement operational solutions to improve accessibility to the Stadium. Walking routes across South Capitol Street will need to be reviewed to ensure pedestrians can safely and easily make the crossings before and after events. Finally, helping create a pedestrian-friendly walking route, with a quality arrival sequence to the Stadium, can help reduce the perceived walking time.

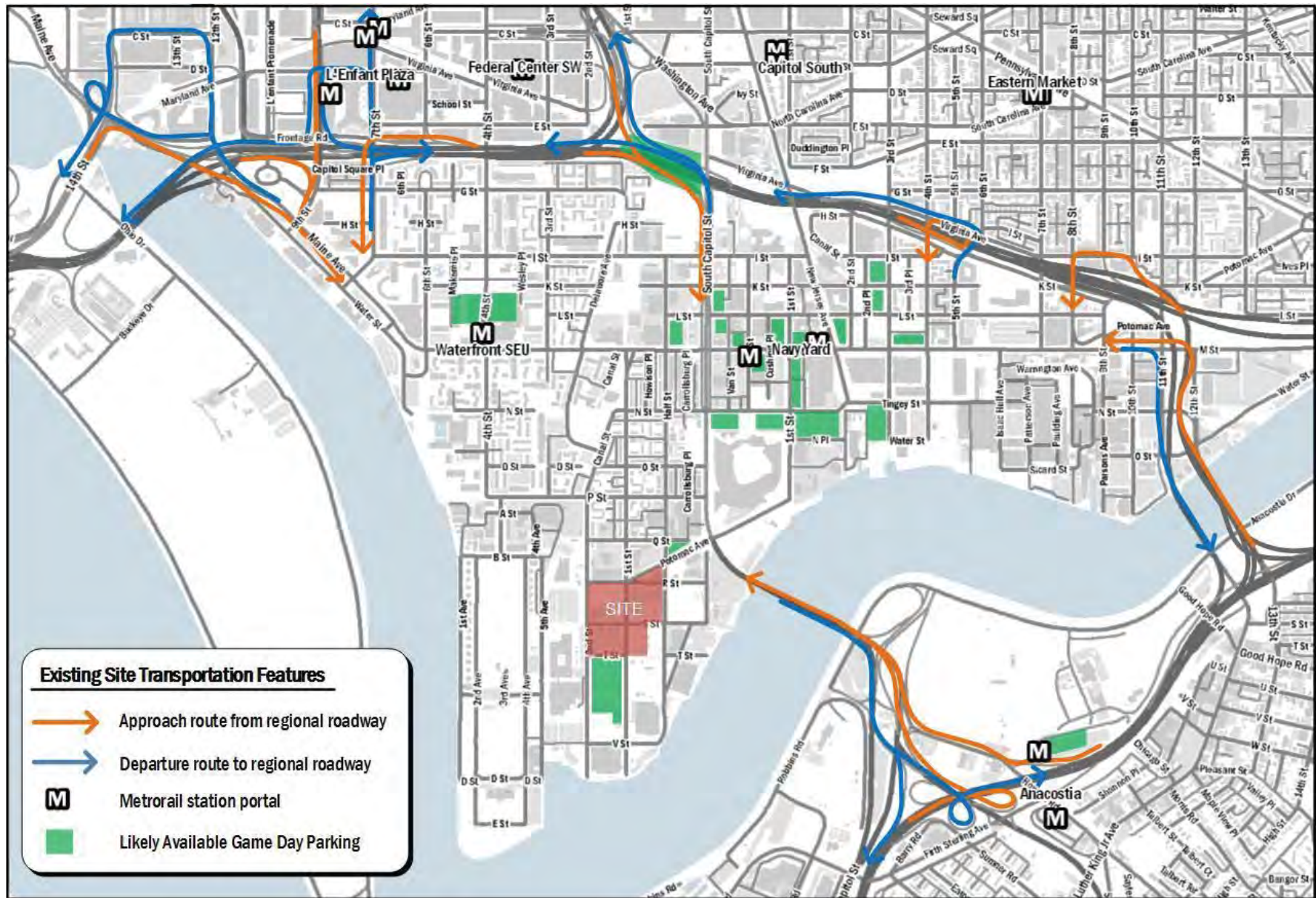


Figure 1: Major Transportation Facilities

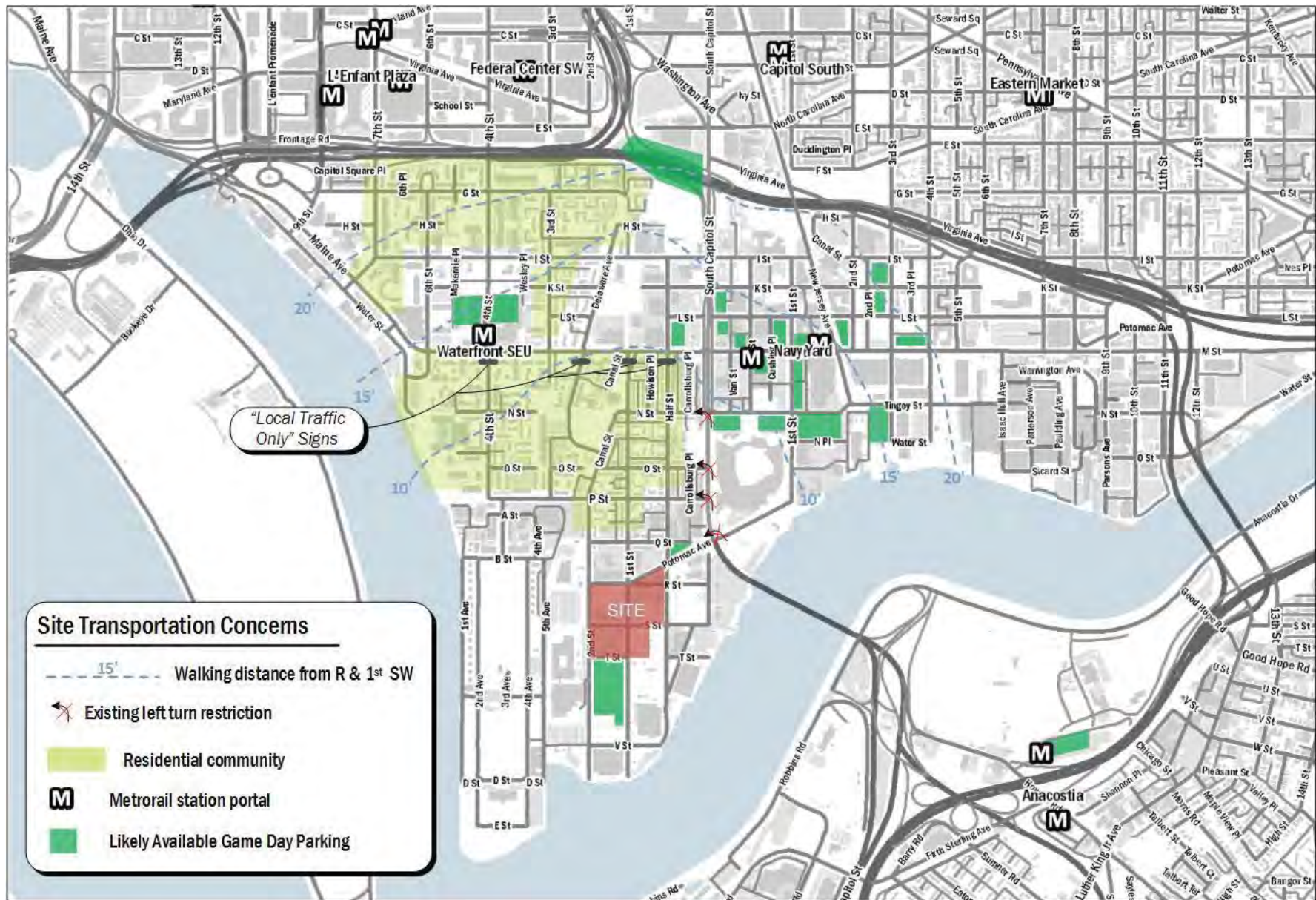


Figure 2: Summary of Concerns



BUZZARD POINT BACKGROUND

The area known as Buzzard Point is generally considered to be bordered by M Street SW to the north, South Capitol Street to the east, the Anacostia River to the south, and the Washington Channel to the west. It can be broken down into three general sub-areas. First, there is a residential component that spans between P and M Streets SW. Fort McNair is south of this neighborhood and west of 2nd Street. The remaining portion is an industrial area between the Fort and the Anacostia River, south of the residential neighborhood. This industrial area is where the new Stadium would be constructed.

For a long time, local and Federal planning agencies have been planning to change the character of this industrial portion of Buzzard Point. The National Capital Planning Commission's (NCPC) *Extending the Legacy Plan* in 1997 identified South Capitol Street corridor as a priority area, discussing ways to emphasize it as a gateway to the Capitol and how it can be positioned in a way that triggers development on either side. The District's Anacostia Waterfront Initiative also reviewed Buzzard Point in their 2000 Framework Plan, targeting it as a neighborhood for growth.

In 2006, the District's Office of Planning revised its Comprehensive Plan to support these efforts by envisioning South Capitol Street as a gateway linking the Capitol to the waterfront. The Plan calls for surrounding the street with mixed-use development and reconstructing the Frederick Douglass Bridge. Part of this plan is already seen coming to fruition on the eastern side of South Capitol Street, with the development of Nationals' Park and the new mixed-use developments surrounding it known as the Capitol Riverfront area.

The Stadium site is located within an industrial area that is zoned CR, or mixed-use Commercial/Residential, and targeted by the Office of Planning for redevelopment from an industrial uses to a vibrant mixed-use neighborhood. In addition, the Stadium site is within the Capitol Gateway (CG) Overlay District, which was established to provide use, height, density, combined lot development, and design requirements to ensure an appropriate mixture of residential and commercial uses and suitable height, bulk, and design of buildings. Figure 3 shows the Buzzard Point and surrounding area's land use and zoning.

The notion of placing a stadium in Buzzard Point fits within this vision, in a manner very similar to how Nationals' Park fit within

the vision on the opposite side of South Capitol Street. In the past 10 years, there has been significant interest in the District regarding major office tenants or mixed-use development moving to the Capitol Riverfront area, and a DC United Stadium could serve as a catalyst for revitalizing the former industrial blocks west of South Capitol Street. If the goal of the Federal and District planning agencies is to create a vibrant residential and commercial mixed-use neighborhood with a live-work-play environment, a new stadium could be an excellent starting point.

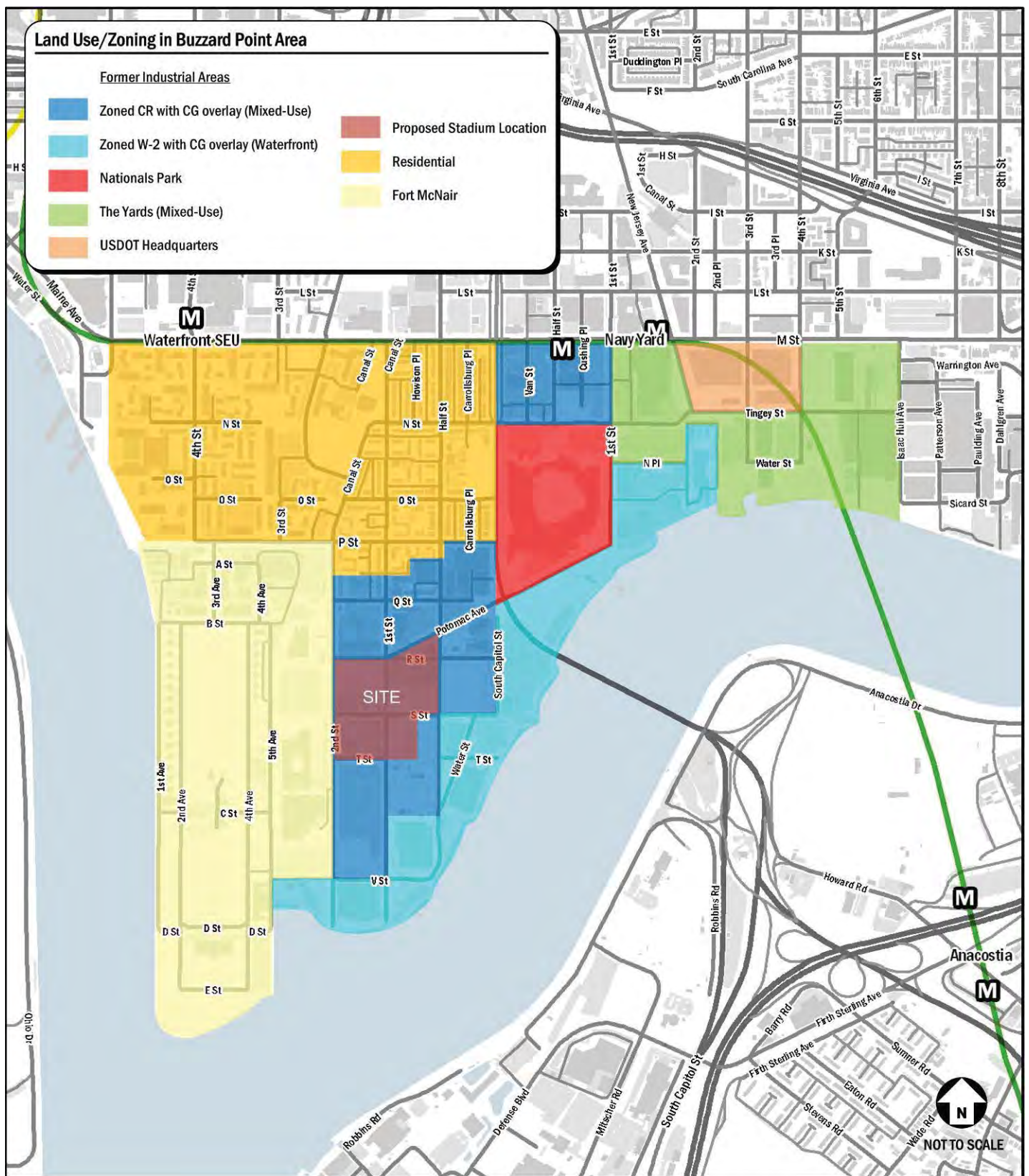


Figure 3: Land Use/Zoning Near Stadium Site



FUTURE PROJECTS

The planning initiatives developed by local agencies described earlier were coordinated with ongoing and planned transportation initiatives. Several long-planned infrastructure projects are starting implementation to help increase access to Buzzard Point. These improvements directly address some of the concerns noted earlier in this chapter.

The public infrastructure improvements include a planned streetcar network and major roadway improvements on the South Capitol Street corridor.

The District's streetcar plan includes two planned lines that terminate at Buzzard Point. Currently, the corridors shown in DC's *Transit Future System Plan* (DDOT, April 2010) are preliminary, and the routing to Buzzard Point is not finalized. Figure 5 shows Phase 1 of the DC Streetcar plan, commonly referred to as the 22-mile priority system, which includes the two lines that terminate at Buzzard Point. The addition of streetcar service to the site would be beneficial to serving the transportation demand of a soccer stadium. In the interim period until the streetcar lines are constructed, or in the event that streetcar is not constructed at all, the implementation of an expanded Circulator or Metrobus service will be explored with DDOT and included in the TOP to add flexible transit capacity to the region.

The South Capitol Street and Frederick Douglass Bridge projects incorporate several new features. A new bridge to replace the existing Frederick Douglass Bridge will be constructed in an alignment parallel to the existing bridge, as shown on Figure 4. This bridge will have one more travel lane than the existing Frederick Douglass Bridge, will be operationally more efficient, and will include high-quality bicycle and pedestrian connections. Improved accessibility with ramp connections to Suitland Parkway and the Anacostia Freeway will also be constructed as part of the planned improvements on the east side of the Anacostia River. Adjacent to Buzzard Point, a proposed traffic oval will be constructed centered at the intersection of South Capitol Street and Potomac Avenue. This will allow traffic traveling northbound on South Capitol Street to effectively turn left into Buzzard Point, a movement not currently allowed. The replacement of the 11th Street Bridge with new (local and regional) bridges connecting with I-295 has helped alleviate South Capitol Street of the interstate traffic that clogged it previously. In addition, the South Capitol Street plans include the replacement of the interchange of South

DC Streetcar

The two planned lines that terminate at Buzzard Point are: (1) The North-South line, from Silver Spring/Takoma Park to Buzzard Point, and (2) The Anacostia line, from historic Anacostia to Buzzard Point.

More information on these lines can be found at the following website: www.dcstreetcar.com

Timeline – 2020

South Capitol Street

The latest news and information on the South Capitol Street project can be found at the following link: <http://www.anacostiawaterfront.org/awi-transportation-projects/south-capitol-street-corridor/>

Timeline – 2018 (for new bridge and traffic oval)

Capitol Street and M Street with a traditional at-grade intersection so that South Capitol Street will operate more like an urban boulevard than a freeway.

The South Capitol Street oval is not expected to be operational before 2018 at the earliest. The North-South Streetcar line and the Anacostia Streetcar line are still in the planning phases and will not be complete until 2020 at the earliest. Thus, this study does not assume either project's construction prior to the inaugural season at the new Stadium. However, the recommendations for each mode of travel presented later in this report do acknowledge how transportation patterns may shift several years past the Stadium's opening to reflect these new services and how construction of these facilities may positively impact Stadium operations. Summary

The review of site transportation features leads to the following conclusions:

- *The proposed site is well served by existing transit and regional highways.*

The urban, centralized nature of the proposed Stadium site provides high accessibility. The location adjacent to Nationals' Park allows for sharing of existing resources such as parking.

- Future improvements and developments will benefit the site.
The infrastructure improvements proposed or already under construction will enhance site accessibility, notably the new South Capitol Street bridge and oval, as well as the concept of bringing streetcar service directly to Buzzard Point.
- The District has been planning for new development at Buzzard Point.
The addition of a stadium to Buzzard Point fits within local planning agencies goals and prior plans.
- The Stadium will attract fewer peak hour vehicles per year than commercial development on the same parcels.
Without a stadium, the site would eventually redevelop as a mixed-use commercial development, which would generate more transportation demand per year than the

DC United Stadium.

- Pedestrian solutions will be necessary to create a quality game-day experience.
As the Metrorail portals and many parking facilities are over a 10 minute walk from the Stadium, solutions will need to be developed to help pedestrians make this walk more easily, without it appearing lengthy or inefficient.
- Solutions will minimize impact to residential communities.
There is a possibility that additional vehicular and pedestrian traffic generated by the stadium could affect the residential community north of the proposed site. Although development of any type on the Buzzard Point site would increase this activity, parking, traffic routing, and transit solutions to minimize the impact will be implemented over the course of the Stadium planning process.

Figure 4: South Capitol Street Improvements



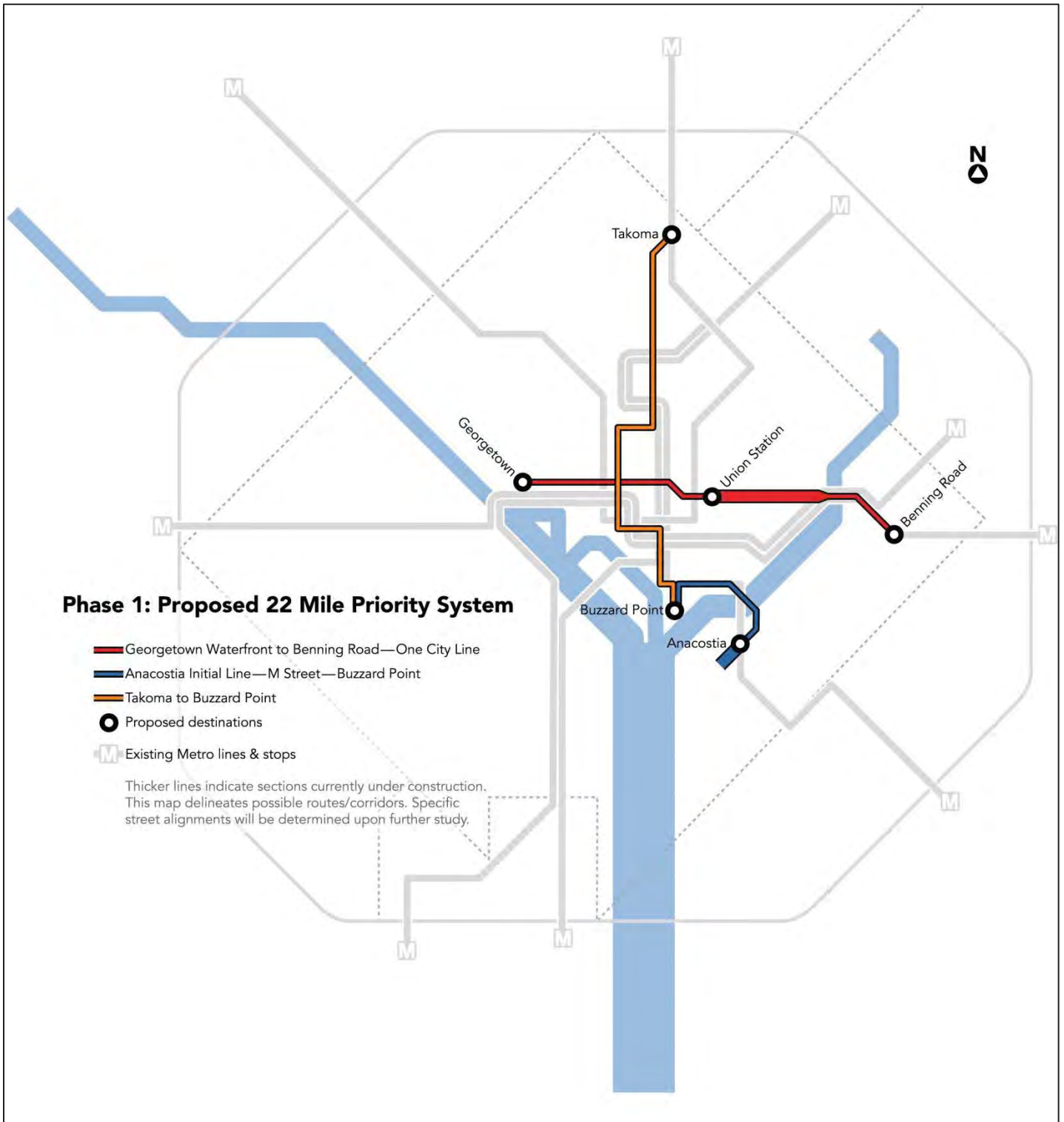


Figure 5: DC Streetcar Phase 1¹

¹ <http://www.dcstreetcar.com/projects/22-mile-priority-system/>



COMPARABLES REVIEW

This section provides background on Major League Soccer (MLS), and other stadium facilities operating throughout the league. It contains a list of MLS venues, a summary of transportation features, and conclusions on how elements from these facilities could be brought to the DC United Stadium.

Table 1 provides a review of the MLS venues that are located in an urban setting. Nearly half of all MLS stadia are located in urban settings, with some locations sharing comparable transportation amenities to Buzzard Point, for example:

- Some stadia are located near other sports venues, similar to how the new DCU Stadium will be located near Nationals Park. Several current teams share facilities and work with their sporting neighbors to maintain a positive game-day experience for all teams in the vicinity, including some near baseball stadia (Houston and Seattle). Thus, precedent exists for having MLS and MLB stadia adjacent to each other.
- Several stadium facilities have transit accessibility with significant marketing and advertising of transit options on their websites. A well-maintained and informative website, paired with other marketing strategies, will be essential for getting patrons to and from the Buzzard Point site efficiently.
- Bicycle services are promoted at several of the venues in the Pacific Northwest. The Buzzard Point Stadium is well-served by bicycle routes and, based on this review, has the opportunity to be the most bicycle-friendly Stadium in the league.
- Most MLS stadium facilities provide large amounts of adjacent surface parking (including DC United's current home at RFK Stadium). There will be different conditions at Buzzard Point, as parking will be distributed throughout several private garages in walking distance. Several urban MLS venues already operate under this model, including Portland, Vancouver, and Toronto.
- Some stadia supplement public transit service through shuttles; however, these instances appear to be employed when the nearby rail stations are over several miles away and not within walking distance.

Major League Soccer (MLS)

MLS is the highest tier of professional soccer in the United States and Canada. There are currently 19 teams in the league, with a schedule that typically begins in March and ends in November.

DC United is one of the founding members of the league, playing every season in RFK Stadium since 1996.

CASE STUDY – PORTLAND TIMBERS

Upon review, the Portland Timbers stadium, Jeld-Wen Field, has the most similar attributes to the proposed DC United Stadium in regards to size, location, and proximity to transit and parking. For this reason, the DC United team reached out to the Portland Timbers to discuss stadium operations in hopes of gaining insight towards planning the new DC United Stadium. The major findings are summarized below:

- Jeld-Wen Field has an overall capacity of 21,000
- There are 88 parking spaces available within a block of the stadium and 2,500 additional spaces located approximately 10 blocks away. A shuttle is available to those parking in these spaces.
- Parking and routing information is disseminated via web and nearly all event parking spaces are pre-paid.
- The approximate transit mode split for the Stadium is 65 percent.
- Transit availability is marketed on the team website and prepaid transit tickets are offered to all season ticket holders.
- Jeld-Wen Field provides approximately 350 bicycle parking spaces and security is offered during events.
- In order to maintain a good relationship with the surrounding neighborhood, the Portland Timbers have developed a Good Neighborhood agreement and have the Senior Vice President of Operations sit on the Neighborhood Board that meets monthly.

As shown later in this report, the parking and mode split statistics for Jeld-Wen Field are comparable to those projected for the new DC United Stadium. Additionally, the amount of bicycle facilities and the overall marketing tactics closely relate to those planned for the new Stadium.



Table 1: Review of Other MLS Stadia

Team/Stadium	Capacity	Transit Accessibility	Parking	Notes
Portland Timbers (Jeld-Wen Field)	21,000	Yes - two rail lines and several bus lines are located within one block of the stadium.	A very small amount of parking adjacent to the field, with more parking located several blocks away. Fans are encouraged to use public transportation.	350 game-day bicycle spaces are available.
Seattle Sounders FC (CenturyLink Field)	67,000	Yes - multiple light rail options and over 15 daily bus routes that stop within 3 blocks of the stadium.	Two adjacent lots to the stadium are sold out on a season basis. Additional game day parking is available at the Union Station garage and the Metro Transit garage.	CenturyLink Field is shared with the Seattle Seahawks football team and is located directly adjacent to the Safeco Field, home of the Seattle Mariners baseball team
Vancouver Whitecaps FC (BC Place)	21,000	Yes - One rail line and several bus lines within walking distance to the stadium.	Several pay parking lots and parking structures surround the stadium.	Bike Valet service is available from gate opening time to a half hour after the final whistle.
Houston Dynamo (BBVA Compass Stadium)	22,000	Limited - two bus lines travel near the stadium	Advance parking passes are available for two lots. Additional multiple private parking lots and garages surround the stadium.	Stadium located within blocks of Minute Maid Park, home of the Houston Astros, and Toyota Center, home of the Houston Rockets
New York Red Bulls (Red Bull Arena)	25,000	Yes - one train station located near the site and a shuttle service is provided to/from Newark Penn Station	All parking is located in surface lots surrounding the stadium.	
Toronto FC (BMO Field)	20,000	Yes - one rail line and a few bus lines travel directly near the site	Parking is provided at Exhibition Place however, due to many large events that occur there, spaces are often blocked off making parking limited. Public transportation is widely recommended.	
Philadelphia Union (PPL Park)	18,500	Limited - there's a shuttle service between the stadium and the nearest train station. A few bus lines that travel near the stadium.	All parking is located in surface lots surrounding the stadium.	



EVENT PATRON PROFILE

This section reviews existing data from soccer matches at RFK, outlines the proposed list of events at the new Stadium, and derives a projected game-day travel profile for the new Stadium. These projections will drive the development of solutions to accommodate patrons by mode. Also incorporated into this section is a review of how often soccer and baseball games overlapped between RFK and Nationals Park in the last few seasons.

STADIUM EVENTS

The Major League Soccer (MLS) regular season typically lasts from March to November, with the majority of matches occurring on the weekends (75%). Table 3 presents a summary of the 2014 DC United schedule.

In addition to DC United games, the Stadium will host other events. Table 2 displays a list, provided by DC United, of possible events. Although preliminary, this list gives an estimate of the level of activity expected during a given year.

Based on this list of events and DC United's schedule for the 2014 season, it appears that the highest attended events will be soccer matches, with several sell-outs likely during significant matches. Most of DC United's matches are 7:00 PM kick-offs on a Saturday night, with only 25% of the 2014 schedule on weeknights. Of these weeknight matches, most of them kicked-off between 7:00 and 8:00 PM on Wednesday night; the later kick-off time allows for most of the arriving crowd to avoid commuter peak periods of traffic.

Table 3: 2014 DC United Home Schedule

Game-day Schedule	Number	Percentage
Wednesday, 7:00 PM	2	10%
Wednesday, 8:00 PM	2	10%
Friday, 8:00 PM	1	5%
Saturday, 3:00 PM	1	5%
Saturday, 4:00 PM	1	5%
Saturday, 6:00 PM	1	5%
Saturday, 6:30 PM	1	5%
Saturday, 7:00 PM	8	40%
Sunday, 2:30 PM	1	5%
Sunday, 8:00 PM	2	10%
Total	20	100.0%

Table 2: Expected Events at New Stadium

Events	2017	2018	2019	2020	2021
DC United					
Number of Games	23	23	23	23	23
Average Attendance	19,200	19,200	19,200	19,200	19,200
International Soccer Matches					
Number of Games	5	5	5	5	5
Average Attendance	20,000	20,000	20,000	20,000	20,000
Concerts					
Number of Games	3	3	3	3	3
Average Attendance	20,000	20,000	20,000	20,000	20,000
Community Events					
Number of Concerts	5	5	5	5	5
Average Attendance	4,000	4,000	4,000	4,000	4,000
Other Events (NCAA Lacrosse/Rugby/etc...)					
Number of Events	10	10	10	10	10
Average Attendance	6,000	6,000	6,000	6,000	6,000

EXISTING TRAVEL PATTERNS

DC United patrons attending matches at RFK Stadium are most likely to arrive via automobile and in groups. During a prior study of DC United patrons, Gorove/Slade collected data from DC United and WMATA regarding game-day attendance, parking pass sales, and Metrorail usage to develop an estimate of existing travel patterns at RFK. The information gathered was used to estimate the mode split of patrons, and estimated occupancy per car. The following describes the methodology used to determine these values and the results are shown in Table 4.

- For every game in the 2012 season, spectator attendance was determined using data provided by DC United on scanned tickets upon stadium entry. Scanned tickets upon entry are used instead of tickets sold since actual attendance differs, mostly due to patrons with tickets not showing up to games. DC United has indicated that the current amount of ticketed patrons that do not show-up is well over 10%, and expect a smaller but significant amount of "no-shows" at the new stadium.
- Then, using information provided by WMATA, Metrorail usage was obtained by comparing the individual game-day ridership to the average ridership on a typical non game-day (categorized by day of week) at the Stadium Armory Metrorail Station.
- It was assumed that 5% of patrons would arrive by means other than Metrorail or vehicle, i.e. charter bus, walk, bike, taxi, etc. Based on discussions with DC



United, a very small number of patrons use charter bus, thus it was assumed that the majority of non-auto, non-transit patrons would walk or bike. This resulted in an assumed mode share of 2% bike, 1% walk, 1% taxi/Uber, and 1% charter bus and other.

A closer examination of the mode split analysis led to the conclusion that DC United spectators are very flexible in their travel mode for the following reasons:

- When track work was in effect, the average transit mode split significantly decreased. The average Metrorail mode split during heavy track work days were 25% on weekdays and 18% on weekends.
- Higher Metrorail mode splits were observed on games with higher attendance. The two highest attended games in 2012 had transit mode splits of 48% and 51%, respectively, drawing the conclusion that DC United patrons are more likely to take public transportation for a bigger game assuming that driving and parking will be more difficult.

These values, combined with general observations, have shown several defining characteristics of DC United patron travel:

- Many soccer patrons arrive early and tailgate in the RFK parking lots, spreading out the arrivals and, sometimes, departures, of patrons.
- The number of people per car arriving at RFK for soccer games is very high, especially compared to other spectator events at RFK and other venues; and
- The percentage of patrons arriving by Metrorail is higher on weeknights than on weekends. This, along with observations of patron activity, further indicates that DC United patrons are flexible in their travel patterns.

OVERLAP WITH NATIONALS' GAMES

With Nationals Park nearby, an obvious transportation question is whether Nationals and DC United games could occur at the same or overlapping times. Based on the review of parking and vehicular traffic/routing strategies presented later in this report, it is possible that events could successfully occur on the same day, given the correct circumstances and mitigation measures.

Before considering the impact of events on the same day, it should be acknowledged that overlapping events are not a common event. Games for both teams occurred at overlapping times only eleven times over the past three seasons. In addition, games on the same days but with non-overlapping times (at least five and a half hours apart) occurred just seven times over the last three seasons. With coordinated scheduling, there would be even fewer potential conflicts than the three to five annual instances that occurred during the last several years when baseball and soccer schedules were not coordinated due to the geographic separation of the facilities.

As shown later in this report, the amount of public parking near the DC United stadium well exceeds projected demand. Even when both teams have large spectator demand on the same day, only slight additions to the parking supply would be needed to accommodate both crowds. Supplementary parking supply could come in the form of special park and ride lots on days with two events or from future inventory from new office parking that may result from additional development in the area prior to the inaugural DC United season.

Other issues that could arise from same day high capacity events could be alleviated through dispersal of traffic. The main concern with same day events of sufficient size would be transit capacity, as the high amount of Metrorail riders generated could overwhelm the system if both events were to end at the same time. There are several ways to ensure that events don't end simultaneously, including scheduling shifts

Table 4: Mode Split at DC United Games (2012)

Day of Week	Mode Split Percentage*						Estimated Car Occupancy*
	Metrorail	Automobile	Bike	Walk	Taxi/Uber	Charter Bus/Other	
Weeknight	36%	59%	2%	1%	1%	1%	3.15
Weekend	32%	63%	2%	1%	1%	1%	3.30

*Based on data provided by DC United and WMATA



and providing post-game entertainment or events.

The TOP will include a more comprehensive operations plan in the event that overlapping games occur. Operational measures could include:

- Coordination between teams to minimize event overlaps
- Supplementing parking supply through park and ride lots
- Supplementing transit capacity through additional bus service or shuttles
- Providing pre and post game entertainment options or promotions to help spread out arrivals and departures

MANAGEMENT PLAN ASSUMPTIONS

This section of the report outlines the transportation demand assumptions that the TMP recommendations are based upon, as shown in Table 5. These assumptions are based on the information described above, mainly the existing mode split at RFK Stadium and the average number of occupants per vehicle, as well as transit mode share data from Nationals Park.

The purpose of these assumptions is to provide goals and targets for the development of the TMP. They are not necessarily predictions of game-day transportation demand but rather assumptions that provide guidance for recommendations. With this in mind, the assumptions are based on the following:

- A Stadium capacity of 20,000 people. The Stadium is not currently designed and may end up with a capacity between 18,000 and 20,000. The higher end of the range was used to develop TMP strategies since it represents a conservative assumption.

- Each event will consider a sell-out of the Stadium capacity. This analysis assumes that all ticket holders attend the match, even though DC United predicts games will have a “no-show” factor of approximately 10%.
- Separate weeknight and weekend scenarios were established, since data from DC United and Nationals games at RFK indicates that event patron travel patterns differ significantly between the Buzzard Point site and RFK Stadium.
- Auto occupancy assumptions based on the weekday and weekend specific observations at RFK Stadium.

Overall, a higher transit mode share was assumed for the new DC United Stadium compared to RFK Stadium. Despite the fact that the new stadium is slightly further from Metrorail than the existing stadium, several factors contribute to a higher transit mode share:

- DC United has indicated that they plan to enhance their encouragement of transit and cycling to games in the new stadium to help improve the overall spectator experience, with an eventual mode share goal of 55% transit and 10% other alternative modes (bicycle, walking, taxi/Uber, charter bus, water taxi, pedicabs, etc.).
- There will be much less parking in the direct vicinity of the new stadium compared to RFK Stadium, which provides ample parking on site. In fact, most of the parking will be of equal or further distance than the nearest Metrorail station, making transit and driving equally attractive in regards to walking distance.
- Parking will be more expensive near the new stadium. Parking at RFK costs \$20 whereas most parking within a 15 minute walk from Nationals Park ranges from \$27

Table 5: Management Plan Assumptions

Scenario	Mode Split						Capacity	Patrons by Mode						Auto Occupancy (patrons/car)	Parking Demand
	Transit	Auto	Bike	Walk	Taxi/Uber	Charter Bus/Other		Transit	Auto	Bike	Walk	Taxi/Uber	Charter Bus/Other		
Low Transit Use Scenario															
Weeknight	40%	55%	2%	1%	1%	1%	20,000	8,000	11,000	400	200	200	200	3.15	3,500
Weekend	35%	60%	2%	1%	1%	1%	20,000	7,000	12,000	400	200	200	200	3.30	3,600
High-Transit Use Scenario															
Weeknight	50%	45%	2%	1%	1%	1%	20,000	10,000	9,000	400	200	200	200	3.15	2,900
Weekend	45%	50%	2%	1%	1%	1%	20,000	9,000	10,000	400	200	200	200	3.30	3,000



to \$37.

- Nationals Park recorded a Metrorail mode share of 55% during the first season, showing that many people are willing and likely to take Metrorail to the area. The new DC United Stadium may not see a mode share quite as high due to the further distance from the Navy Yard Metrorail station; however this provides a helpful baseline for sports venues in the area.

The TMP strategies and recommendations developed later in this report will use the appropriate assumptions that lead to a conservative analysis. Thus, parking demand strategies will be based on the weekend parking demand with low-transit use scenario (approximately 3,600 cars). The transit ridership projections will be based on the high-transit use weeknight scenario's projection of 10,000 people.



MANAGEMENT PLAN CONCEPTS

This section of the report introduces the TMP strategies and recommendations for the DC United Stadium, organized by mode of travel. As stated earlier, this TMP is intended to be the guiding document that outlines strategies that other transportation efforts and actions follow. As such, it will be updated several times prior to the expected inaugural season in 2017.

The following sections provide a break down by mode of travel of the existing capabilities, pros, and cons, and then discusses how game-day events at the new Stadium can be accommodated within that mode. The existing pros and cons discussion for each mode will end with a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis that summarizes key points. At the end of each section, the recommendations will be split into three categories: infrastructure, operations, and marketing.

The purpose of splitting the recommendations is to aid in developing implementation strategies. Infrastructure recommendations include suggestions for the Stadium design team and investigations of refinements to District infrastructure projects that are currently in design. The operational recommendations form a preliminary list of measures for inclusion in the Stadium's eventual Transportation Operations Plan (TOP). The marketing recommendations include items that can be assembled into a preliminary marketing plan.

Finally, the report splits all recommendations into general recommendations and essential recommendations. Essential recommendations are those that this report deems crucial for the Stadium to function acceptably on game days.

GENERAL STRATEGIES

There are two general strategies that apply across the entire TMP: (1) take advantage of existing transportation resources and (2) disperse the transportation demand. These two strategies are inherent in accommodating any major transportation demand generator. In essence, they represent two major benefits of locating a stadium in an urban setting.

Take Advantage of Existing Resources

Located in Buzzard Point, the new DC United Stadium will have multiple opportunities to use transportation infrastructure

designed to accommodate existing nearby uses. The most obvious example is how a Buzzard Point Stadium can share parking facilities with existing and new office buildings developed on or around Buzzard Point. In addition, parking used by Nationals Park may be used when there are no scheduling conflicts. Other examples include how commuter infrastructure, such as transit facilities and bicycle trails, can be used on weekends for Stadium transportation demand.

The goal of this strategy is to minimize redundant transportation infrastructure. For example, having parking dedicated to Stadium-use on a parcel next to the Stadium eliminates the potential for that parcel to become a mixed-use development that functions as part of a revitalized Buzzard Point neighborhood.

Disperse Demand

The second general strategy is to disperse transportation demand, not only across modes of travel but within modes of travel. This strategy includes developing all modes of travel to make each one a viable option for event patrons, thus allowing patrons to spread demand across modes. In addition, this includes spreading each mode within itself, such as encouraging use of several vehicular approach and departure routes and locating parking in several areas to disperse demand.

In addition to dispersing demand across and within modes of travel, demand can also be spread across time. As mentioned earlier, DC United matches at RFK Stadium have an existing tailgating culture, with a spread out arrival pattern. Relative to other sporting events, soccer matches have a shorter average game length of 2 hours with a predictable end time. Thus, both pre and post-game activities encouraged to spread out travel demand can be more successful at soccer matches. It is expected that the tailgating culture that exists at RFK Stadium will be replicated in some form at the new DC United stadium. Most likely this will occur at limited tailgating areas, but supplemented with restaurant/bar gatherings, and meet-ups in public spaces such as festival-like street closures. These pre/post-game gatherings are very prevalent at European soccer games and urban MLS venues. Although the stadium design is very preliminary, DC United staff has indicated they plan to designate a portion of the stadium site for this type of game day activity.



PARKING

This section discusses parking considerations for the new Stadium, including a review of existing and expected 2017 parking options, a SWOT analysis, and recommendations.

Off-Street Parking

Stadium patrons that drive to a soccer match will primarily use off-street parking. Figure 6 depicts existing parking facilities within walking distance of the Stadium. A handful of parking locations are private/reserved use or will be unavailable in 2017 due to construction impacts. Excluding these locations, approximately 22 parking lots and garages are likely to be available for the Stadium on event days. These parking locations account for nearly 6,500 parking spaces, greatly exceeding the highest projected number of soccer-generated vehicles (see Table 5).

Some of the parking identified for soccer patrons is also used by patrons of events at National's Park; nine of the 22 locations are specifically allocated as Nationals parking lots, and several of the remaining parking lots are office buildings that may also be used by patrons of events at both venues. Shared parking challenges can be resolved by avoiding scheduling conflicts.

This parking total does not take into account potential parking at the Stadium itself or office parking as a result of redevelopment in the area between now and 2017.

Redevelopment in the area eliminates several parking lots and garages as shown in Figure 6; however, it is likely that some of these developments will provide office space. Because business hours do not overlap typical soccer game times, office parking may be used as event parking for the Stadium on game days.

Figure 7 shows the existing parking locations that will likely be available during the inaugural DC United season in 2017 in relation to walking time to and from the Stadium. As shown, there are approximately 1,300 parking spaces within a 10-minute walk and over 4,000 within a 15-minute walk.

Assuming that some parking will be provided at the Stadium, Figure 8 displays the preliminary distribution of game-day parking. As shown, most of the patrons are expected to park within a 15-minute walk of the Stadium. Because the improvements to the Frederick Douglass Memorial Bridge won't be complete by 2017, this analysis works under the conservative assumption that patrons are not expected to park in the Anacostia Metro Station parking garage which has over

800 spaces. The current pedestrian pathway between the garage and the Stadium is inefficient and in poor condition; however, when the new bridge is complete the pedestrian environment can be greatly improved and some parking will be accommodated across the Anacostia River. In order for the garage to be of significant use prior to the new Frederick Douglass Bridge, temporary improvements would be essential including a well-lit route, way-finding signage, and traffic control officers (TCOs) at high-traffic areas. As discussed later, TCOs will be expected to direct vehicular and pedestrian traffic at crossings along South Capitol Street; however additional TCOs would likely be necessary on the opposite side of the river, especially where the walking route crosses high-volume ramps.

An overarching concern regarding any event-day parking supply is access and revenue control. For event parking, patrons are generally entering and exiting the lots and garages in a more condensed manner as compared to typical daily parking patterns. The processing of parking fees varies from location to location; therefore some locations could observe excessive queuing entering or exiting the facility which may create problems along the external street grid or within the garage itself. If queues are noticeable from the street, patrons may be more likely to circulate around the area in search of other parking locations. Although this poses a potential issue, there

Table 6: Parking SWOT Analysis

	positive	negative
internal factor	STRENGTHS <ul style="list-style-type: none"> Office buildings near site provide parking Existing supply for Nationals Park On-street parking 	WEAKNESSES <ul style="list-style-type: none"> Scheduling conflicts with Nationals' games will require operational enhancements Walking distance to existing parking supply Access and revenue control Residential on-street parking near site
	OPPORTUNITIES <ul style="list-style-type: none"> Build parking on Buzzard Point New in-fill office development will increase parking supply 	THREATS <ul style="list-style-type: none"> New in-fill residential and retail developments decrease parking supply On-street parking loopholes for Ward 6 residents and car2go patrons threaten relationship with neighbors
external factor		



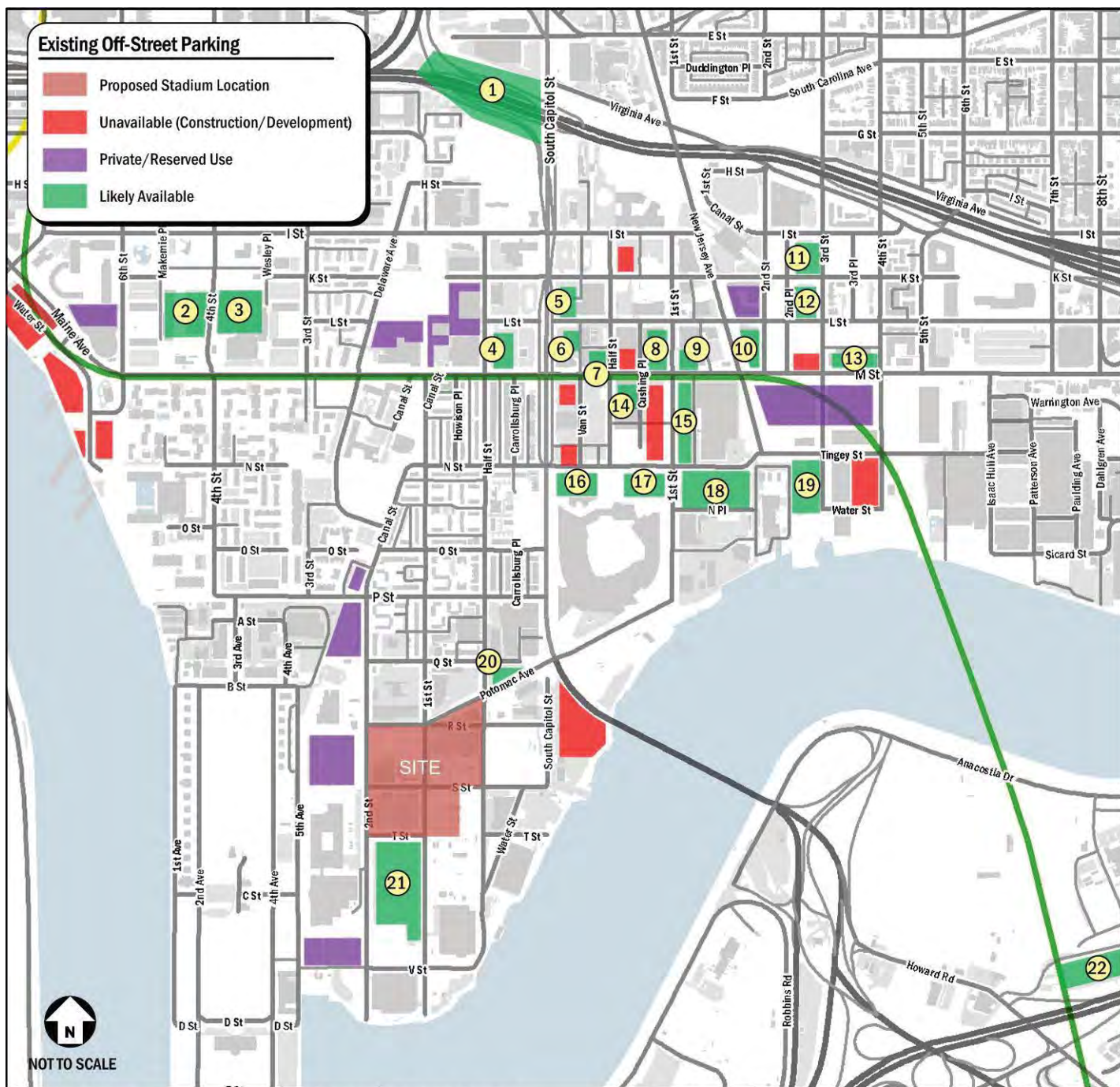
are improvements that can be made to reduce the overall processing time and improve the overall game-day experience such as advance parking passes, flat rate fees, etc.

On-Street Parking

On-Street parking is expected to be used less than off-street parking since there are fewer spaces available. Figure 9 shows an approximate inventory of on-street parking within a 15-minute walk of the Stadium. As shown, the Stadium site is directly surrounded by unrestricted and metered spaces to the north and south. Due to industrial uses to the east and Fort McNair to the west, there is no available on-street parking in these areas. As Buzzard Point continues to develop, it is likely that land to the east will be redeveloped, and as a result more on-street parking will become available. Additional metered parking and a limited amount of unrestricted parking is available north of M Street and east of South Capitol Street. Overall, within a 15-minute walk of the Stadium there are 700 metered spaces and 200 unrestricted spaces; however, a small percent of these unrestricted spaces may have specific time restrictions that conflict with weeknight game times.

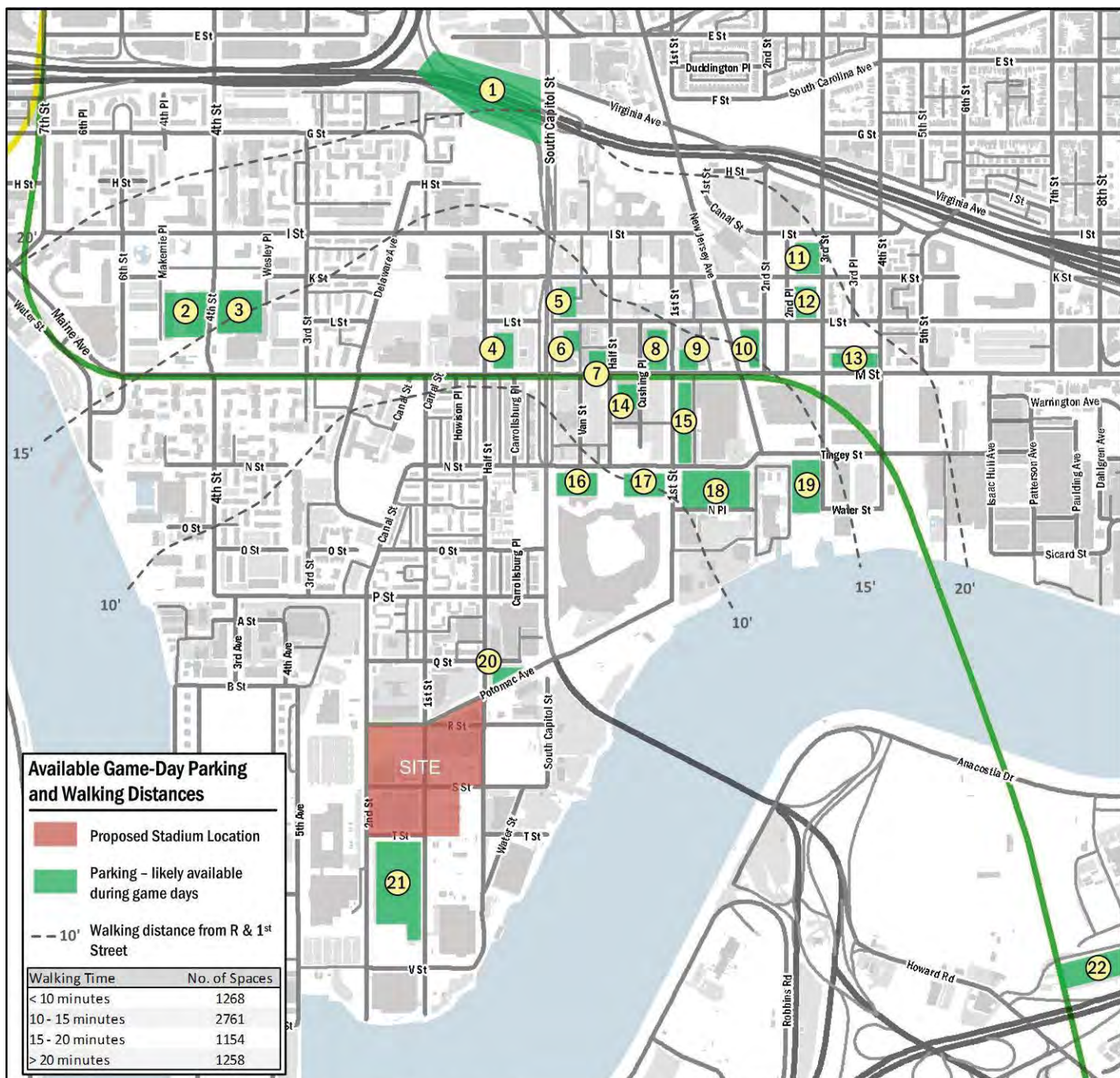
As shown in the figure, a large portion of on-street parking to the north of the site (between Q Street and M Street SW) is designated as residential permit parking (RPP) only. Some of the block faces are allocated as general RPP and some are enhanced RPP (enhanced RPP does not have a 2-hour grace period for drivers without permits). It will be essential to protect parking in this residential area on game days as much as possible, such that the surrounding neighborhood does not experience any negative impacts due to the new Stadium. There are currently multiple methods in place to help protect the residential areas including restricted left turns along South Capitol Street from Potomac Avenue to N Street. “Local Traffic Only” signs are placed along M Street to deter cut through traffic between M Street and South Capitol Street. Although these protections are in effect, patrons with Ward 6 residential parking permits will have the opportunity to park in the residential area. These cars are legally allowed to park in the residential areas adjacent to the site, and this loophole may allow for unintended negative impacts to residential parking.

The advantages and disadvantages of the off-street and on-street parking conditions for the DC United Stadium are summarized in Table 6.



ID	Name/Location	No. of Spaces	ID	Name/Location	No. of Spaces	ID	Name/Location	No. of Spaces
1	Nats Lot HH	450 spaces	9	100 M St SE	195 spaces	17	Nat's Lot C	597 spaces
2	1101 4th Street, SW	298 spaces	10	1100 New Jersey Ave SE	150 spaces	18	136 N St SE	352 spaces
3	1100 4th Street, SW	335 spaces	11	Nats Lot T	73 spaces	19	285 Tingey St SE	240 spaces
4	25 M Street	150 spaces	12	Nats Lot U	73 spaces	20	Nats Media Lot	60 spaces
5	Nats Lot K	126 spaces	13	300 M Street SE	225 spaces	21	2nd and T Street SE	610 spaces
6	Nats Lot L	100 spaces	14	55 M St	297 spaces	22	Anacostia Metro Station Garage	808 spaces
7	Nats Lot H	198 spaces	15	1200 1st Street SW	210 spaces	Total	6441 spaces	
8	80 M St SW	296 spaces	16	Nat's Lot B	598 spaces			

Figure 6: Existing Off-Street Parking



ID	Name/Location	No. of Spaces	ID	Name/Location	No. of Spaces	ID	Name/Location	No. of Spaces
1	Nats Lot HH	450 spaces	9	100 M St SE	195 spaces	17	Nat's Lot C	597 spaces
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6	Nats Lot L	100 spaces	14	55 M St	297 spaces	22	Anacostia Metro Station Garage	808 spaces
7	Nats Lot H	198 spaces	15	1200 1st Street SW	210 spaces			
8	80 M St SW	296 spaces	16	Nat's Lot B	598 spaces	Total		6441 spaces

Figure 7: Available Game-Day Parking and Walking Distances

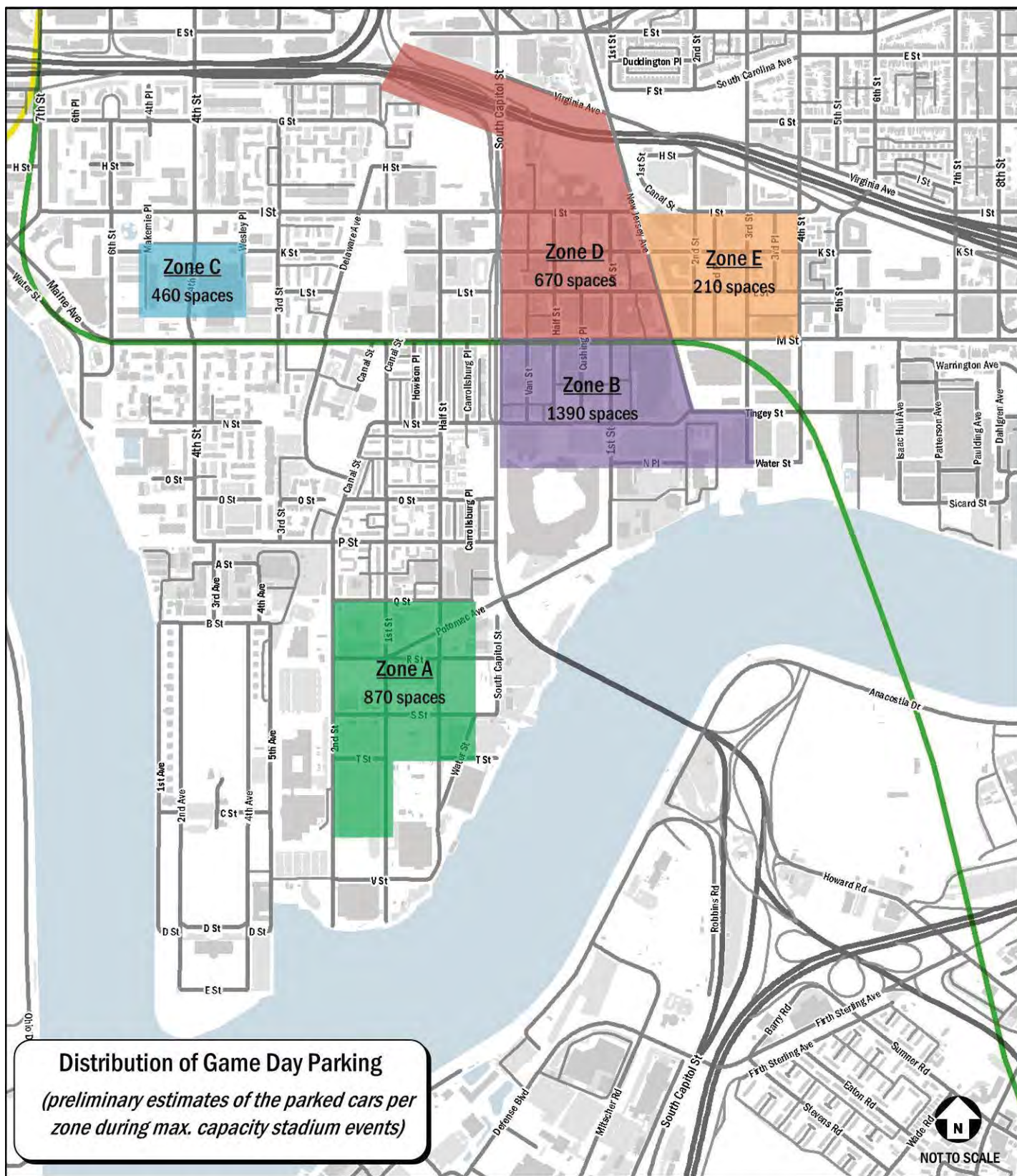


Figure 8: Distribution of Game-Day Parking

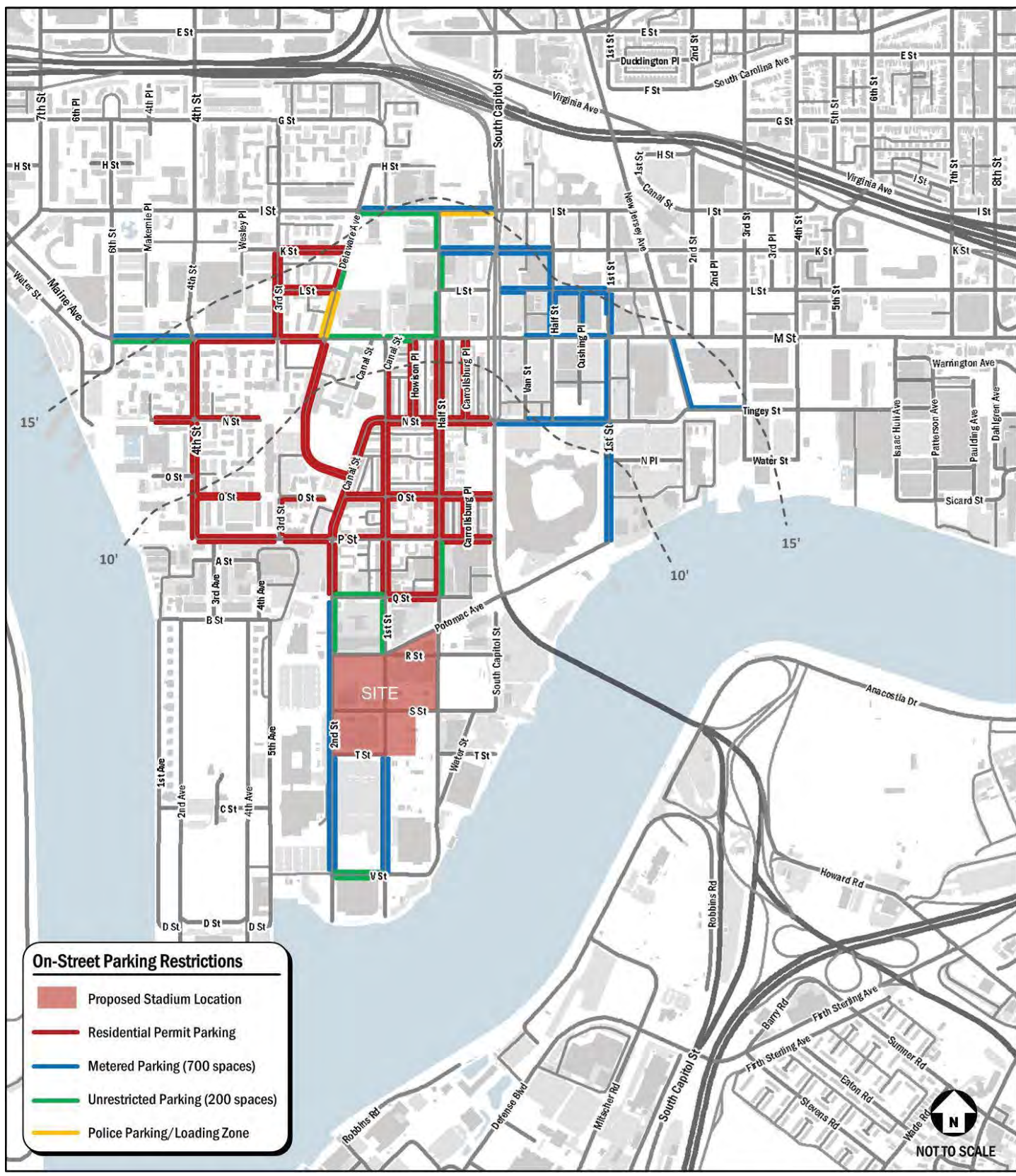


Figure 9: On-Street Parking Restrictions



Parking Recommendations

To address the existing and potential concerns regarding vehicular parking, several recommendations have been compiled, as summarized in Table 7.

High Priority Recommendations

Parking for the new Stadium will be readily available given the number of office buildings near the site that provide game-day parking, the current supply of parking for Nationals Park, and the amount of non-residential on-street parking; however, there are some concerns surrounding this existing supply. Because a portion of available parking is also used by Nationals Park, schedule conflicts with Nationals could result in a parking deficit that would require enhancements to the parking supply. These could take the form of temporary lots on specific game days, or remote lots with shuttle service. The TOP will provide a more comprehensive parking plan, notably in regards to overlapping games between DC United and the Nationals. Information collected once the new stadium is in place and game-day data can be collected will be used to tailor approaches to overlapping events.

Even though there is more than enough existing parking to

serve patrons of events at the Stadium, it will be helpful to provide a limited amount of parking on Buzzard Point near the Stadium. Additionally, parking on Buzzard Point would increase the amount of parking within a short walk of the Stadium, ensure that smaller events could have an independent parking supply, and help disperse overall vehicular demand. Some of this parking could be a source for ADA parking and other priority parking, such as carpool/HOV vehicles. Dedicated parking near the Stadium would likely have to be below grade parking garages as permanent surface lots and above-grade structures are not consistent with District planning goals for Buzzard Point.

Prior to opening the facility, DC United must work with owners, operators, and developers of existing parking facilities and undeveloped surface lots, and formalize operational agreements, to ensure that the parking locations will be available. It will also be imperative to identify specific parking locations for employees and media personnel. The media parking for the Nationals Park is currently located adjacent to the new Stadium on the northeast corner of Potomac Avenue and 2nd Street SW. DC United may consider working with the Nationals to establish this area as a shared media parking

Table 7: Parking Recommendations

	ESSENTIAL	RECOMMENDED
INFRASTRUCTURE	<ul style="list-style-type: none"> Work with owners/operators to use existing parking facilities and enter formal agreements to ensure an adequate supply of parking is available Work with developers to use existing parking facilities and undeveloped surface lots Locate parking areas for charter buses, employees, media personnel, and ADA patrons Implement multi-space meters 	<ul style="list-style-type: none"> Secure some off-street parking within Buzzard Point to help spread out the parking supply and reduce pedestrian crossings at South Capitol Street. Explore parking space occupancy technology Explore revenue control technology (e.g. pre-pay for parking)
OPERATIONS	<ul style="list-style-type: none"> Enforce RPP parking areas by towing/ticketing event patrons 	<ul style="list-style-type: none"> Changes to RPP parking near site to prohibit on-street parking by patrons Provide designated HOV/carpool parking
MARKETING	<ul style="list-style-type: none"> Encourage drivers not to park in RPP areas Advertise parking lots and areas with on-street parking 	<ul style="list-style-type: none"> Investigate parking lot occupancy technology and publicize availability Develop apps and website to market parking



location for the two organizations. Employee parking for venues is typically located at the edge of the parking inventory, with one lot reserved for employee use only. DC United will need to quantify the need for employee parking and designate a location for that purpose. Most importantly, in addition to providing other benefits to the community, it would be advantageous for DC United to hire employees from the neighborhood to decrease overall parking demand.

On-street parking in the direct vicinity of the Stadium will be reviewed to determine the best use of space and possible restriction adjustments. This report advises implementing multi-space meters along all non-residential blocks that currently allow parking. By implementing multi-space meters, rates could be increased during game days. Additionally, multi-space meters increase the overall capacity along the curb as vehicles are able to park closer together. Another consideration for existing on-street parking is for use by charter buses. Portions of 2nd Street could be reserved for charter bus parking on game days. The number of charter bus spaces necessary would have to be determined by DC United based on existing use of charter buses at RFK Stadium.

Operations and marketing recommendations primarily focus on the protection of RPP parking. On the operations side, areas with RPP parking could be blocked off with use of game-day barricades where necessary and RPP parking should be enforced by towing and/or ticketing event patrons. On the marketing side, patrons will be discouraged to park in RPP areas by advertising lots and areas with on-street parking on the DC United website, and by specifically calling out the nearby residential zones as restricted for parking on game days.

Additional Recommendations

There are multiple infrastructure improvements that are nonessential, but desirable, for the Stadium. In order to increase efficiency, decrease queuing, and reduce the amount of drivers circling the area to find parking there are two main recommendations: (1) DC United may explore parking space occupancy technology. This may include options ranging from promoting mobile apps that drivers can use to determine where parking is available to installing signs along driving routes that display the current number of spaces available. (2) Revenue technology may be explored that decreases queuing involved in the payment of parking fees. This could be as simple as advertising mobile apps that allow drivers to prepay for parking or working with garage and lot operators individually to

update and enhance payment processes to allow users to pre-pay for parking. This would reduce the amount of drivers circling to find parking and eliminate any queuing due to processing payments.

Potential operations improvements include changing RPP parking restrictions near the Stadium to prohibit on-street parking by DC United patrons. This would further improve the protection of RPP parking in the residential area near the site. The Stadium may also want to consider providing designated HOV/carpool parking in parking locations nearest the site to promote carpooling as a sustainable option that will ultimately help decrease the parking demand on game days.

All vehicular and parking information will be marketed on the DC United website; however, it would also be advantageous to develop a DC United Gameday app that patrons could download on to their mobile devices. This app would contain all pertinent parking information to be quickly and conveniently available to those traveling to the Stadium.

Summary

Highlights for parking include the following:

- There is enough parking within walking distance of the Stadium (off-street and non-residential on-street spaces) to serve all vehicular traffic traveling to the Stadium on game days.
- A limited amount of parking should be provided on Buzzard Point in conjunction with the Stadium to increase the amount of parking within a short walk of the Stadium, ensure that smaller events will have an independent parking supply, provide a source for ADA and carpool/HOV parking, and help disperse overall vehicular traffic demand.
- On-street parking in residential areas will be protected to the highest extent to ensure that the surrounding neighborhood is not negatively impacted due to development of the Stadium. RPP spaces will be advertised as restricted during game days and enforced through the use of towing/ticketing and establishing temporary barricades during games.
- Non-residential on-street parking should be converted to multi-space meters. Parking rates can be increased on game days and the use of multi-space meters provides a higher parking capacity along each block.



VEHICULAR ROUTING

This section discusses the anticipated routes for vehicular traffic relating to the new Stadium, including a review of the existing and expected 2017 roadway network, a SWOT analysis, and recommendations.

Roadway Network

Regional connectivity near Buzzard Point is excellent. The DC United Stadium is served by many regional roadways including the SE/SW Freeway, I-395, I-295, and Suitland Parkway.

Arterials near the site include South Capitol Street, M Street SE/SW, P Street SW, 4th Street SW, and 1st Street SE. Major collector roadways include Potomac Avenue SE/SW, Delaware Avenue SW, Canal Road SW, 2nd Street SW, and V Street SW. Figure 10 shows the functional classifications of the roadways in the study area, as classified by DDOT.

The roadways, freeways, and bridges that serve the site offer a great deal of vehicular capacity. However, the morning and afternoon peak period traffic volumes use, and exceed in some locations, the built capacity. In contrast, during off-peak periods on weekdays and on weekends, the traffic volumes are far below the built capacity, with excess capacity in most locations.

While the Stadium is connected to several local and regional destinations, access to Buzzard Point itself is limited due to the

Table 8: Vehicular Routing SWOT Analysis

	positive	negative
internal factor	STRENGTHS <ul style="list-style-type: none"> Accessibility of regional routes High-capacity roadways in study area 	WEAKNESSES <ul style="list-style-type: none"> Lack of roadway grid network Limited access to Buzzard Point area High-volume of weekday peak hour traffic Stadium is adjacent to residential neighborhood
	OPPORTUNITIES <ul style="list-style-type: none"> South Capitol Street reconstruction, including new Oval at Potomac Avenue 	THREATS <ul style="list-style-type: none"> Temporary disruption during construction of new oval, bridge, and roadway improvements along South Capitol Street Traffic generated by future adjacent Buzzard Point development
external factor		

existing roadway restrictions near the site. As stated previously, the neighborhood to the north of the Stadium contains primarily residential uses.

Future roadway conditions near the Stadium include several infrastructure improvements, as outlined previously. The most significant infrastructure improvement, projected for completion in 2018, is the reconstruction of the Frederick Douglass Bridge and construction of the South Capitol Street Oval at Potomac Avenue, as shown previously in Figure 4. In addition to providing an improved connection across the Anacostia River and increasing the capacity of the bridge, the planned Oval will also allow for the northbound left-turn movement at Potomac Avenue, which is currently prohibited. This additional movement, while providing a more-direct connection to the Buzzard Point neighborhood, will also remove some Stadium-generated traffic from the surrounding roadways. The improved pedestrian connection across the Anacostia River will also increase use of the Anacostia Metro Station Garage, removing some additional trips from the roadways north of the River.

Buzzard Point and surrounding neighborhoods are areas of anticipated growth within the District. In addition to the infrastructure projects, several private developments are planned, approved, and under construction in the study area. While these infill and redevelopment projects will improve the character of the surrounding area, the additional traffic volumes generated by these developments have the potential to put an additional strain on the system, which, as stated previously, is exceeding the available capacity in some locations during the weekday peak-volume time periods.

These advantages and disadvantages of the vehicular routes for the DC United Stadium are summarized in Table 8.

Stadium Traffic Routing

Patrons driving to and from the Stadium will utilize many regional connections to reach their parking destination. To determine the potential approach routes for the Stadium, zip code data was obtained from DC United; this data consisted of zip codes for plan holders (season-ticket purchasers), game-day sales at DC United, sales for International games, and online sales on Ticketmaster for a single season. The zip codes were organized and plotted geographically to determine the areas of concentration of DCU patrons. Figure 11 shows the zip code data for the plan holders.



To determine the amount of drivers per approach route, the zip code data for each type of ticket purchaser was grouped based on the most-likely route that they will use to travel to the new Stadium. Figure 12 shows the zip codes of these four groups. The zip codes are color-coded based on the route that patrons are expected to use to access the Stadium.

As outlined in the previous section and shown in Figure 8, several parking facilities have been identified to handle Stadium demand. Because the South Capitol Street project will not be completed until 2018, the Anacostia Metro Station Garage was not included. Although it is possible that the garage may be used to a small extent by implementing temporary improvements, to maintain a conservative analysis it was not included. Following the construction of the Bridge and Oval, which will improve the pedestrian connection across the Anacostia River, it is likely that the Anacostia Garage will be utilized at a higher capacity by Stadium patrons.

Using the drive-shed map shown previously in Figure 12, routes were determined for each parking zone, summarized in Table 9. Each parked car (shown in Table 5 for the worst-case driving scenario) was assigned to a parking zone based on the number of spaces available and the best approach routes. These assignments attempted to avoid congestion areas as determined in other transportation studies completed by Gorove/Slade, and to avoid the residential neighborhood north of the Stadium.

Generally, the routing strategy for vehicles, once they have exited the regional roadways (I-395, I-295, etc.) includes utilizing the existing roadways near Nationals Park (Potomac Avenue SE and 1st Street SE), as well as M Street SE/SW. The avoided roadways include those between South Capitol Street and 4th Street SW north of P Street SW within the residential

neighborhood north of the Stadium, as well as South Capitol Street itself. In general, turning vehicles are routed away from the most congested portions of the intersection of South Capitol Street and M Street.

The trip routing of reach parking zone is shown on Figure 13 through Figure 17; the overall routing for all parking zones is shown on Figure 18. Recommendations to encourage the vehicular routing strategy shown in the previous figures are outlined later in this section.

Routing Recommendations

To address existing and potential concerns regarding the routing of vehicular traffic, recommendations were developed and compiled. These are presented below and summarized in Table 10.

High-Priority Recommendations

There are several recommendations that can be employed on game days to encourage the vehicular routing strategy shown previously. These recommendations will take advantage of the strengths and opportunities, while minimizing the weaknesses and threats, of the DC United Stadium.

The most important vehicular recommendation is to encourage the use of the preferred routes. This is essential, as drivers cannot be allowed to circulate through the area surrounding the Stadium looking for parking; this will exacerbate the areas of congestion and could lead to drivers cutting through the residential neighborhood north of the site. Therefore, it is crucial to intercept drivers at the edges of the study area whenever possible and direct them to the appropriate parking zone.

Table 9: Directions of Approach

Route	Parking Zone					Percent/ Route
	A	B	C	D	E	
I-395/14th Street Bridge from West	11.2%	17.7%	5.9%	8.5%	2.6%	46.0%
Maine Avenue from West	1.7%	0.7%	4.2%	0.3%	0.1%	7.1%
12th/9th Street from North	0.2%	0.1%	0.5%	0.0%	0.0%	0.8%
7th Street from North	0.1%	0.1%	0.3%	0.0%	0.0%	0.5%
3rd Street Tunnel (S Cap) from North	2.9%	4.7%	1.2%	2.2%	1.0%	12.1%
Capitol Hill from Northeast	0.6%	1.0%	0.1%	0.5%	0.2%	2.4%
11th Street Bridges from Southeast	5.0%	9.4%	0.4%	4.5%	1.4%	20.6%
South Capitol Street from South	2.5%	4.9%	0.2%	2.4%	0.4%	10.5%
Percent/Zone	24.3%	38.6%	12.9%	18.6%	5.7%	100.0%

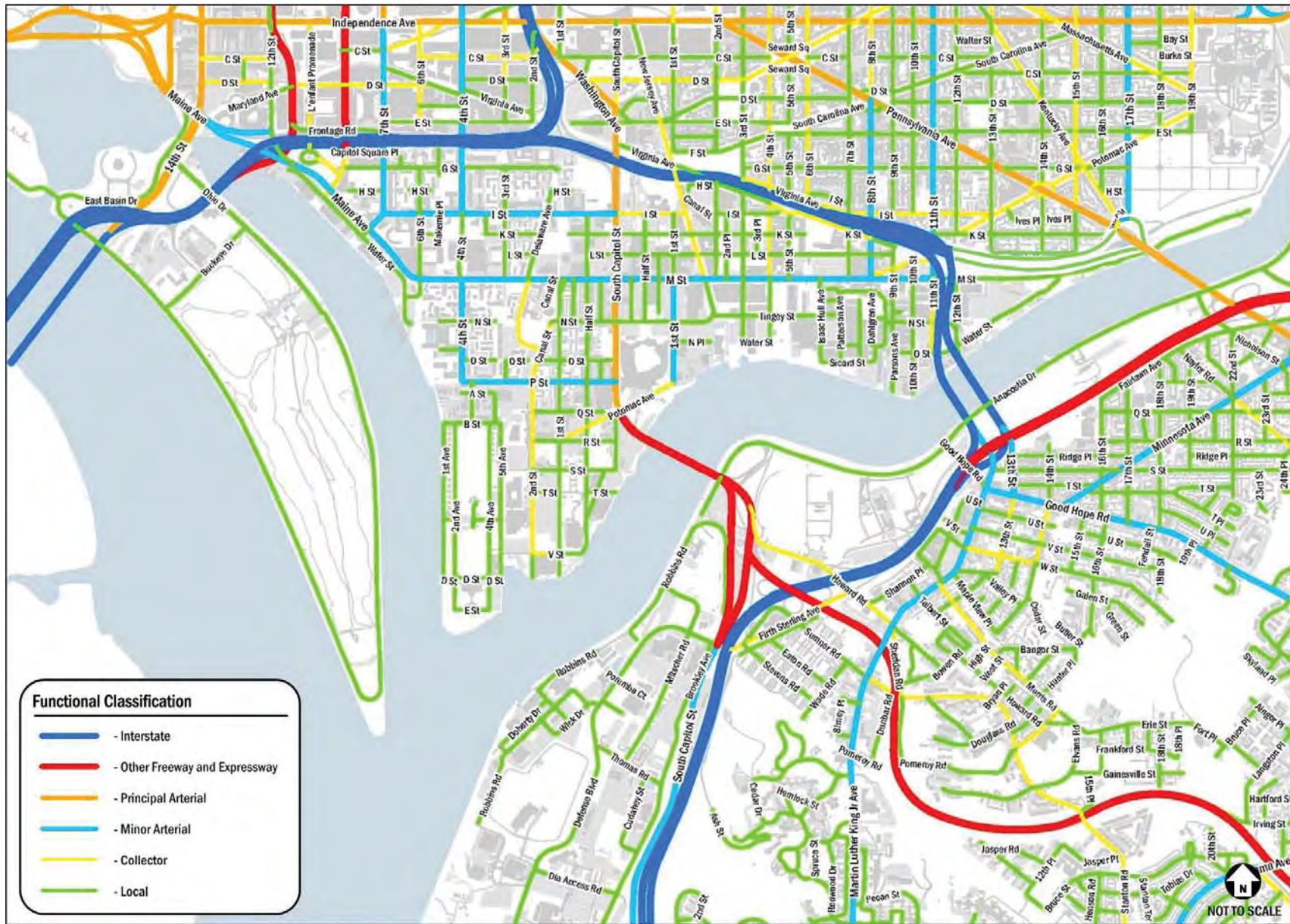


Figure 10: Existing Roadway Functional Classification

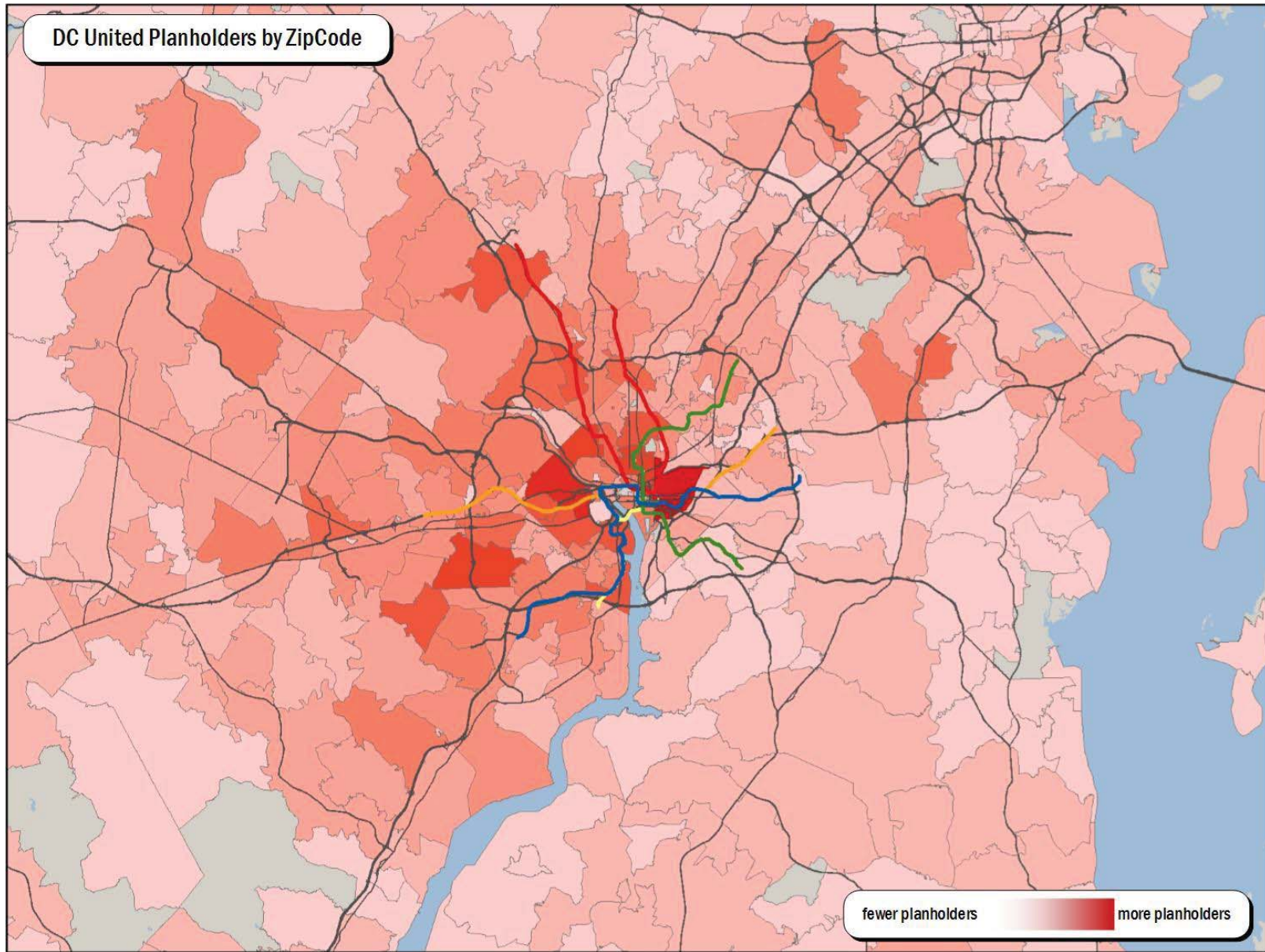


Figure 11: Zip Code Data (Planholders)

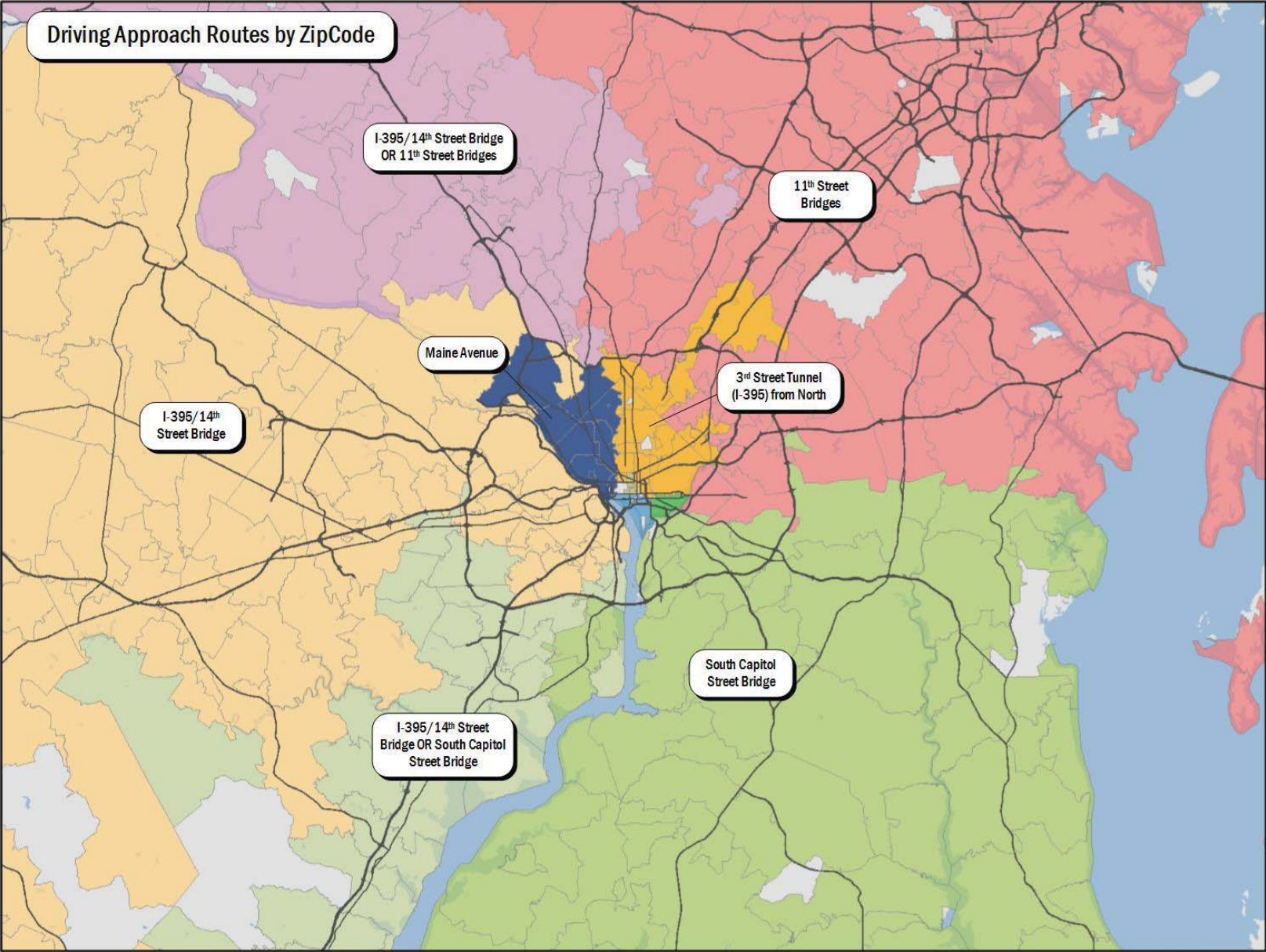


Figure 12: Average DC United Patron Driveshed

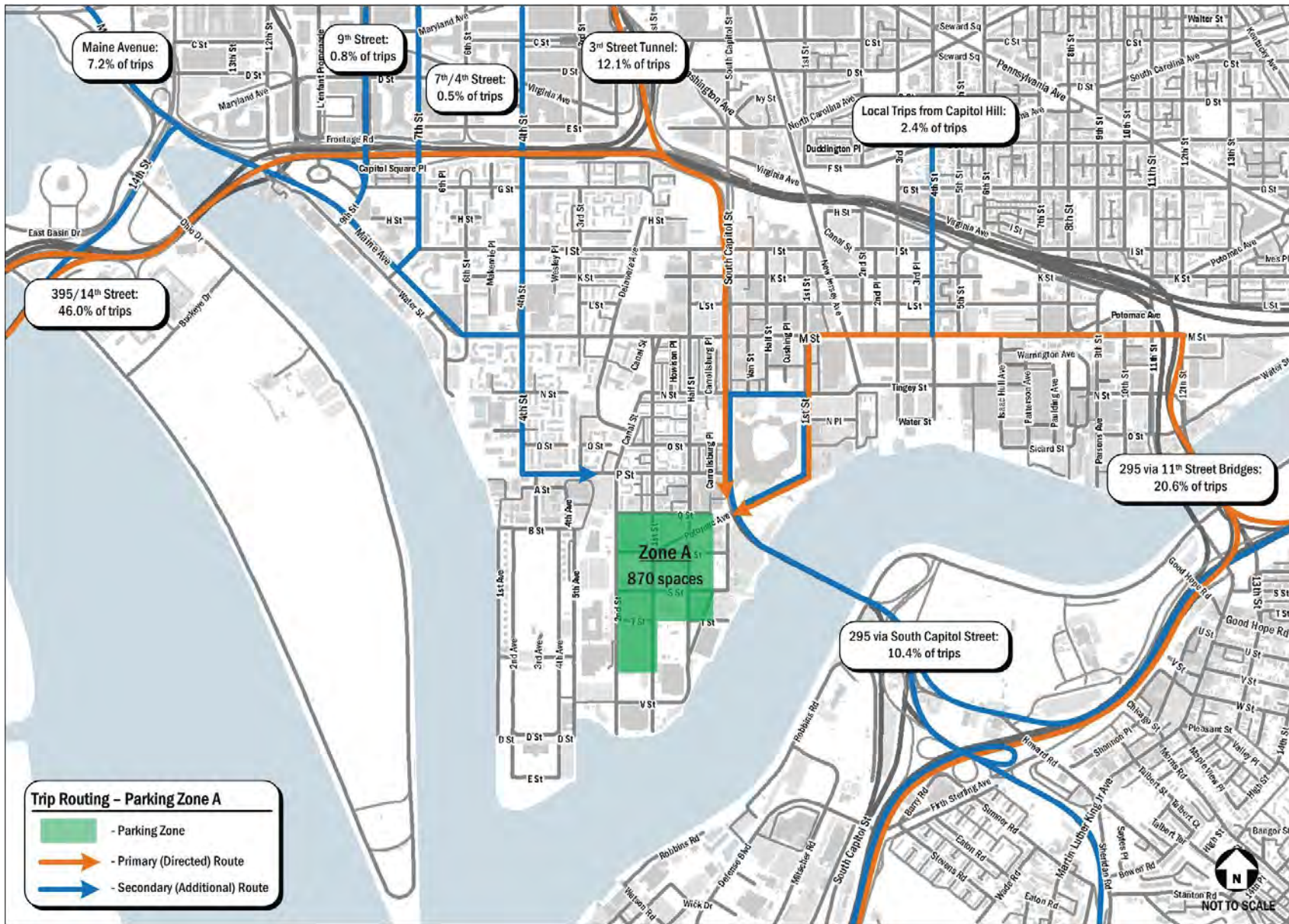


Figure 13: Vehicular Routing for Parking Zone A

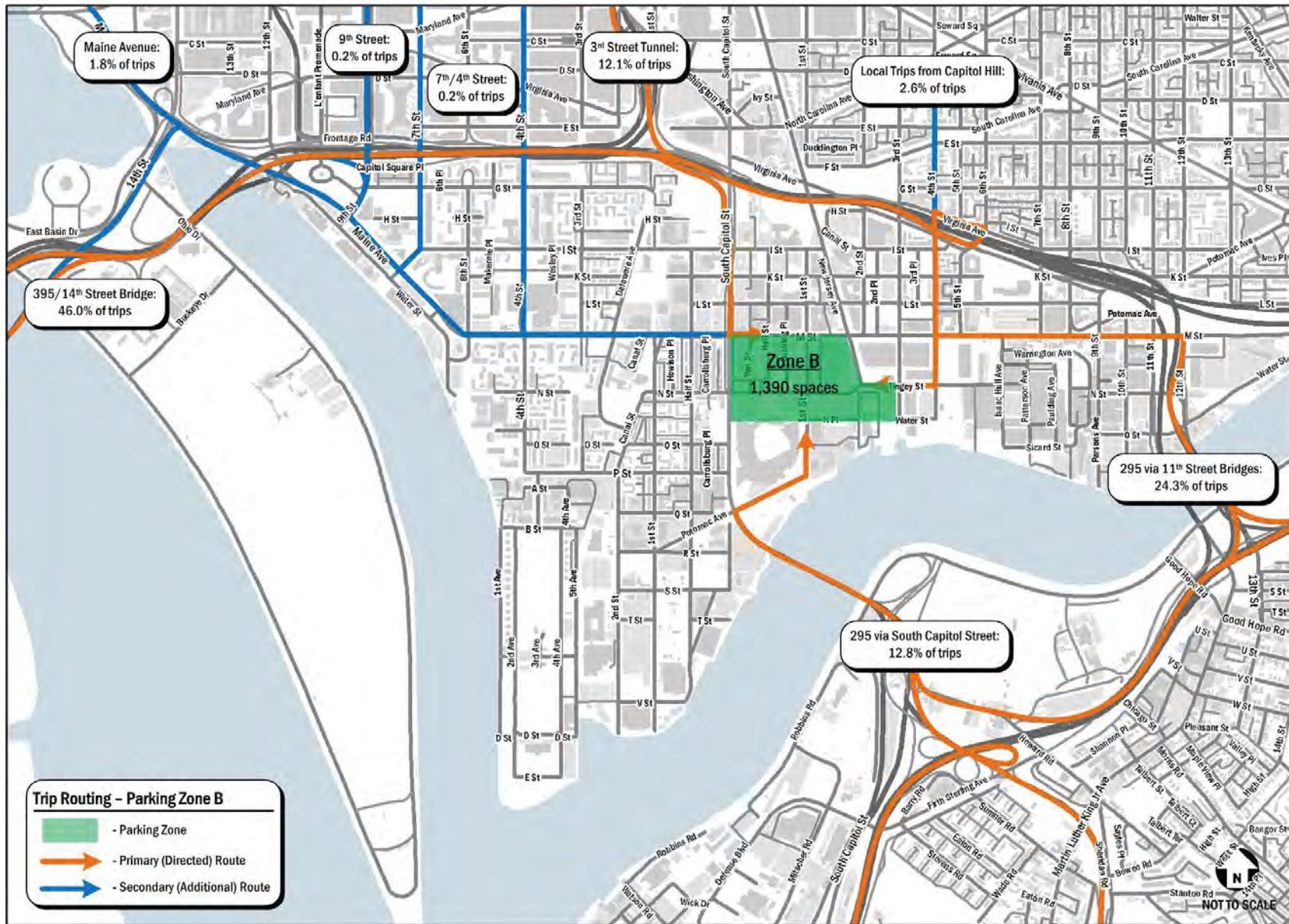


Figure 14: Vehicular Routing for Parking Zone B

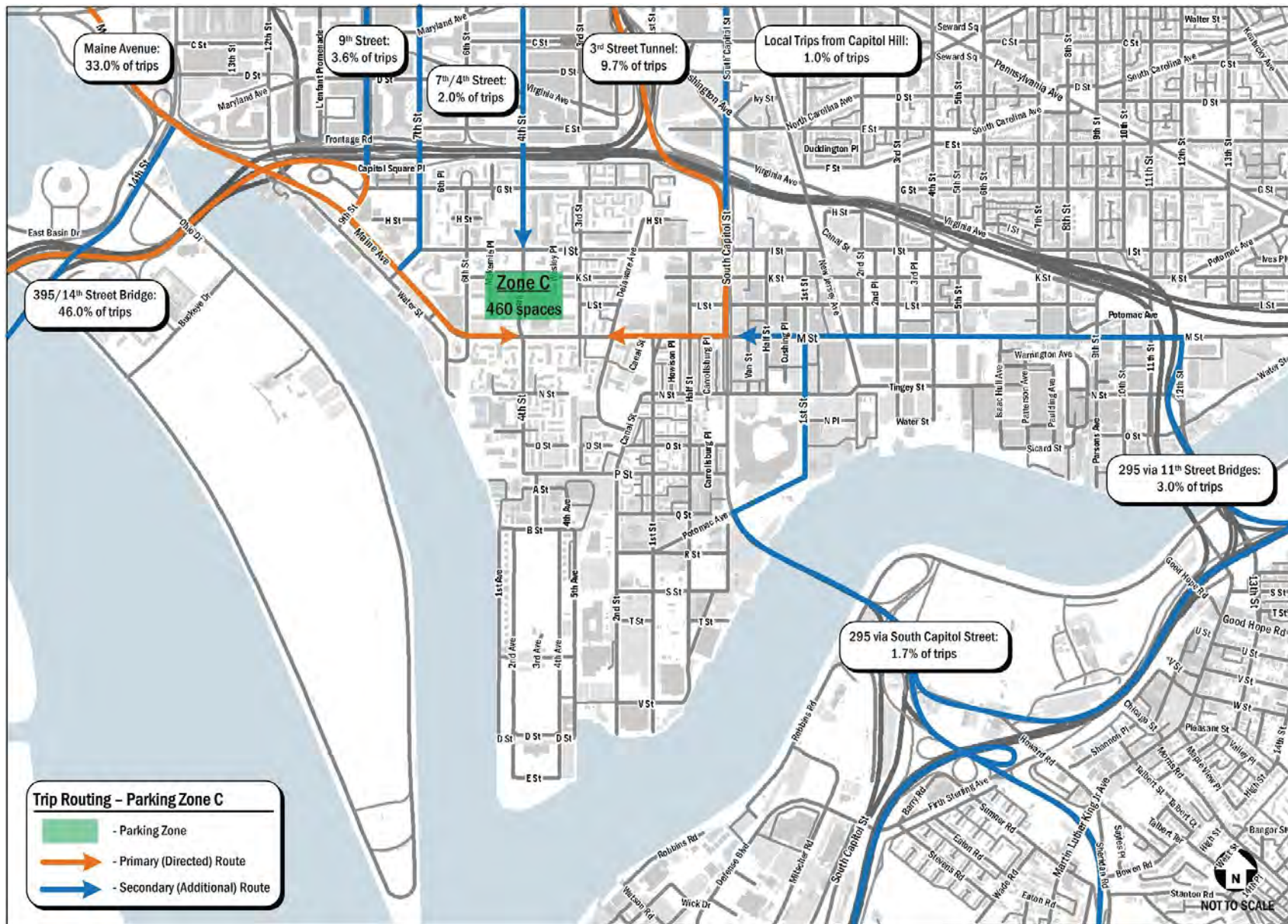


Figure 15: Vehicular Routing for Parking Zone C

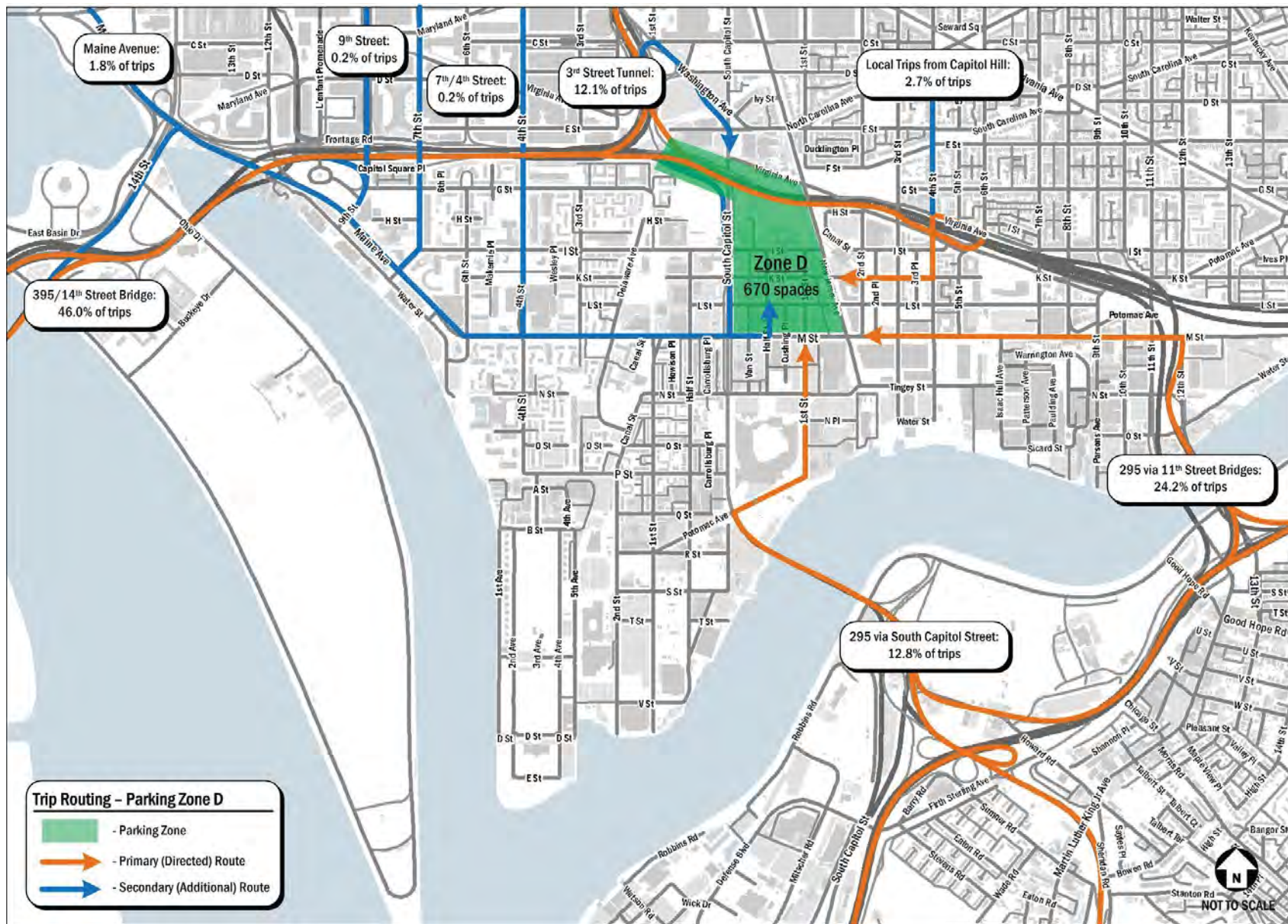


Figure 16: Vehicular Routing for Parking Zone D

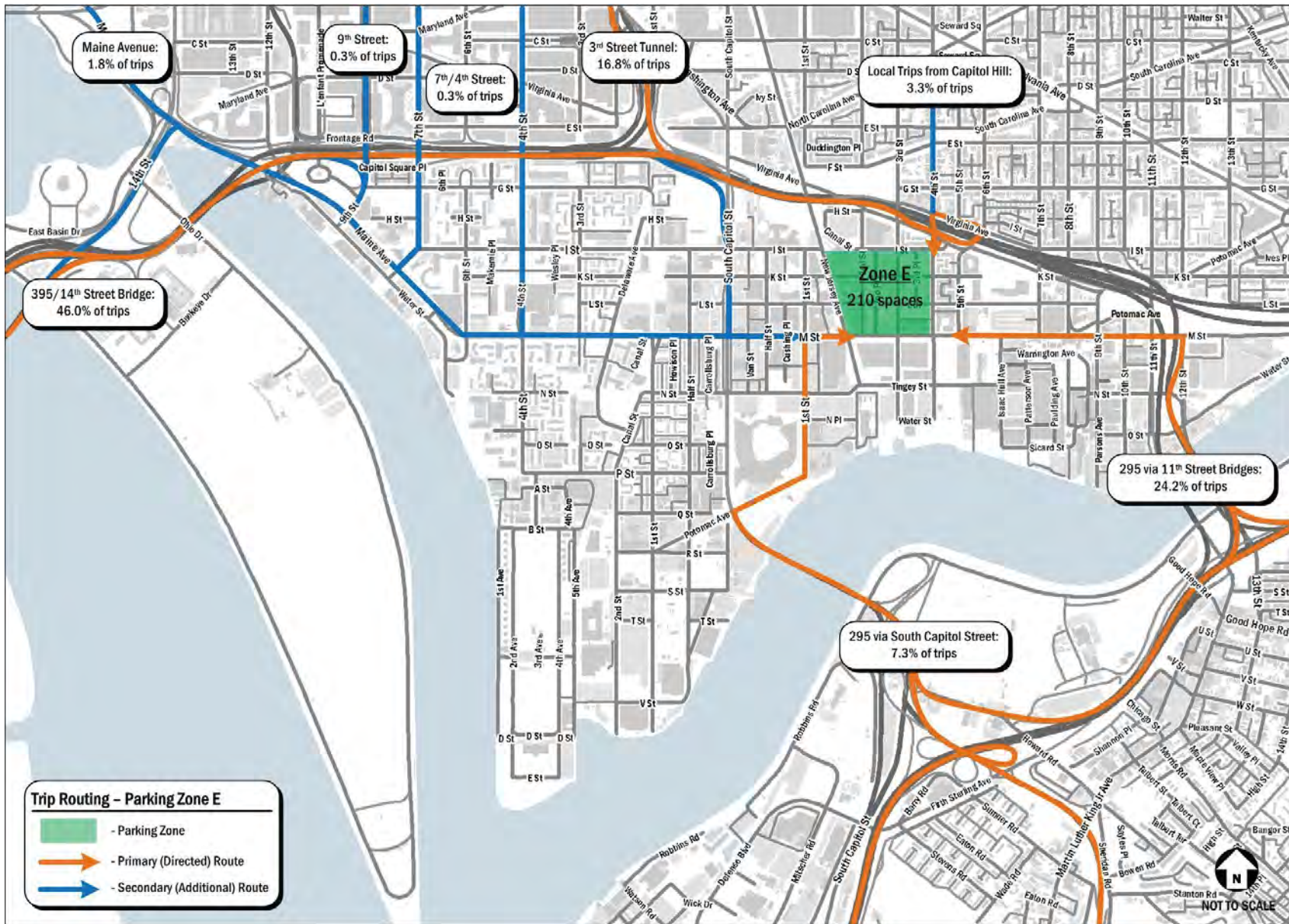


Figure 17: Vehicular Routing for Parking Zone E

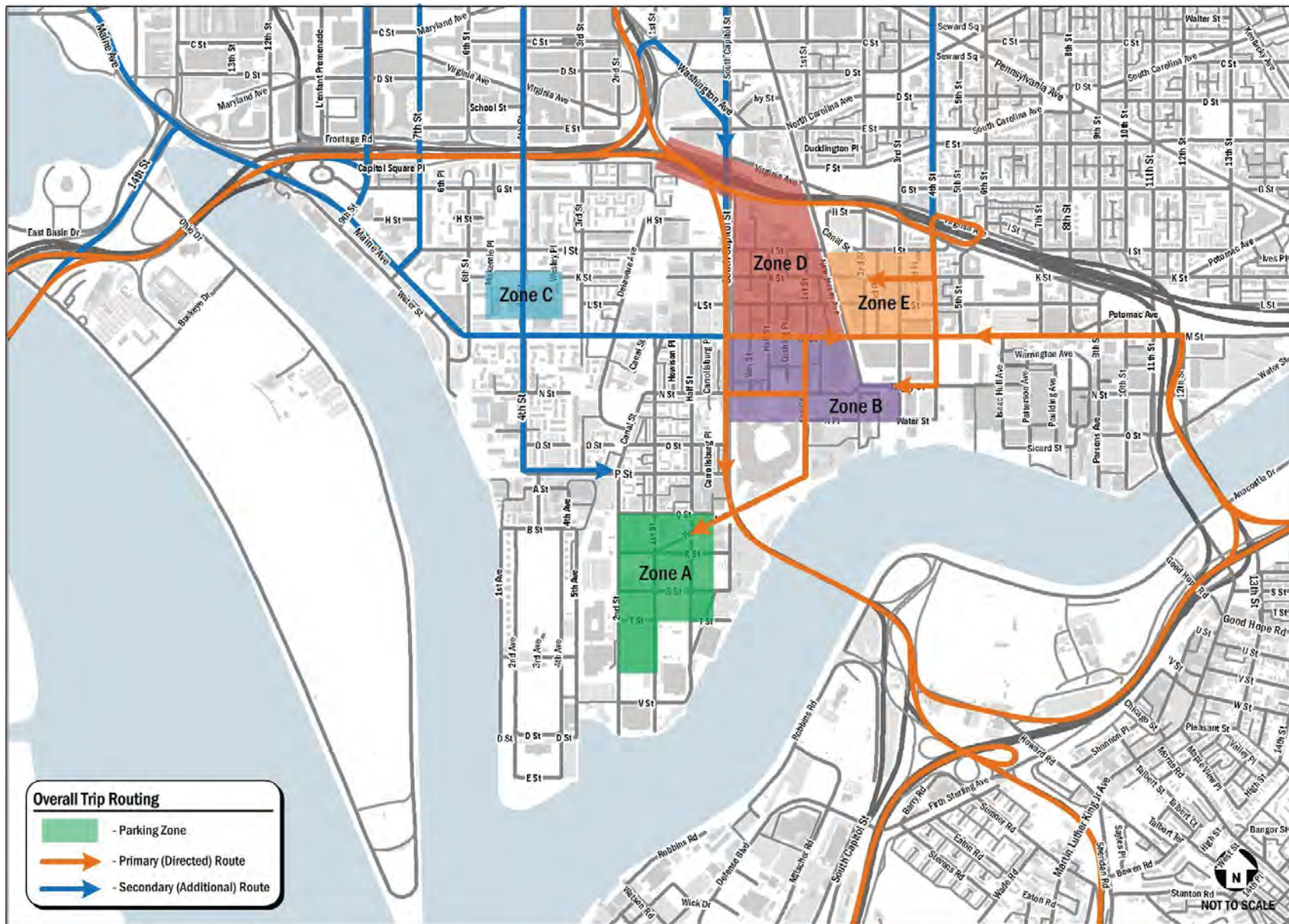


Figure 18: Overall Trip Routing



To accomplish this, way-finding signage must be installed. Similar to the existing signage for the Nationals Park, this would include posting signs along the regional highways and local streets near the Stadium and the surrounding lots. Additional temporary way-finding and directional signage could be placed on game days. It is also essential to coordinate with DC Police to employ traffic control officers (TCOs) at key intersections before and after games and to place temporary traffic barriers (such as cones or Jersey barriers) to control traffic flow. The TCOs will mainly be responsible for preventing and resolving conflicts between pedestrians and vehicles. Exact details of their placement will be contained in the eventual Stadium TOP, but one location has already been identified as a key pedestrian/vehicle conflict area: South Capitol Street at Potomac Avenue and P Street.

The suggested before- and after-game placement of temporary signage, TCOs, and traffic control barriers along South Capitol Street at Potomac Avenue and P Street is shown in Figure 19 thru Figure 21. Figure 19 shows the existing conditions, including the existing lane configurations and crosswalk

locations. Figure 20 and Figure 21 show the proposed pre- and post-game recommendations, respectively. The vehicle-specific recommendations are highlighted below, and the pedestrian-specific recommendations are outlined later in this report. The pre-game vehicular recommendations include:

- Convert the right-most through lane on northbound South Capitol Street at Potomac Avenue to a right-turn only lane, and use traffic cones and signage to delineate this change and guide patrons. (The lane will still be controlled by the traffic signal in order to separate vehicles and pedestrians.) Vehicles approaching the Stadium from the Frederick Douglass Bridge will be routed on to Potomac Avenue and 1st Street SE to avoid South Capitol Street and M Street.
- Use cones and signage to delineate the existing southbound right-turn lane on South Capitol Street at Potomac Avenue and guide patrons to Buzzard Point. (The lane will still be controlled by the traffic signal in order to separate vehicles and pedestrians.) Vehicles traveling southbound on South Capitol Street from I-

Table 10: Vehicular Routing Recommendations

	ESSENTIAL	RECOMMENDED
INFRASTRUCTURE	<ul style="list-style-type: none"> ▪ Install way-finding signage ▪ Coordinate with architect on stadium design and routing plan ▪ Coordinate with DDOT on design of South Capitol Street Oval 	<ul style="list-style-type: none"> ▪ Study circulation around Stadium and possibly convert existing 1-way streets to 2-way
OPERATIONS	<ul style="list-style-type: none"> ▪ Install additional temporary way-finding signage ▪ Coordinate with DC Police to employ traffic control officers at adjacent intersections pre- and post-game ▪ Place cones/jersey barriers along access routes to direct traffic ▪ Coordinate with DDOT on on-street parking restrictions near site 	<ul style="list-style-type: none"> ▪ Explore later kick-off times (8:00 PM) during week days to avoid afternoon peak hour traffic
MARKETING	<ul style="list-style-type: none"> ▪ Advertise primary routing to and from stadium parking locations ▪ Coordinate with local establishments to advertise game-day specials before and after games to disperse demand 	<ul style="list-style-type: none"> ▪ Develop apps and website to promote routing strategies ▪ Develop app to advertise pre- and post-game specials at local establishments ▪ Assign parking permits for lots based on driver origin



395 and areas downtown with Zone A parking passes will be directed to Potomac Avenue SW to reach their destination.

- Prohibit southbound right-turns on to P Street SW from South Capitol Street, and use signage to direct drivers to the right-turn at Potomac Avenue and avoid cutting through the residential neighborhood. As northbound left-turns are currently prohibited at P Street, it may be beneficial to close P Street to vehicular traffic. .
- Discourage direct access to Maine Avenue from the 14th Street Bridge and use signage to guide vehicles to South Capitol Street and 6th Street SE.

The post-game vehicular recommendations include:

- On the western leg of Potomac Avenue at South Capitol Street, restrict the roadway to outbound traffic only and prohibit left-turns on to South Capitol Street. The existing left-turn lane and through lane would both be utilized for through-traffic along Potomac Avenue and 1st Street SE, where vehicles should be directed to access I-395. Use traffic cones and signage to delineate the existing right-turn lane on to the Frederick Douglass Bridge to access I-295. (The lane will still be controlled by the traffic signal in order to separate vehicles and pedestrians.)
- In conjunction with the delineated right-turn lane from Potomac Avenue SW on to the Frederick Douglass Bridge, the southbound approach of South Capitol Street should be restricted to one southbound through-lane. Cones and signage would be used to direct drivers to I-295, and this configuration would allow for the right-turn movement to operate concurrently with the southbound movement.
- On the eastern leg of Potomac Avenue at South Capitol Street, prohibit through movements and convert the existing lane configuration to dual left-turn lanes and a single right-turn lane. Cones can be used to separate the lane usage, and signage should direct drivers to I-295 and I-395.
- P Street SW at South Capitol Street should be closed to vehicular traffic (in conjunction with other possible road closers) in order to prevent vehicles from cutting through the residential neighborhood and funnel exiting traffic to Potomac Avenue.

- A TCO should be placed at the intersections of South Capitol Street with P Street and Potomac Avenue to direct vehicular and pedestrian traffic.
- In addition to controlling vehicular traffic to achieve a smooth flow, the infrastructure and operations recommendations outlined above will also help to protect the adjacent residential neighborhoods from cut-through traffic on local roadways. As stated previously, existing signage is located along M Street SW to restrict vehicles from entering the residential neighborhood during Nationals' games. It is assumed that these restrictions will be extended to include DC United games to prevent vehicles from cutting through the neighborhood to get to the Stadium and Zone A parking. Additionally, including game-day restrictions for these same roadways north of P Street SW would prevent vehicles from cutting through the neighborhood post-game. These recommendations for controlling pre- and post-game traffic movement at these intersections, and the surrounding area, will be further refined in the Stadium TOP and continually updated and modified to reflect actual game-day conditions.

It is essential that routing information and maps of parking locations be distributed to ticket purchasers, especially planholders. Planholders could be assigned to specific parking lots based on their zip code, as outlined previously in the vehicular routing plan. Other ticket purchasers should be encouraged to park in a specific parking zone in order to disperse the vehicular demand and take advantage of the vehicular routing plan. This information needs to be included on the DC United website and should also be disseminated through local media before and during the first season of operation for the Stadium and could be included on social media platforms. More information on marketing and dissemination of information is provided later in this report.

During the planning and design stages of the Stadium, it is essential for DC United and the architect to coordinate the design of the Stadium and the routing plan. The surrounding roadways should be designed in a way to maximize the existing and future capacity, while reducing conflicts between vehicles and other modes.

DC United should coordinate with DDOT on the design of the South Capitol Street Oval at Potomac Avenue to ensure that



the Oval can accommodate game-day traffic patterns and operations. The Oval alignment and Stadium design (primarily parking ins and outs) should also be coordinated to fit the vehicular routing plan outlined previously.

Additional Recommendations

In addition to the above-outlined infrastructure and operations recommendations, the circulation of traffic on the roadways surrounding the Stadium could be studied to determine if improvements are necessary, specifically, the one-way configuration of 1st and 2nd Streets SW between Q and V Streets SW. It may be beneficial to reconfigure these roadways to two-way operation to improve vehicular circulation near the Stadium.

Furthermore, later kick-off times (8:00 PM versus 7:30 PM) for weekday games could be explored. Moving the kick-off time to 8:00 PM would shift a significant amount of vehicular traffic out of the peak hour, potentially leading to a greater background roadway capacity. Unlike games at the adjacent Nationals Park, DC United games operate under a fixed game-time of two hours; shifting the weekday kick-off 30 minutes later (to an 8:00 PM start) would allow for patrons to travel home (assuming a 10:00 PM conclusion) while Metro is still in operation.

An additional recommendation regarding marketing is to coordinate with local establishments near the Stadium to offer game-day specials, both before and after games. This could include special food and drink pricing and could be co-advertised by both DC United and the establishment. This idea, including the development of a mobile app, is further explored later in this report.

Summary

Highlights for the routing of vehicular traffic include:

- Regional connectivity *near* Buzzard Point is excellent. The DC United Stadium is served by many regional roadways, arterials, and major collector roadways. However, access to Buzzard Point is limited due to the existing roadway restrictions near the stadium site.
- Several future infrastructure improvements are planned in the study area, including the reconstruction of the Frederick Douglass Bridge and construction of the South Capitol Street Oval at Potomac Avenue. This project will provide an improved connection across

the Anacostia River and increase the capacity of the bridge.

- Patrons driving to and from Stadium events will utilize the many regional connections to reach their parking destination. Generally, the routing strategy for vehicles, once they have exited the regional roadways (I-395, I-295, etc.) includes utilizing the existing roadways near Nationals Park (Potomac Avenue SE and 1st Street SE), as well as M Street SE/SW. The most important vehicular recommendation is to encourage the use of these preferred routes to intercept drivers at the edges of the study area whenever possible and direct them to the nearest parking zones.
- High-priority infrastructure and operations recommendations include installing permanent and temporary way-finding signage, employing traffic control officers (TCOs) at key intersections before and after games, and placing temporary traffic barriers (such as cones or Jersey barriers) to control traffic flow.
- High priority marketing recommendations primarily consist of distributing routing information and maps of parking locations to ticket purchasers.

Additional recommendations include a possible study of the circulation of traffic on the roadways surrounding the Stadium, exploring later kick-off times to avoid overlap with the weeknight peak hour traffic, and coordinating with local establishments near the Stadium to offer game-day specials, both before and after games to disperse the vehicular demand.



Figure 19: Existing Conditions on South Capitol Street at Potomac Avenue

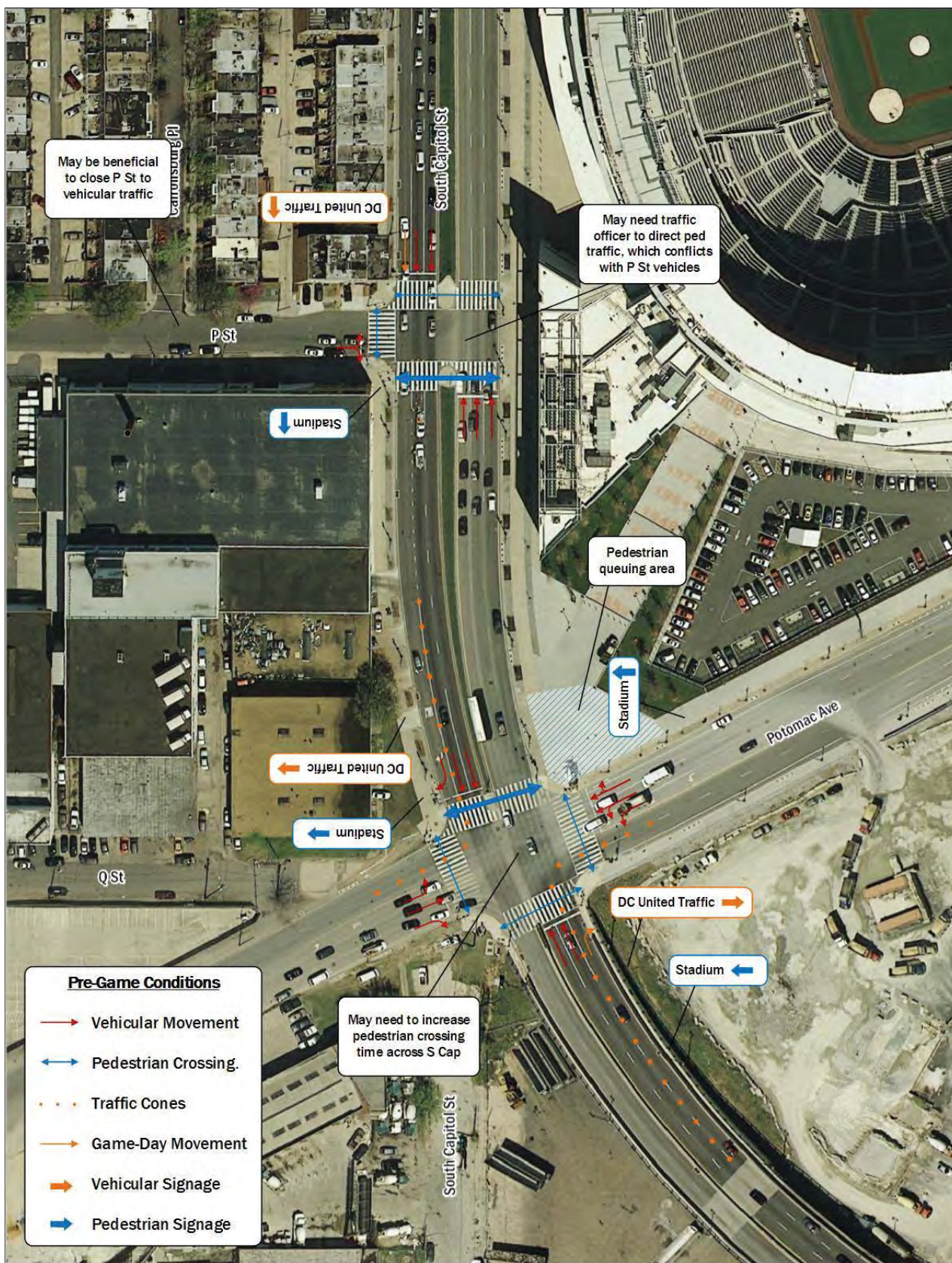


Figure 20: Recommended Pre-Game Conditions on South Capitol Street at Potomac Avenue

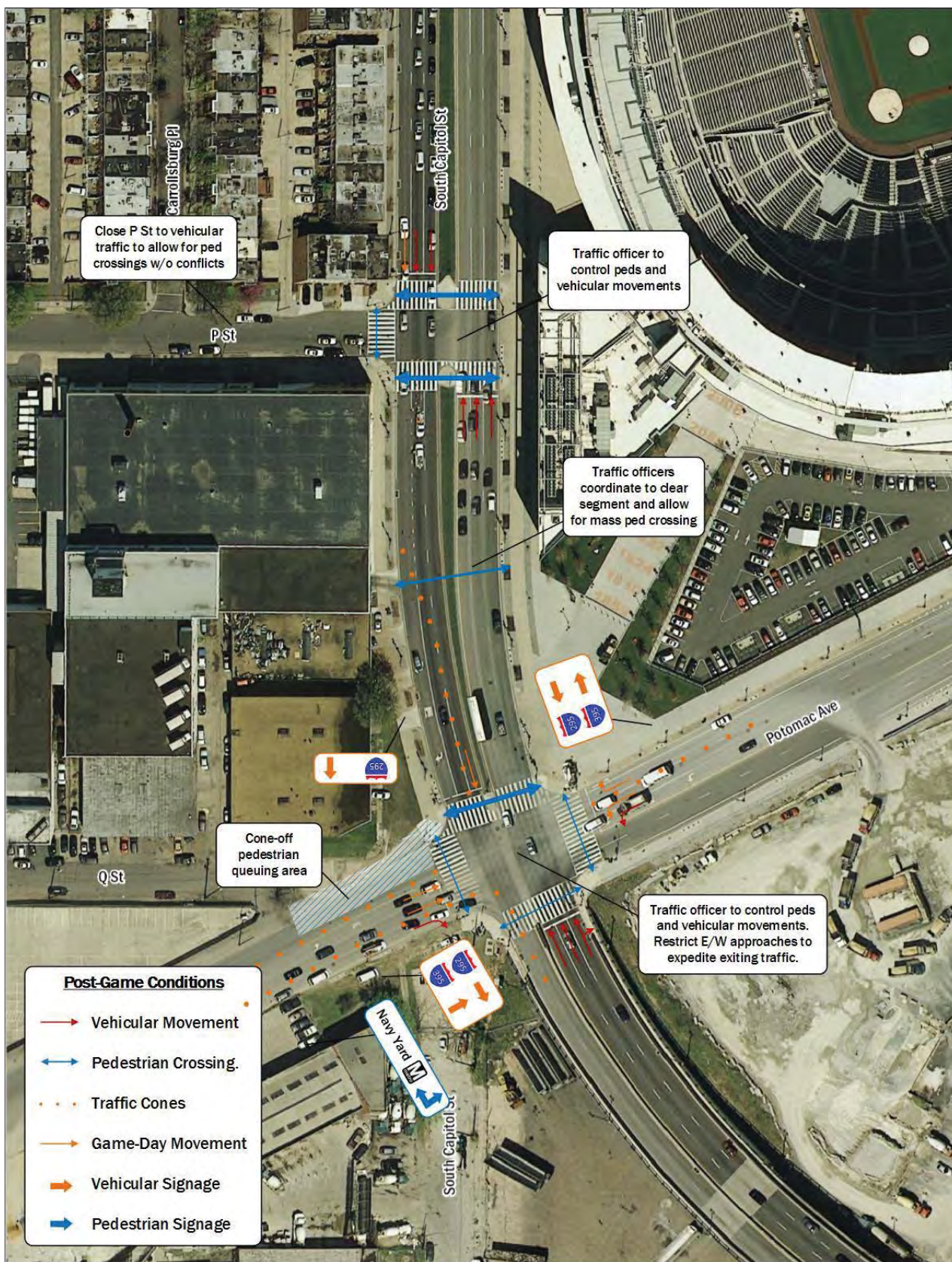


Figure 21: Recommended Post-Game Conditions on South Capitol Street at Potomac Avenue



TRANSIT

This section addresses the existing and proposed transit service in the vicinity of the new Stadium, develops a SWOT analysis for potential transit options, and presents recommendations.

Existing Transit Service

The predominant transit service near the Stadium site is Metrorail. Both the Navy Yard Metrorail Station and the Waterfront Metrorail station are within walking distance of the Stadium. There are also a few Metrobus routes that travel near the site; however, these routes generally do not run during typical game times, and those that do will not provide a significant amount of transit capacity due to lengthy headways. Existing transit service is shown in Figure 22.

The Navy Yard and Waterfront Metro stations are each located approximately two-thirds of a mile from the new Stadium and serve the Green Line. The Green Line connects the study area with major downtown connections such as Chinatown/Gallery Place to the north and terminates at the Greenbelt Station in Maryland. To the south, the Green Line connects with Anacostia and terminates at the Branch Avenue Station in Maryland.

Although the site is only directly served by the Green Line, the L'Enfant Plaza Metro station is located one stop away from the Waterfront Metro station on the Green Line and provides transfers to the Orange, Blue, and Yellow Lines, which greatly improves the overall connectivity of the site. This is particularly important as many patrons may choose to utilize the Park n' Ride system along these lines and having simple and convenient transfers will make transit a more attractive option.

DC United soccer matches are typically scheduled on weekends, with some matches on Wednesday nights or even Friday nights. On weekdays Metrorail service runs from 5 AM

to midnight with typical headways of 10 to 15 minutes in the evenings. On Friday Metrorail service is extended to 3 AM. Weekend service starts at 7 AM and ends at 3 AM on Saturday and midnight on Sunday with headways of 6 to 15 minutes. Thus, Metrorail will be an available option for soccer matches.

Metrobus options that currently would be available during game days include the Metrobus P6 and the Metrobus V7, V8, V9 Routes. These existing routes travel along M Street within the vicinity of the Stadium, and the nearest stop is approximately a half mile from the Stadium. The routes serving the area connect the site to the Metrorail system and with various locations throughout the downtown business core. Table 11 shows a summary of the bus route information for the routes that serve the Stadium on game days, including service hours and headway.

Future Transit Service

Several transit improvements are planned for the southwest/southeast waterfront area over the next several years. These include an additional Circulator route along the M Street Corridor and two Streetcar Lines that will terminate in Buzzard Point. The proposed routes are depicted in Figure 22.

The proposed Circulator line will travel between Dupont Circle and the Navy Yard providing links to Farragut Square and the Waterfront Metro Station. According to the *DC Circulator Transit Development Plan* (DDOT, April 2011) this route is part of the Phase 1 improvements that are expected to be complete by 2017, in time for the DC United inaugural season. With the existence of a new Circulator line, additional service could be offered on event days to increase the transit capacity of the area.

The District's streetcar plan, as discussed in DC's *Transit Future System Plan* (DDOT, April 2010), includes two planned lines that are expected to terminate in Buzzard Point. The planned routes

Table 11: Bus Route Information

Route Number	Route Name	Service Hours*	Headway*
P6	Anacostia-Eckington Line	Weekdays: 5:00 am – 2:00 am Saturdays: 5:30 am – 2:00 am Sundays: 6:30 am – 12:30 am	15-30 min
V7, 8, 9	Minnesota Ave-M Street Line	4:30 am – 1:30 am	30 min

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



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 a planned completion date no earlier than 2020. In the interim period until the streetcar lines are constructed, or in the event that they are not constructed at all, the implementation of an expanded Circulator or Metrobus service will be explored with DDOT and added to the TOP to add flexible transit capacity to the region.

These additional Circulator and Streetcar services will add transit capacity to the Buzzard Point area and allow for direct transit service to reach a wider range of the city. Although these options will be available and advantageous to have in the future, it is anticipated that Metrorail will continue to act as the primary transit option to and from events at the Stadium. Metrorail provides an overall higher capacity than Metrobus, Circulator, and Streetcar systems due to shorter headways and the high capacity of riders per train. The Navy Yard station has already been enhanced to adequately serve game-day transit volumes and will continue to do so in the future; however, because the Stadium will rely so heavily on Metrorail service, further operational enhancements would have to be made if scheduling conflicts with Nationals Park are expected. During the inaugural season, data will be collected at both the DC United Stadium and Nationals Park to determine a transit operations plan in regards to an overlapping game scenario. This plan will be added to the TOP.

Unplanned transit options that would further supplement the planned Circulator and streetcar lines include expanded Metrobus service. New bus lines could be introduced to meet the increased service demand as the area redevelops that would further connect downtown with Buzzard Point on game days. Although currently unplanned, another potential transit option for the future is water taxi service traveling between DC and Virginia along the Potomac and Anacostia Rivers. In addition to new transit options, the South Capitol Street improvements, including the new Frederick Douglass Memorial Bridge and the new traffic oval at Potomac Avenue will provide improved pedestrian facilities between Anacostia and the SW/SE Waterfront, making the Anacostia Metro Station another viable option for patrons.

These advantages and disadvantages of the transit service for the DC United Stadium are summarized in Table 12.

Stadium Transit Access

The Stadium is located within an area well-served by transit; particularly by Metrorail via the Green Line with two Metro stations within walking distance of the site at Navy Yard and Waterfront. It is also observed that residents of the DC metropolitan area are flexible when it comes to transit or driving options. As a result, residents who do not live near a Metrorail line have the option to use Park n' Ride, which allows users to park at many Metro stations on the outer edges of the system and take Metrorail into the city. Although most patrons do not live near a Park n' Ride facility on the Green Line, the new Stadium location has the advantage of being near many major transfer stations, including the L'Enfant Plaza Metro station, making it easy to access the Stadium from anywhere on the Metro system.

Many patrons who live in and around the District are already familiar with the transit system and thus are experienced traveling to and from Nationals Ballpark via Metrorail. Furthermore, the addition of the Nationals Park in the Navy Yard area and the influx of new development has familiarized many people with the SE/SW area and created a transit environment that is capable of handling game-day transit trips. It is expected that DC United games will not generate transit demand in excess of that observed during Nationals' games, therefore no capacity issues should arise at the Navy Yard Metro station due to DC United games.

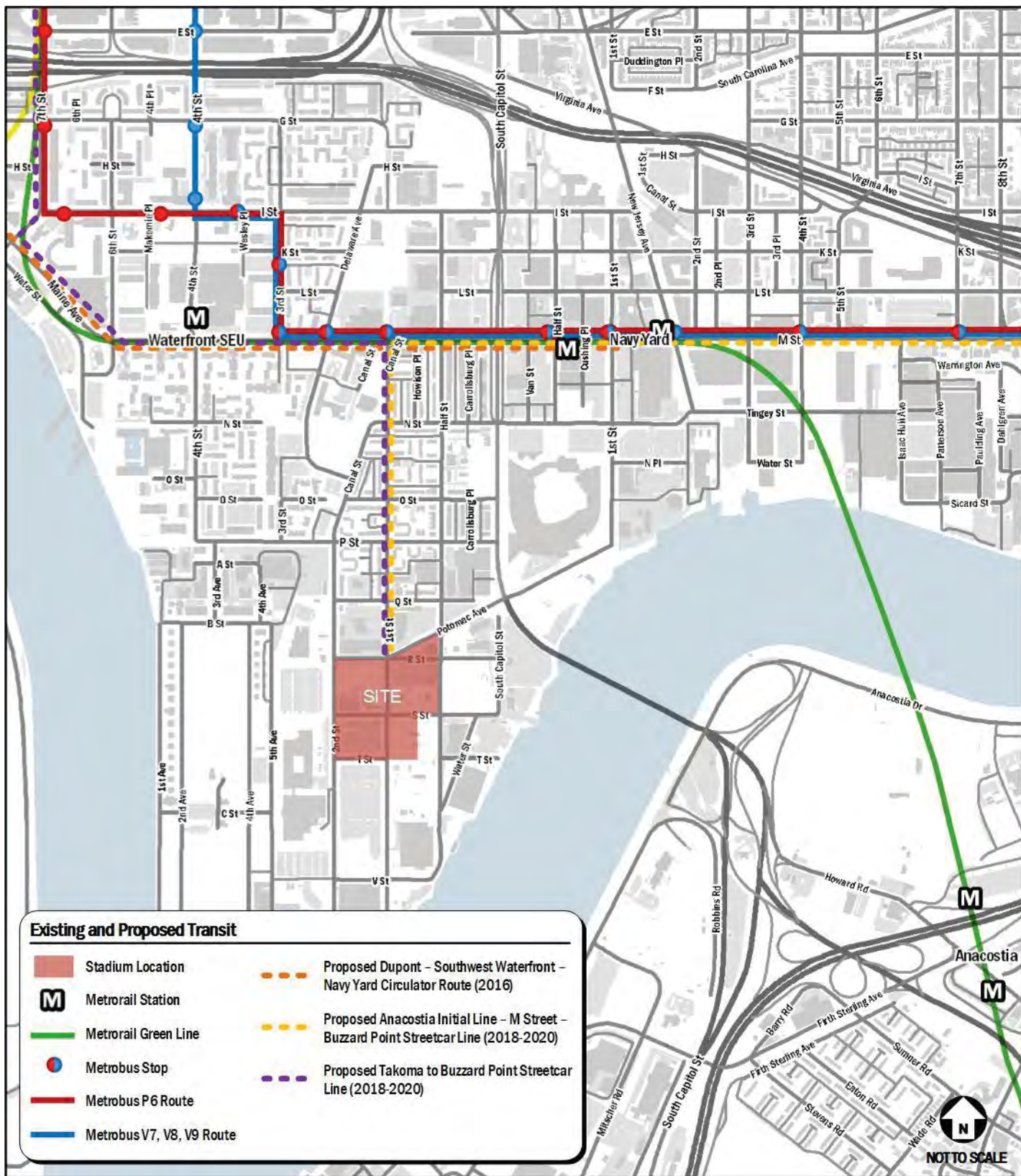


Figure 22: Existing and Proposed Transit



Transit Recommendations

To properly address the existing and potential concerns regarding transit, several recommendations have been compiled, as described below and summarized in Table 13.

High Priority Recommendations

Some Infrastructure improvements are necessary to existing transit service. Because the nearest Metro stations are not directly adjacent to the Stadium site, it will be necessary to install DC United signage within the Metro System to direct patrons to the Stadium. Use of the Navy Yard Metro station will be emphasized because of its familiarity to District residents, its design and ability to handle game-day transit capacity, and the fact that it's not located in a residential area. The perception of walking time is enhanced from the Navy Yard Metro station due to the greater sidewalk capacity and an enhanced arrival sequence due to the proximity to restaurants and the Nationals Park. To further enhance the primary pedestrian routes between the Metro station and the new Stadium, way-finding signage along pedestrian routes should be installed. When construction of the new Frederick Douglass Memorial Bridge and traffic oval at Potomac Avenue is completed, it may be necessary to add way-finding signs between the Stadium and the Anacostia Metro station as well.

New infrastructure will also have to be considered in the design of the Stadium. Two Streetcar lines ending at Buzzard Point are

currently anticipated to serve the vicinity of the new Stadium. It will be necessary to coordinate with the Stadium architect to ensure that new streetcar service can be accommodated within the site design. This may include designing some sidewalks to include a raised streetcar platform and, unless a car barn for streetcars is located nearby, ensuring that there will be enough room for a streetcar turnaround at the terminus of the lines.

Transit operations will have to be coordinated for game days to ensure the best overall experience for patrons. DC United must coordinate with Metro on the projected number of attendees and riders during the season. Scheduled construction disruptions that may take place on weekends during game days must be discussed to ensure that game day operations will not be drastically impacted. Coordination with WMATA will be necessary to review overall operation considerations at the Buzzard Point region and the new Stadium and to assess site impacts while the system is being constructed. Although the new streetcar system will provide service to the Stadium, Metrorail will still serve as the highest capacity transit option in the area. Therefore, since the new Stadium is located over half a mile from the nearest transit options, it may be necessary to implement a handicap accessible shuttle between the Metro station and Stadium. These practices should be monitored during the season and continually modified to determine the best practices for game day transit.

Marketing the available transit options will be essential for the new Stadium to ensure that people are aware of all potential transportation options for reaching the Stadium. Marketing within the Metro system itself will be necessary. This may include adding DC United logos or specific Stadium-branding to Metro maps and signage. The nearest Metro station is currently branded as the Navy Yard – Ball Park station. Given the addition of the Stadium to the area, the name may be altered to market it as the primary station for DC United patrons in addition to Nationals patrons. In addition to marketing within the Metro system, DC United will have to encourage use of transit through two primary outlets: Most importantly, transit options to and from the Stadium must be advertised on the DC United website in the most user-friendly way as possible. Another option for promoting transit is to provide Metro subsidies to season ticket holders equal to any parking subsidies that are typically provided. This promotion may be accompanied by a DC United-branded SmarTrip card to make this an even more attractive option.

Table 12: Transit SWOT Analysis

	positive	negative
internal factor	STRENGTHS <ul style="list-style-type: none"> Two Metro stations located near site (Navy Yard and Waterfront) Park & Ride lots located along Metro lines outside of downtown core DC-area attendees are familiar with transit system 	WEAKNESSES <ul style="list-style-type: none"> Distance to Metro Perception along walking routes to/from Metro Nearby stations are only served by Green Line Limited bus connectivity
	OPPORTUNITIES <ul style="list-style-type: none"> South Capitol Street reconstruction, including new Oval at Potomac Avenue Streetcar line adjacent to site Circulator route adjacent to site Potential water taxi 	THREATS <ul style="list-style-type: none"> Limited capacity of Metro Service disruptions on Metro Metrorail enhancements necessary to serve home gates at BOTH stadiums simultaneously
external factor		



Additional Recommendations

Transit arrivals are expected to be relatively spread out before games, but transit departures are likely to be much more condensed. Because soccer matches have a predictable end time (compared to baseball games that have varying game durations), it may be worthwhile to investigate increased service for post-game demand supplied by additional and/or longer trains.

Whether or not extended service is offered, it would be beneficial to install real-time transit information displays within the Stadium that allow patrons to plan their transit trips. This would decrease wait time for patrons and result in transit becoming a more desirable travel option. It would ultimately act as a marketing technique as well to inform patrons that transit is a convenient alternative option for traveling to and from the Stadium. In addition to transit displays, mobile applications could be developed, potentially incorporated into a DC United Gameday app that provide real-time scheduling

information for transit options.

Summary

Highlights for transit include the following:

- Existing services consist of the Metrorail Green Line (with the closest service located at the Navy Yard and Waterfront stations) and select Metrobus routes that run during typical game times.
- The Navy Yard Metro station will be emphasized for use during game days because it is already equipped for game-day transit capacity, it provides a better perceived walking route to the Stadium due to the presence of bars, restaurants, and Nationals Park, and it is located in a non-residential area.
- New transit service will be added near the Stadium including a new Circulator route connecting Dupont Circle with Navy Yard by 2017 and two Streetcar lines that terminate in Buzzard Point (connecting with Takoma to the north and Anacostia to the south)

Table 13: Transit Recommendations

	ESSENTIAL	RECOMMENDED
INFRASTRUCTURE	<ul style="list-style-type: none"> ▪ Work with architect to accommodate streetcar in site design ▪ Install way-finding signage along pedestrian pathways ▪ Install DC United signage within Metro system 	<ul style="list-style-type: none"> ▪ Coordinate with Metro to explore increased service (additional and/or longer trains) to service post-game demand ▪ Install real-time transit information displays
OPERATIONS	<ul style="list-style-type: none"> ▪ Discuss need for shuttle for handicap access to site ▪ Expand bus service to Buzzard Point on game days 	<ul style="list-style-type: none"> ▪ Develop app to include transit information ▪ Coordinate scheduled service disruptions with Metro
MARKETING	<ul style="list-style-type: none"> ▪ Add DC United logo or specific stadium-branding to Metro maps and signage ▪ Publicize transit availability and encourage use ▪ Provide Metro subsidies to season-ticket holders equal to any parking subsidies (e.g. DC United-branded SmarTrip cards) 	<ul style="list-style-type: none"> ▪ Develop apps and website to promote transit usage



between 2018 and 2020.

- Although future transit options will provide service to a wider portion of the DC metropolitan area, Metrorail will continue to act as the primary transit option due to short headways and the large amount of people served by each train. For these reasons, Metrorail will have a greater overall capacity compared to that of the Circulator and Streetcar.
- Transit will be heavily promoted as an alternative travel option through use of marketing on the DC United website, specific Stadium-branding within the Metro system, and by providing transit subsidies to season ticket holders equal to in value to the parking subsidy typically provided.



PEDESTRIAN

This section reviews the existing and proposed pedestrian facilities with suggested routing strategies, develops a SWOT analysis for pedestrian facilities, and provides recommendations.

Pedestrian Network

The DC United Stadium is served by a comprehensive network of pedestrian facilities. Pedestrian activity within the study area generally 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. The majority of the streets in the broader 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. Figure 23 shows a summary of the existing pedestrian facilities in the study area.

Pedestrian access along South Capitol Street, Potomac Avenue SE, and other roadways bordering the Nationals Park is excellent; wide sidewalks, crosswalks, curb-ramps, and other pedestrian-amenities are provided. Pedestrian facilities along the other roadways in the study area east of South Capitol Street and north of P Street SW are generally adequate.

While the pedestrian facilities near Nationals Park are excellent, those provided within Buzzard Point and near the Stadium are generally absent or of lower quality due to less development in the area to date. With the exception of the west side of 2nd Street SW, the majority of the roadways south of P Street SW have no sidewalks or crosswalks. North of P Street SW, within the residential neighborhood, the majority of roadways have sidewalks, crosswalks, and curb ramps. However, because the residential streets and sidewalks are smaller in scale, they should not be used for routing larger pedestrian groups through the neighborhood.

Currently, it can be difficult and intimidating for pedestrians to cross South Capitol Street. Since the majority of pedestrians walking to and from the site will be coming from the Navy Yard Metrorail Station and the parking zones east of South Capitol Street, they will likely need to cross South Capitol Street between N Street and Potomac Avenue. To enhance pedestrian safety on game days, the traffic oval will separate the roadway traffic by direction and traffic control officers will help aid pedestrian crossings along South Capitol Street.

As stated previously, several long-planned infrastructure projects are starting implementation near the Stadium. The most significant improvement will be reconstruction of the Frederick Douglass Bridge and construction of the South Capitol Street Oval at Potomac Avenue, which is projected to be completed by 2018. The pedestrian improvements for this project include widened sidewalks and increased pedestrian-oriented elements such as street trees, benches, and decorative streetlights. The project will also improve access to existing transit options in the corridor by providing additional pedestrian facilities, streetscape, and pedestrian-friendly amenities. Although pedestrian crossings of South Capitol Street will be improved compared to existing conditions, enhanced operational measures will still be needed to handle anticipated game-days crowds. South Capitol Street will remain a large arterial street and a mobility barrier, albeit an improved one relative to current conditions.

In addition to (and in conjunction with) the South Capitol Street project, the construction of the Anacostia Riverwalk Trail will provide a high-quality connection between the Navy Yard and Buzzard Point neighborhoods.

While the pedestrian facilities within the study area will be improved by the South Capitol Street project, the construction of these improvements will temporarily disrupt the existing pedestrian connections between the Stadium and the Navy Yard Metrorail Station and parking zones east of South Capitol Street. Additionally, the potential construction staging area adjacent to the Frederick Douglass Bridge south of Potomac Avenue SW may temporarily disrupt the connectivity of the Anacostia Riverwalk Trail. Although some connectivity will be temporarily disrupted, the improvements resulting from the construction will greatly improve the pedestrian environment.

These advantages and disadvantages of the pedestrian network and facilities for the DC United Stadium are summarized in Table 14.

Pedestrian Routing

Pedestrians walking to and from Stadium events will primarily be traveling between the Stadium site and the Navy Yard Metrorail Station and, to a lesser extent, the Waterfront Metrorail Station. Pedestrians will also be traveling in between the Stadium site and the parking zones outlined previously. A smaller number of trips generated by the Stadium will be walking trips originating from residential areas.



In order to determine the optimal pedestrian routing for the Stadium, the number of trips generated by the Stadium during a typical weeknight game were distributed on the most-likely walking routes between the site and the Metrorail and parking zones previously shown on Figure 8, while attempting to utilize the existing wide sidewalks near the Nationals Park and avoid the residential neighborhood north of the Stadium. Generally, the pedestrian routing follows similar roadways as the vehicular routing, including South Capitol Street, Potomac Avenue, 1st Street SE, M Street SE/SW, and 4th Street SW. Residential roadways that should not be used for pedestrian routing include those between South Capitol Street and 4th Street SW north of P Street SW and south of M Street SW within the residential neighborhood north of the Stadium.

The total number of pedestrian trips were assumed for a combination of the transit and parking worst-case scenarios in order to determine the maximum pedestrians per route. The total number of pedestrian trips projected on each roadway is shown on Figure 24. Recommendations to encourage the pedestrian routing strategy are outlined later in this section.

Pedestrian Recommendations

To properly address the existing and potential concerns regarding pedestrian facilities, several recommendations have been compiled, as shown in Table 15.

Table 14: Pedestrian SWOT Analysis

	positive	negative
internal factor	<p>STRENGTHS</p> <ul style="list-style-type: none"> Existing wide sidewalks adjacent to Nationals' Ballpark 	<p>WEAKNESSES</p> <ul style="list-style-type: none"> Low-quality of sidewalks within Buzzard Point Crossing South Capitol Street Limit pedestrian access through existing residential neighborhood
	<p>OPPORTUNITIES</p> <ul style="list-style-type: none"> South Capitol Street reconstruction, including new Oval at Potomac Avenue provides improved crossings at South Capitol Street Anacostia Riverwalk Trail 	<p>THREATS</p> <ul style="list-style-type: none"> Temporary disruption during construction of new oval, bridge, and roadway improvements along South Capitol Street

High-Priority Recommendations

During the planning and design stages of the Stadium, it is essential for DC United to coordinate the pedestrian facilities/amenities with the architectural design of the Stadium. DC United should ensure that the site includes excellent pedestrian facilities and amenities, while reducing conflicts between pedestrians and other transportation modes, in order to encourage walking as the preferred mode. Additionally, DC United and DDOT should coordinate to identify which of the roadways adjacent to the Stadium should be reconstructed to include wider sidewalks, crosswalk, and curb ramps.

Building on the lessons learned from the pedestrian patterns at the traffic oval in front of RFK Stadium, DC United should coordinate with DDOT on the design of the South Capitol Street Oval at Potomac Avenue to ensure that the pedestrian traffic generated by the Stadium can be even more successfully accommodated. The Oval alignment and Stadium design (primarily crosswalk locations and pedestrian facilities) should also be coordinated to fit the pedestrian routing plan. DC United should also coordinate with DDOT to explore ways to route pedestrians along the waterfront under the existing Frederick Douglass Bridge prior to the construction of the new bridge and the Oval.

In regards to infrastructure and operations, it is essential to install pedestrian-oriented way-finding signage on the roadways near the Stadium. Similar to the existing signage for the Nationals Park, this would include signs within the Navy Yard Metrorail Station and along pedestrian routes outlined previously. Additional temporary way-finding and directional signage could be used on game days to supplement the permanent signage. It is also essential to coordinate with DC Police to employ traffic control officers (TCOs) at key intersections before and after matches, and place temporary traffic barriers (such as cones or Jersey barriers) at strategic locations to control the flow of vehicles and ensure the separation of vehicles and pedestrians.

As stated previously, the TCOs will mainly be responsible for preventing and resolving conflicts between pedestrians and vehicles. Exact details of their placement will be contained in the eventual Stadium TOP, but one location has already been identified as a key pedestrian/vehicle conflict area.



The before- and after-game placement of temporary signage, TCOs, and traffic control barriers along South Capitol Street at Potomac Avenue and P Street is shown previously in Figure 19 through Figure 21. The pre-game pedestrian recommendations include:

- Investigate the pedestrian crossing time at the intersection of South Capitol Street at Potomac Avenue to ensure that pedestrians are adequately served by the signal. The primary pedestrian flow will be from the east to the west side of South Capitol Street, using the northern-most crosswalk. The existing home-plate queuing area near the Nationals Park can be used for the pre-game pedestrian traffic.
- Install way-finding signage that directs pedestrians to the Stadium via First Street, SE, South Capitol Street and Potomac Avenue in order to utilize the existing wide sidewalks adjacent to the Ballpark and to avoid residential neighborhood streets.
- As stated previously, it may be beneficial to close P Street SW to vehicular traffic. The removal of vehicles

turning at this intersection would allow for pedestrians to cross South Capitol Street without conflicting vehicular movements. If P Street SW remains accessible to vehicles turning on to South Capitol Street, a TCO may be necessary to avoid conflicts between turning vehicles and pedestrians crossing South Capitol Street.

The post-game pedestrian recommendations include:

- A TCO should be placed at the intersections of South Capitol Street with P Street and Potomac Avenue to direct vehicular and pedestrian traffic. Additional officers and coordination could be used to clear traffic from the segment of South Capitol Street between P Street and Potomac Avenue to allow for a mass pedestrian crossing.
- In coordination with the restriction of inbound movement on the western side of Potomac Avenue, cones should be used to delineate a pedestrian queuing at the northwest corner of Potomac Avenue

Table 15: Pedestrian Recommendations

	ESSENTIAL	RECOMMENDED
INFRASTRUCTURE	<ul style="list-style-type: none"> ▪ Work with architect to accommodate pedestrians in site design ▪ Install way-finding signage along pedestrian pathways ▪ Improve sidewalk widths adjacent to stadium ▪ Work with DDOT to ensure pedestrian connectivity to site (e.g. Anacostia Riverwalk Trail) 	<ul style="list-style-type: none"> ▪ Create a sense of “place” along walking routes (e.g. DC United-branded flags) ▪ Construct pedestrian amenities to increase positive perception of walking routes (e.g. pavers, lighting)
OPERATIONS	<ul style="list-style-type: none"> ▪ Install additional temporary way-finding signage ▪ Coordinate with DC Police to employ traffic control officers at adjacent intersections pre- and post-game ▪ Place cones/jersey barriers along access routes to direct traffic 	
MARKETING	<ul style="list-style-type: none"> ▪ Advertise primary routing to and from stadium 	<ul style="list-style-type: none"> ▪ Develop apps and website to promote walking to stadium



and South Capitol Street. Similar to pre-game, the primary pedestrian flow will be from the west to the east side of South Capitol Street, using the northernmost crosswalk.

- Install way-finding signage that directs pedestrians to the Navy Yard Metrorail Station via Potomac Avenue, South Capitol Street, and First Street, SE to utilize the existing wide sidewalks adjacent to the Ballpark and to avoid residential neighborhood streets.
- In coordination with the closure of P Street SW and placement of TCOs, pedestrians would be able to cross South Capitol Street without vehicular conflicts, utilizing both the northern and southern crosswalks.

Besides controlling the flow of pedestrian traffic, the infrastructure and operations recommendations outlined above also will help to protect the adjacent residential neighborhoods from cut-through traffic on the local roadways.

It is essential that routing information and maps of walking routes be distributed to ticket purchasers, especially planholders. This information needs to be included on the DC United website and should also be disseminated through local media before and during the first season of operation for the Stadium and could be included on social media platforms. The walking routes between the Stadium and the Navy Yard Metrorail Station could also be advertised through WMATA (provided on the website and in Metrorail station) and posted in or near the parking zones. More information on marketing and dissemination of information, including the development of a mobile app, is provided later in this report.

Additional Recommendations

In order to improve the pedestrian environment near the Stadium, several enhancements could be added along the pedestrian routes previously identified. The main goal of these enhancements would be to improve the perceived walk-time between the Stadium and the Navy Yard Metrorail Station and parking zones. This could consist of placing vendors and food trucks along the walking routes. To create a “sense of place”, this could include placing temporary markers, such as DC United-branded flags, and constructing permanent pedestrian amenities, such as decorative pavers and enhanced lighting, along the pedestrian routes. The temporary markers could be most-effective to direct pedestrians to the Anacostia Riverwalk Trail to travel between the Navy Yard and Buzzard Point neighborhoods.

Summary

Highlights for the pedestrian facilities include:

- The DC United Stadium is served by a comprehensive network of pedestrian facilities; the majority of the streets in the broader 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 (although the industrial blocks within Poplar Point are lacking in pedestrian amenities). Pedestrian activity within the study area generally occurs along transit access routes, in the vicinity of transit stops, at commercial nodes along M Street, and between residential neighborhoods and transit and commercial nodes.
- Pedestrians walking to and from Stadium events will primarily be traveling between the Stadium site and the Navy Yard Metrorail Station and between the Stadium site and the parking zones.
- The most significant pedestrian concern for game-day traffic will be crossing South Capitol Street at P Street and Potomac Avenue. Preliminary recommendations to handle pedestrian crossings at these locations were presented earlier in the report.
- High-priority infrastructure and operations recommendations include installing permanent and temporary pedestrian-oriented way-finding signage on the roadways near the Stadium, employing traffic control officers (TCOs) at key intersections before and after games, and placing temporary traffic barriers (such as cones or Jersey barriers) to control the vehicular flow and ensure the separation of vehicles and pedestrians. High priority marketing recommendations primarily consist of distributing routing information and maps of walking routes to ticket purchasers.
- Additional recommendations include improving the pedestrian environment to reduce the perceived walk-time and create a “sense of place” along walking routes.

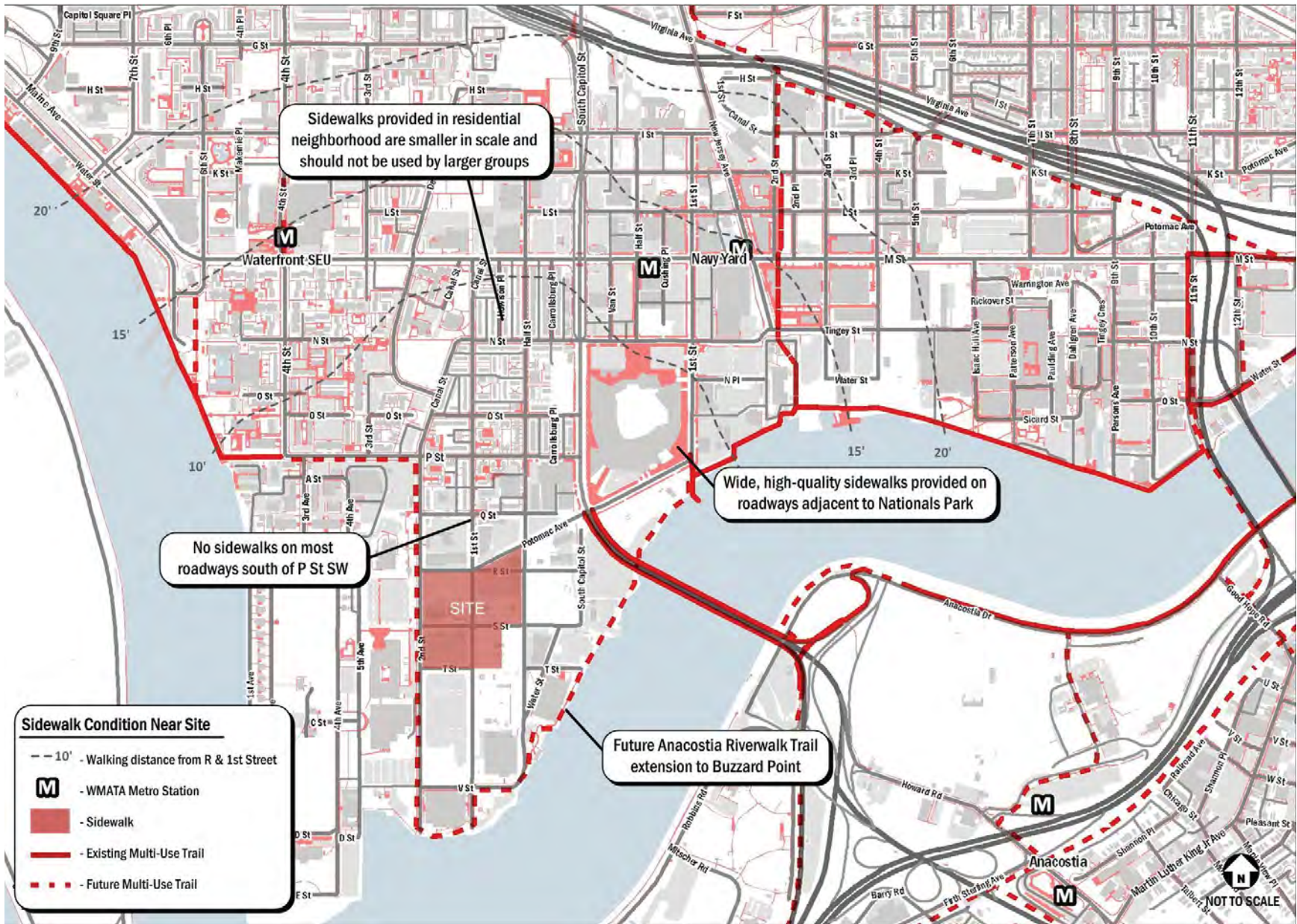


Figure 23: Existing Pedestrian Facilities

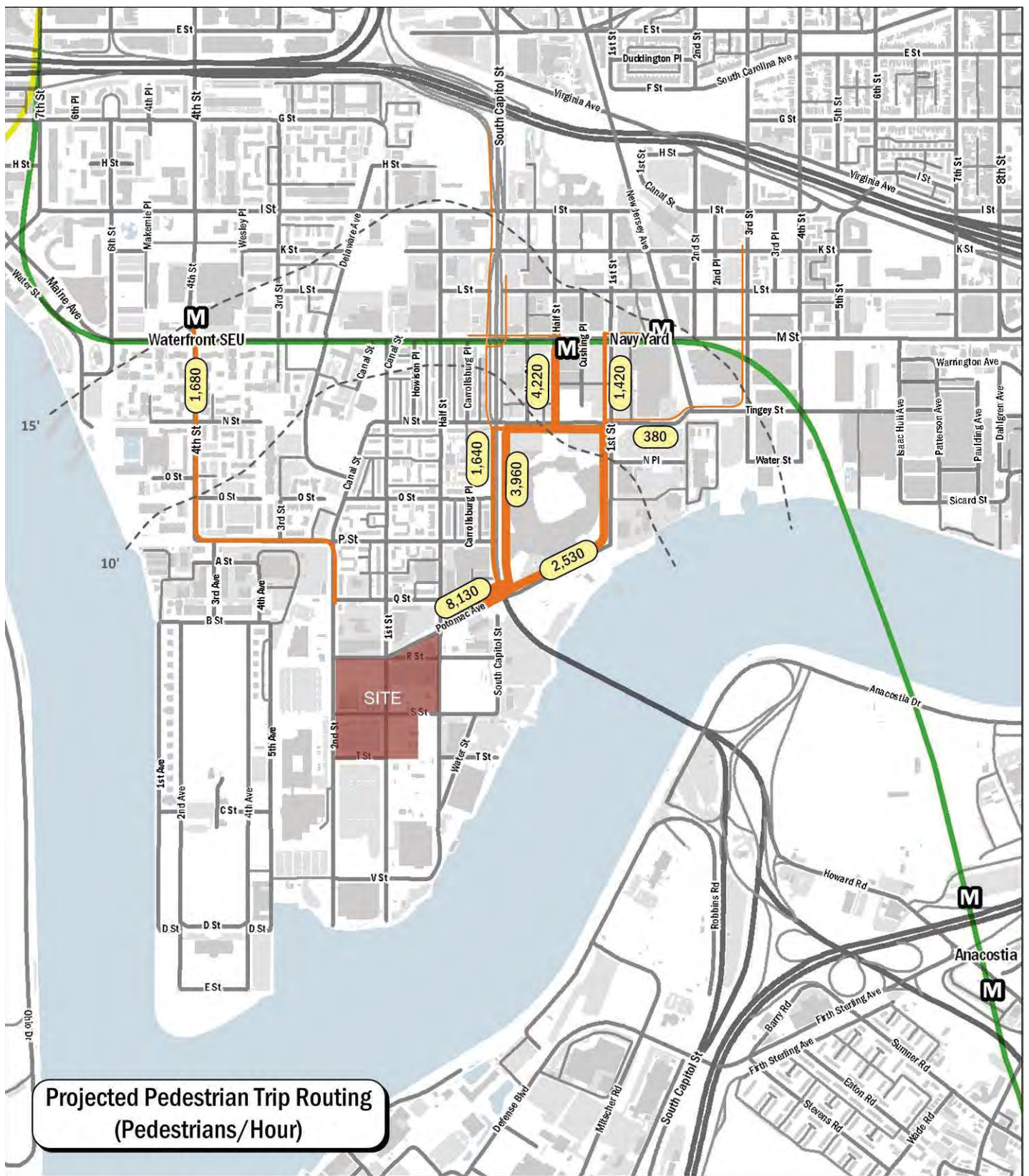


Figure 24: Total Pedestrian Trips Projected Per Route (Worst-Case Scenario)



BICYCLE

This section reviews the cycling culture that currently exists in DC, examines the existing and proposed bicycle facilities with suggested routing strategies, develops a SWOT analysis for bicycle facilities, and provides recommendations.

DC Cycling Culture

The cycling culture within the District has changed and progressed rapidly over the past several years. The overall bicycle mode share for commuters has increased from 2.0 percent in 2006 to 3.2 percent in 2011², which is one of the largest growths in the country. The increase in bike commuters has spurred an increased focus on upgrading and developing new bicycle infrastructure within the city including on and off-street facilities and the addition of the Capital Bikeshare program. DC was the first city in the country to implement an automated bike-share system and currently places over 2,500 bicycles and over 300 stations across Washington, DC, Arlington and Alexandria, VA, and Montgomery County, MD.

Bike lanes, separated cycle tracks, and multi-use trails have also been constructed all over the city, and plans to expand these facilities are in progress. Overall, Washington, DC is hailed as one of the elite biking cities in the country with a loyal and enthusiastic community promoting bicycling as an affordable,

sustainable transportation solution and constantly striving for better cycling conditions.

Bicycle Facilities and Routing

For the purpose of reaching the new Stadium, cyclists have access to a network of multi-use trails, on-street bike facilities, signed bike routes, and local and residential streets that facilitate cycling, as shown in Figure 25. The bicycle network provides good conditions for local trips and there are several routes for trips between the Stadium and many areas within the District, including areas across the Anacostia River, as well as Northern Virginia.

There are five primary routes to and from the Stadium that utilize the existing facilities ranging from low- to high-quality, as summarized in Figure 25. Two routes along 4th Street SW and 4th/6th Street SE can be categorized as high quality routes. Portions of 4th Street SW contain bike lanes and all other areas along the roadway provide a safe bicycling environment. In addition, 4th Street SW has the advantage of connecting the Stadium site to the Pennsylvania Avenue cycle track and the downtown DC area.

Southbound and northbound bike lanes are provided on 4th and 6th Street SE, respectively. These bike lanes extend from G Street SE to Florida Avenue NE providing 1.8 miles of bike lanes in both directions. This creates excellent connectivity with many of the residential neighborhoods in Capitol Hill and the surrounding areas, and links fairly seamlessly with bicycle facilities in southeast and southwest DC near the Stadium site.

The bicycle routes along Maine Avenue and the 11th Street Bridge are categorized as moderate quality routes due to some deficiencies along the routes. Maine Avenue connects the Stadium with the 14th Street Bridge and the 15th Street cycle track; however, the complicated roadway network surrounding the Francis Case Memorial Bridge and the 14th Street Bridge combined with the lack of clear cycling routes may create confusion for novice cyclists. Additionally there are some areas with little to no buffer between bicycle facilities and high speed roadways. Many of these deficiencies will be alleviated through development of the Southwest Waterfront area which includes planned bicycle infrastructure improvements.

The 11th Street Bridges have recently been reconstructed in which updated bicycle facilities have been implemented that provide an important connection to areas of the District on either side of the Anacostia River. The 11th Street Bridges

Table 16: Bicycle SWOT Analysis

	positive	negative
internal factor	STRENGTHS <ul style="list-style-type: none"> Existing facilities in study area Existing bike culture developing in DC Capital Bikeshare service 	WEAKNESSES <ul style="list-style-type: none"> Pavement quality in parts of study area Lack of facilities within Buzzard Point Difficult to cross high-volume and high-speed roadways Lack of roadway grid near site
	OPPORTUNITIES <ul style="list-style-type: none"> South Capitol Street reconstruction, including new Oval at Potomac Avenue provides improved crossings at South Capitol Street Anacostia Riverwalk Trail Future M Street/I Street bicycle lanes 	THREATS <ul style="list-style-type: none"> Temporary disruption during Construction of new oval, bridge, and roadway improvements along South Capitol Street Capacity issues possible due to future development Conflicts with pedestrians
external factor		

² <https://www.census.gov/acs/www/>



connect to the Anacostia Riverwalk Trail which leads to the Stadium. For the most part this route provides excellent connectivity; however, parts of the trail connecting to the Stadium are sometimes closed and would result in traveling along M Street, which does not provide as desirable cycling conditions. Additionally, the Anacostia Riverwalk Trail will likely serve as a major pedestrian route during games; thus it's likely that near the Stadium bicycles will have to dismount their bikes and walk along the trail to avoid conflicts.

The route along the Frederick Douglass Memorial Bridge which connects the Stadium with Anacostia is currently a low quality route. Although the bridge and some connections across the river are considered multi-use trails, they are in poor quality and require enhancements. Construction of the new Frederick Douglass Memorial Bridge and the traffic oval at Potomac Avenue will greatly improve the quality of the crossing and overall route.

Although there are several existing bicycle facilities in the area, some of these have poor pavement quality and will require repaving in the future. There is also a lack of facilities in the Buzzard Point area, due to the lack of a roadway grid and little development in the area thus far. Another issue that arises in the area is high-volume and high-speed roadway crossings primarily along South Capitol Street. These may prove challenging for novice cyclists, but likely won't be seen as a problem to most cyclists in the area.

There are several planned improvements that will have a positive impact on the bicycle environment in the area:

1. The South Capitol Street improvements will provide a much safer connection across the Anacostia River and improved crossings along South Capitol Street. Although crossings of South Capitol Street will be improved compared to existing conditions, enhanced operational measures will still be needed to handle anticipated game-day bicycle traffic. South Capitol Street will remain a large arterial street and a mobility barrier, albeit an improved one relative to current conditions.
2. Extensions to the Anacostia Riverwalk Trail are planned that will connect the southwest and southeast waterfronts via Buzzard Point.
3. Future M Street/I Street bicycle lanes are currently being considered that would greatly strengthen the east-west connectivity around the site. These improvements will

cause temporary disruptions to service and connectivity of bike facilities; however, they will result in a better bicycle network in the long run.

These advantages and disadvantages of the bicycle network and facilities for the DC United Stadium are summarized in Table 16.

Nationals Park Cycling Accommodations

Nationals Park has created an atmosphere that fosters cycling as a mode. In addition to the 250 bike racks located around the perimeter, a free bike valet service is located in one of the garages. The bike valet allows users to not only store their bikes but also store their helmets and cycling accessories so they don't have to be carried into the Ballpark. The bike valet accepts bikes two hours before the game and closes one hour after the last inning.

The Ballpark also caters to those who utilize the Capital Bikeshare service. There are four stations within walking distance of the Ballpark amounting to a total of 53 docks. Due to an influx of people traveling to the Ballpark on game days and very few traveling away from it, docks tend to fill up before the start of the game and empty out very quickly at the end of the game. Thus, Bikeshare is not always the most reliable travel option. To combat this Capital Bikeshare established a bike corral during the playoffs when attendance was expected to spike. The bike corral allowed people to check in their bikes even if docks weren't available to account for overflow at the Stadium. This also resulted in more bikes being available to patrons at the conclusion of the game.

Bicycle Recommendations

In order to address the existing and potential concerns regarding bicycle facilities, several high- and low-priority recommendations have been compiled, as shown in Table 17.

High Priority Recommendations

Bicycle specific infrastructure that should be incorporated into the Stadium and surrounding area includes bike racks, a bike valet system, one or more Capital Bikeshare stations, and way-finding signage along the bike routes. Based on the approximate cycling mode share that was experienced at Nationals Park during playoffs, it is estimated that typically 3 percent of game-day trips will arrive by bike. This amounts to approximately 600 bike trips for a sold-out game condition.



Therefore, it will be essential to provide ample bicycle parking at the Stadium to account for these trips. It is suggested that approximately 60 percent of parking spaces are accommodated by bike racks and the remainder accommodated by the bike valet system. The racks should be placed all along the perimeter of the Stadium; however they should be centralized along the north and east sides of the Stadium as more cyclists are likely to be traveling from these directions.

The bike valet system would be best located along the north side of the Stadium to serve the largest amount of people. At least one new Capital Bikeshare station will have to be added to Buzzard Point as all existing Bikeshare stations are located north of M Street and east of South Capitol Street. Again, the location of a station would be most valuably served on the north side of the Stadium and incorporated into the site design as such. To direct people to the Stadium, way-finding signs should be placed along the bike facilities that direct cyclists towards Buzzard Point. Because there are no current bike facilities in Buzzard Point, these signs would act as a way to

direct bikes along the suggested routes, including 4th Street, P Street, 2nd Street, 1st Street, and Potomac Avenue.

Temporary way-finding signage should also be used specifically on game days to direct people towards the bike valet location and to other bike parking locations. Temporary cones and barriers could also be used along the access routes to direct bicycle traffic to the Stadium before the match and away from the Stadium at the end. To provide a safer environment for both bicycles and pedestrians, DC United will coordinate with DC Police to employ traffic control officers at adjacent intersections pre- and post-game, particularly at some of the busier intersections. Overall, the new Stadium aims to become one of, if not the most bike friendly soccer Stadium in the country. Therefore DC United will coordinate with the Washington Area Bicyclist Associated (WABA) on strategies to create a bike friendly environment at the Stadium.

Table 17: Bicycle Recommendations

	ESSENTIAL	RECOMMENDED
INFRASTRUCTURE	<ul style="list-style-type: none"> Work with architect to accommodate bicycles in site design (e.g. ample bike parking) Provide bike valet Install Capital Bikeshare station near site Install way-finding signage along bike routes 	<ul style="list-style-type: none"> Study circulation around Stadium and possibly convert existing 1-way streets to 2-way Study bicycle circulation and routing near Stadium to determine if additional bicycle facilities are necessary Add icons for Stadium to Capital Bikeshare maps
OPERATIONS	<ul style="list-style-type: none"> Install additional temporary way-finding signage Coordinate with DC Police to employ traffic control officers at adjacent intersections pre- and post-game Place cones/jersey barriers along access routes to direct traffic Coordinate with WABA on strategies to promote bicycling 	<ul style="list-style-type: none"> Provide “bottomless” Capital Bikeshare corral during home games
MARKETING	<ul style="list-style-type: none"> Advertise primary routing to and from Stadium Provide subsidies to season-ticket holders equal to any parking subsidies (e.g. discounted Capital Bikeshare membership) Coordinate with WABA, Capital Bikeshare, etc. to promote bicycling 	<ul style="list-style-type: none"> Develop apps and website to promote biking to stadium Promote cycling by providing bike-specific swag Coordinate “Bike-to-Game” days with raffles and prizes

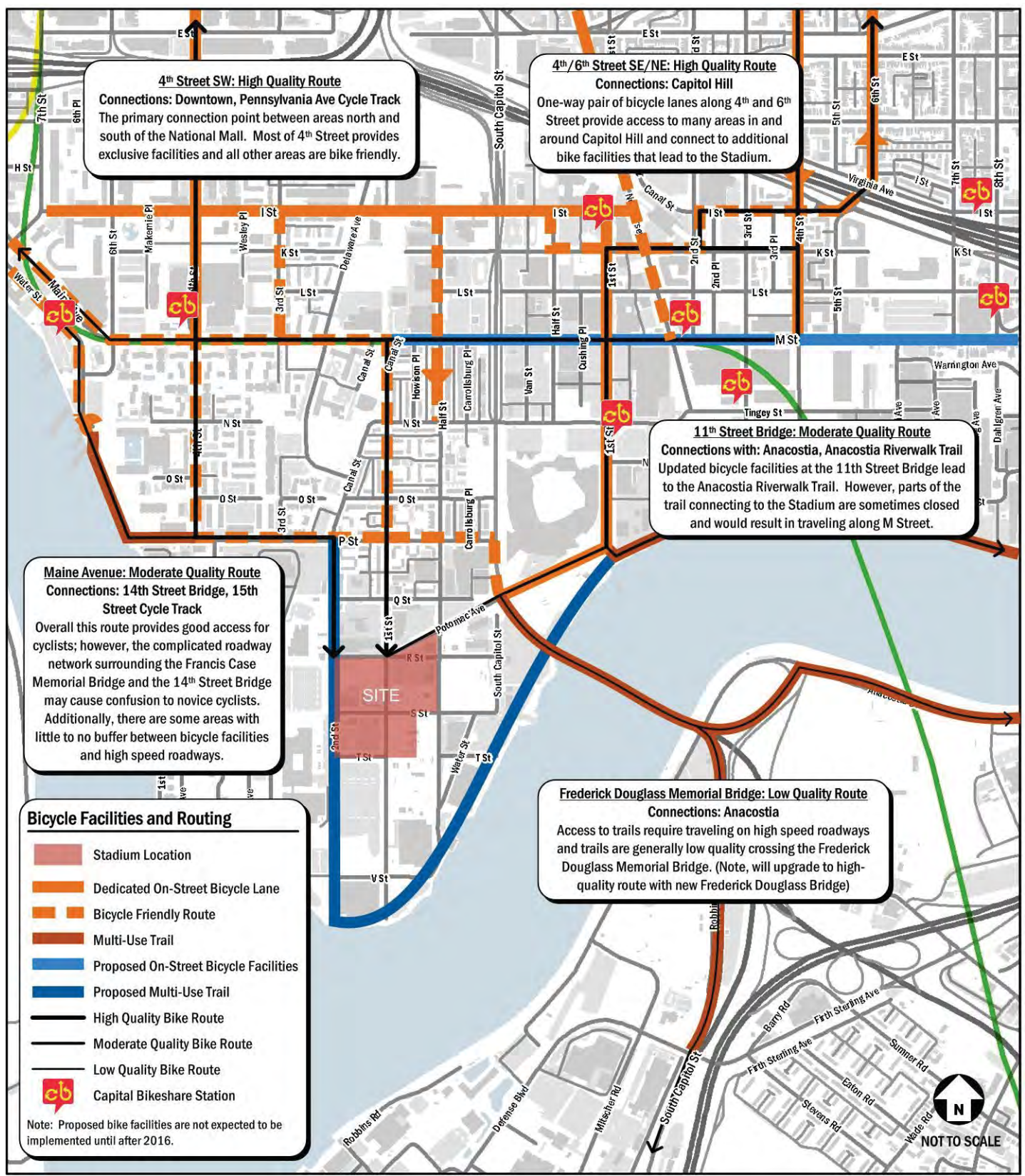


Figure 25: Bicycle Facilities and Routing



Coordination with WABA and other bicycle organizations such as Capital Bikeshare will also be necessary in promoting cycling as a prominent transportation option to and from the Stadium. Information on primary bike routes and bike parking at the Stadium will be available on the DC United website. To further encourage bicycling as a primary travel option, bicycle subsidies should be available to season-ticket holders that are equal in value to any parking subsidies that are offered. This could range from discounted Capital Bikeshare memberships to DC United-branded cycling gear.

Additional Recommendations

Bike parking will be the most important bicycle-specific infrastructure improvement to the site; however there are several other infrastructure recommendations that should be considered. As stated, there are currently no bike facilities within the Buzzard Point area. Therefore, bicycle circulation and routing near the Stadium may be studied to determine if additional bike facilities are necessary. In conjunction with this, the general circulation around the Stadium could be studied to determine its current effectiveness. It may be advantageous to convert some existing one-way streets to two-way streets or install contraflow bike lanes along one-way streets to allow for two-way bike traffic. Concurrent with the addition of new Capital Bikeshare stations in Buzzard Point, and during reprinting of Capital Bikeshare maps, it may be helpful to add a Stadium icon or some kind of DC United-branding next to the Bikeshare stations that should be used on game days.

As discussed earlier, to account for station overflow, Capital Bikeshare has implemented a bike corral at Nationals games when high attendance is expected. Potential rebalancing issues at the Stadium could be monitored over the first season to determine if this service is necessary and implemented as seen fit.

In addition to the essential marketing techniques, it may be beneficial to promote mobile apps that would aid cyclists, such as SpotCycle, which provides information about availability of bikes and docks at Capital Bikeshare stations. If a DC United Gameday app is developed, specific routing to and from the Stadium and availability at nearby Bikeshare stations could be implemented into the app. Other marketing techniques may include providing bicycle-specific DC United merchandise and coordinating “Bike-to-Game” days with planned activities and prizes.

Summary

Highlights for the bicycle facilities include the following:

- There are multiple high quality bicycle facilities that provide access to the Stadium including 4th Street SW and 4th/6th Street NE/SE.
- Future improvements to South Capitol Street, the Frederick Douglass Bridge, and the southwest waterfront will further improve bicycle connectivity near the Stadium and improve some of the currently low- and moderate-quality bicycle routes.
- The Stadium should incorporate an ample amount of bike parking and a bike valet system.
- At least one Capital Bikeshare station should be located in Buzzard Point, with one adjacent to the site. The possibility of using a bike corral at the nearest station should be considered to account for overflow.
- Bicycling will be heavily promoted as an alternative travel option by marketing bicycle routing and parking information on the DC United website and providing bicycle subsidies to season-ticket holders that are equal in value to parking subsidies that are offered.



MARKETING OPPORTUNITIES

This section reviews the available marketing opportunities for promoting efficient DC United patron transportation during game-day operations at the new Stadium. Included is an overview of existing marketing strategies used by MLS stadia, a review of available marketing tools and technology that may aid game-day operations, and a discussion of strategies and how they may be implemented at the new Stadium.

EXISTING PRACTICES

Many MLS stadia utilize marketing efforts to improve the overall game-day experience. This may include transportation specific marketing on the team’s website and/or a smartphone application.

All MLS stadia located in an urban setting provide information regarding alternative modes of transportation on their websites, as follows:

- Portland Timbers
(<http://www.portlandtimbers.com/parking-directions>)

Advertises all available transit options to the Stadium including a direct link to the local transit (TriMet) trip planner webpage, publicizes the available bike parking options at the Stadium, and encourages patrons to “Come Early, Stay Late” by promoting local shopping, restaurants, and entertainment locations. A screen shot from the transit section of the Portland Timbers website is shown in Figure 26.

- Seattle Sounders
(<http://www.soundersfc.com/matchday/transportation/guide.aspx>)

Provides a transportation guide that describes all available transit options with links to their websites and provides the location of available bike parking at the Stadium. The website also provides specially made transit maps that provide patrons with the most efficient transit options

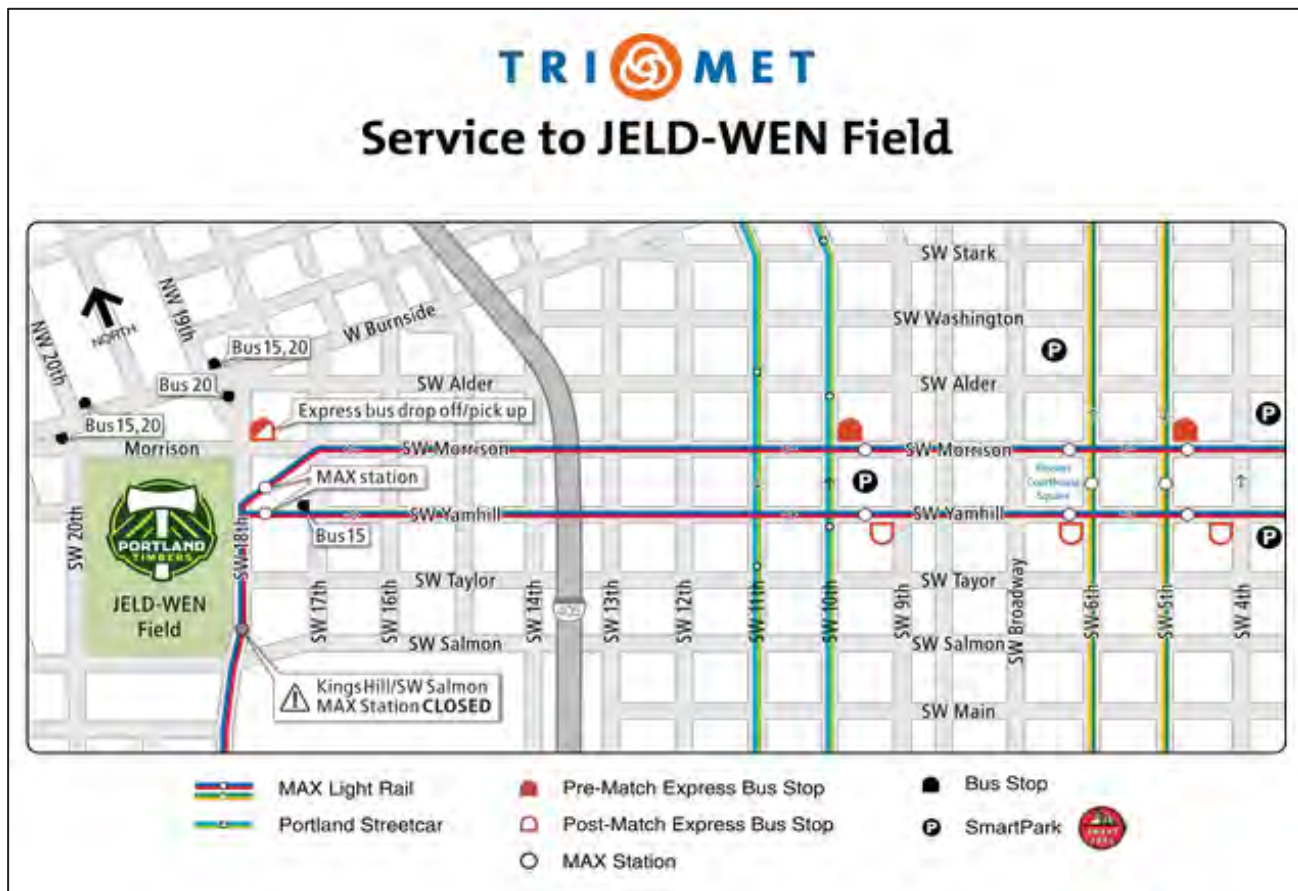


Figure 26: Portland Timbers Transit Map (Available on Team Website)



depending on where they are traveling from.

▪ New York Red Bulls

(<http://www.newyorkredbulls.com/HUB/nyc-public-map>)

Provides a Transportation Hub that allows users to select from five different tabs: NYC by Public Transport, NYC by Car, NJ by Public Transport, NJ by Car, and Parking. Each tab allows the user to specify the specific region they are traveling from and provides a map of the most efficient transit option or driving route. The parking tab provides more specific routing near the Stadium to all of the available parking locations. This section also advertises pre-game events to help disperse traffic and points out residential areas with parking restrictions.

▪ Toronto FC

(<http://bmofield.com/visit/>)

The Toronto FC website provides public transit directions with links to their websites in addition to promoting the local Bikeshare service, BIXI Bike, which has a station near the Stadium.

▪ Philadelphia Union

(<http://www.philadelphiaunion.com/ppl-park/public-transport-directions-parking>)

In addition to advertising the available public transportation options, the Philadelphia Union website promotes the Pub Partner Transportation program. This program specifies two pubs that provide pre- and post-game specials and offers a shuttle between the pub and the Stadium. This allows for an improved dispersal of arrivals and departures and takes some vehicular strain off of the area directly surrounding the Stadium.

In addition to MLS stadia, marketing opportunities at Nationals Park were evaluated to determine what marketing techniques are currently used in the area. Similar to most of the MLS stadia, Nationals Park advertises all public transit options on their website in addition to promoting biking and walking as alternative transportation modes to and from the Park. A unique feature of Nationals Park is the availability of a ride sharing program. The Nationals website provides a link to the Commuter Connections webpage where patrons can connect and coordinate carpools to and/or from the game. Although

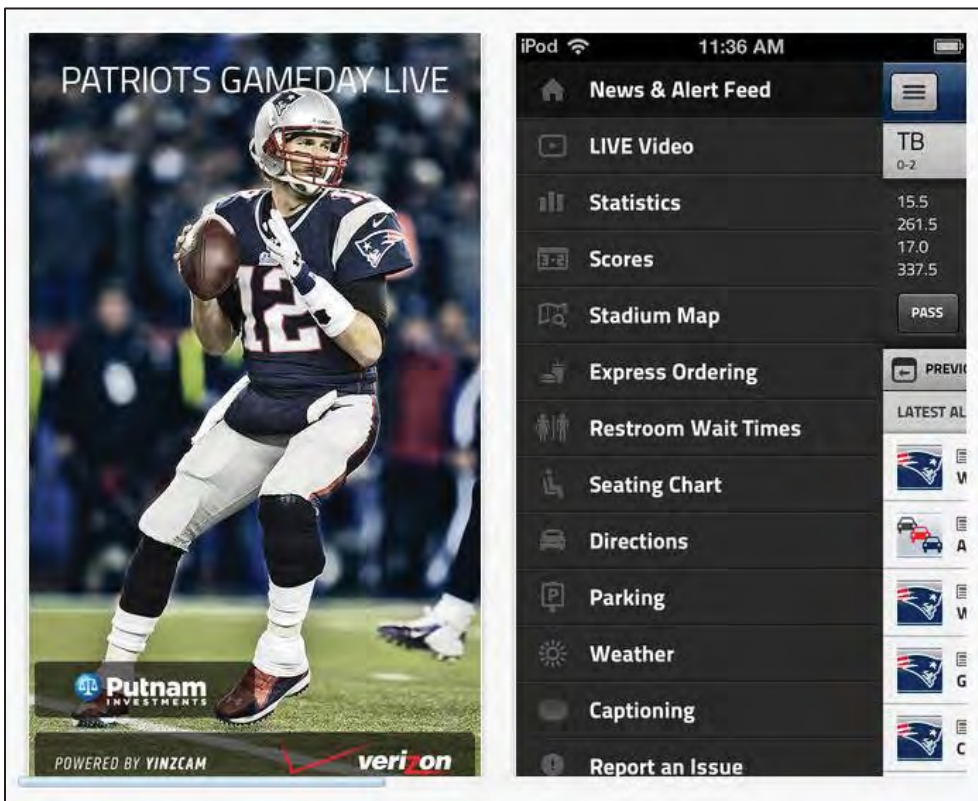


Figure 27: Patriots Gameday Live Application



there are no available statistics on the effects of this program, it is likely that this increases the average auto occupancy, thus decreasing the overall vehicular demand.

Supplementing website marketing, a developing trend for sports teams is to develop an app that enhances the fan experience on game days. For example, the New England Patriots recently released their new Patriots Gameday Live application, pictured in Figure 27, which patrons can download to their smartphones and use before, during, and after the game, as many stadia are now equipped with free wireless internet. The app contains features including game-related news and updates, alerts about traffic, weather, parking, and valuable promotions, express concession ordering at the Stadium, and wait times for the nearest bathrooms.

The Frisco RoughRiders (AA affiliate of the Texas Rangers) have also developed a game-day app, which provides key features such as:

- Traffic updates
- Alternative route options
- Mark My Car, which allows the user to pin their vehicles parking location on a map
- Alerts with post-game reminders
- Locations of the nearest bars and restaurants for post-game celebrations

Several other sporting teams are in the process of developing and unveiling similar apps to improve the overall fan experience.

AVAILABLE TOOLS AND TECHNOLOGY

There are a variety of marketing tools and technology available that may improve the quality of the fan experience, as described below.

Team Website

As described above, one of the primary ways to notify patrons on the transportation aspects of the game-day experience is through the team's website. Most patrons have the ability to access the website prior to leaving or on the way to the game. By providing Stadium specific transportation information including directions/routing, available parking, transit options, bike parking options, etc. patrons are able to plan their trip to and from the Stadium with ease.

Gameday Application

As outlined previously, some sporting teams have developed, or are in the process of developing game-day apps. The upside to having a game-day app is that all relevant information can be aggregated into one place, including directions, alternative routes, parking, and much more.

Parking Applications

There are several parking apps that may be useful for patrons traveling to the Stadium, including the following:

- *ParkMe*
(<http://www.parkme.com/parkingapp>)

The ParkMe app helps the user find the cheapest and closest parking. The app allows users to view rates, check the real-time occupancy of lots and garages, and gives directions to the nearest driveway access of the parking location.

- *SpotHero*
(<http://spothero.com/washington-dc>)

The SpotHero app helps the user find and reserve parking spots. Users are able to compare locations and prices to find the best option possible. When the user has decided where to park a reservation can be made to guarantee a space.

- *Parking Panda*
(<https://www.parkingpanda.com/dc-parking>)

The Parking Panda app helps the user find and reserve parking. Reservations can be made in advance or in real-time with opportunities to save up to 70% on parking.

Stadium Wi-Fi

Many sporting teams have, or are in the process of equipping their stadia with wireless internet allowing patrons to log on to Wi-Fi with their portable device during the game. This allows users to access the internet and any other apps they have on their portable device that may improve the quality of their experience. This is of particular importance as the game is coming to a close as patrons can check transit schedules, check traffic, and perhaps find a place to gather after the game.



Stadium Message Boards

There is ample opportunity within the Stadium for transportation related marketing. Scoreboards and other message boards surround the Stadium and can be used to display real-time transit schedules, promotions for alternate travel modes, and/or post-game specials at local establishments to help the dispersal of traffic after the game.

RECOMMENDATIONS

As discussed in the previous section, there are several essential and recommended marketing strategies for creating the most pleasant and efficient game-day experience for everyone. Essential marketing techniques and how they could be implemented are discussed below:

- Advertise primary vehicular routing to and from the Stadium

Routing diagrams should be included on the DC United website. It may be beneficial to provide a Transportation Hub similar to that used by the New York Red Bulls such that users can click on the region they are traveling from and be provided the suggested routes.

- Advertise parking lots/garages and areas with on-street parking

A map of preferred game-day parking locations will be provided on the DC United website including all available parking lots, garages, and non-residential on-street parking areas. On this map residential parking may be highlighted as restricted on game-days. Parking apps such as Park Me, Spot Hero, and Parking Panda may be advertised on the website as well.

- Promote the dispersal of traffic before and after the game.

Coordination with local establishments to advertise game-day specials before and after the game would help spread out traffic. Pre-game events at the Stadium could also be planned to help draw some people to the game earlier.

- Publicize transit availability and encourage use

Public transit options will be heavily advertised on the DC United website as a primary travel option to the Stadium. In addition it will be essential to add DC United logo or specific Stadium-branding to Metro maps and way-finding signage between the Navy Yard Metro station and the Stadium.

- Provide non-auto subsidies to season-ticket holders equal to any parking subsidies

Season-ticket holders would be provided the option of choosing either a parking subsidy, a transit subsidy, or a bike subsidy, depending on what would be most relevant to their preferred travel mode. Transit subsidies to consider would be a DC United-branded SmarTrip card with preloaded fare, monetarily equivalent to the parking subsidy. Options for the bicycle subsidy may include a discounted Capital Bikeshare membership or DC United-branded cycling apparel.

- Coordinate with WABA, Capital Bikeshare, etc. to promote cycling

This may include establishing and promoting a bicycle valet system at the Stadium, making bicycling a more favorable option by improving bicycle facilities directly surrounding the Stadium, and establishing one or more Capital Bikeshare stations at the Stadium (with the option of setting up a bike corral to account for overflow).

- Advertise primary pedestrian routing to and from the Stadium

Preferred pedestrian routes may be advertised on the website. This could also be done by adding DC United and or DC United/Nationals flags to light posts lining the preferred pedestrian routes. Not only would this keep pedestrians in the preferred routes, but it would also create a sense of arrival and make the walk to the Stadium a much more pleasant experience.

Additional marketing techniques that are recommended for the Stadium, but not essential include the following:

- Develop a game-day app that will include the following features:
- Market available game-day parking, with the potential of utilizing parking lot occupancy technology to publicize availability
- Provide primary routes to and from Stadium parking locations
- Advertise pre- and post-game specials at local establishments
- Promote transit usage by providing real-time schedule updates
- Provide walking directions to the Stadium from the nearest transit stations



- Promote bicycling as a travel option to the Stadium
- Assign parking permits for lots based on driver origin
- Promote cycling by providing bike specific swag
- Coordinate “Bike-to-Game” days with raffles and prizes
- Obtain an area near the Stadium that can be used as a meeting place and/or tailgating area to help with the dispersal of traffic
- Provide a ride-sharing program on the website similar to that employed by the Nationals

NEXT STEPS & IMPLEMENTATION

This section summarizes how the strategies and recommendations contained within this report should be implemented. The first step will be to review this TMP document to confirm the strategies and recommendations within, including:

- Having all of the stakeholders review this document and suggest edits, working towards reaching a mutually agreed version. At minimum, the stakeholders should include DC United, the Deputy Mayor's Office of Economic Development, the District Department of Transportation, the Metropolitan Police Department – Special Operations Division, and local community organizations.
- Taking any additional data needed during the 2014 DC United season, including refinements of transportation related assumptions and conducting surveys and/or focus groups of fans.
- Coordinating the results of the Environmental Mitigation Study (EMS) that the District is conducting for the Stadium. The analysis results and recommendations from the EMS can provide input to the strategies in the TMP and the TMP can inform the EMS.

Once the recommendations within the TMP are finalized, implementation should begin with the infrastructure-based recommendations since they take the longest time to implement. This includes DDOT reviewing plans for the streetcar and the South Capitol Street Bridge and Oval for refinements needed to accommodate the new Stadium. Additionally, this includes DC United working with its Stadium design team to incorporate the transportation related recommendations from this report into the Stadium design.

Finally, the operations and marketing recommendations need to be implemented. This usually occurs during the year leading up to opening day, resulting in a marketing plan from DC United and a Transportation Operations Plan (TOP) assembled by several stakeholders that details game-day operations. The TOP will be based on the strategies presented in this TMP report, refined into detailed pre- and post-game operational plans. As future projects and developments such as the South Capitol Street improvements are completed and future transit service is added, the TOP will be revised to reflect the changes

to the area. In addition, transportation operations at the new Stadium will be monitored over the first several seasons and changes will be made to the TOP based on these findings.