
Existing Conditions Analysis

Southwest Waterfront Stage 1 PUD

Washington, DC

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INTRODUCTION

This report presents the findings of an Existing Conditions Analysis performed for the Southwest Waterfront Development Stage 1 PUD. The Southwest Waterfront development will consist of a mixed-use development (residential, retail, office, marina and cultural uses) located in Ward 6 in southwest Washington, DC. The site is located southwest of Maine Avenue SW between the I-395 Freeway and 6th Street SW. The primary objective of this study is to evaluate the existing transportation conditions near the project site and to identify the potential areas of concern in the transportation network that may be impacted by the proposed development. This report focuses on the existing transportation network within the vicinity of the site, the transportation elements of the proposed development, and the possible impacts to the transportation network.

This report will be updated prior to the Stage 1 PUD hearing, to include a full review of future conditions with and without the proposed development. A comparison of the two future conditions will be used to determine the impact of the proposal and determine mitigation measures to the transportation network required to accommodate the development.

Gorove/Slade Associates, Inc. undertook the following steps while preparing the study:

- Analyzed the existing transportation network, including roadways, transit, and pedestrian and bicycle facilities;
- Performed field reconnaissance of existing roadway and intersection geometrics, traffic controls, speed limits, and operations;
- Observed traffic conditions during the morning and afternoon peak periods on a typical weekday;
- Conducted peak hour turning movement counts at study intersections;
- Investigated background developments located in the vicinity of the project site;
- Calculated existing levels of service at the study intersections located in the vicinity of the proposed development; and
- Identified areas of concern for the future analysis.

Sources of data for this study include studies by WMATA and ITE and the files/library of Gorove/Slade.

EXISTING SITE REVIEW

The existing conditions of the study area of the proposed site location are reviewed and analyzed to determine if any existing areas of concern or opportunity exist within the transportation network. A review of the existing conditions also establishes a point of reference for the analysis of the future scenarios.

Site Locations and Major Transportation Features

The Southwest Waterfront development is located in the Southwest portion of Washington, DC in Ward 6. The proposed development is located in an area of the District near several major private and public developments and roadway infrastructure projects, including the United States Department of Transportation headquarters, the Washington Nationals Ballpark, the Capitol Riverfront Yards Park, and the South Capitol Street infrastructure project.

The project site, as shown in Figure 1, is bounded by Maine Avenue SW to the north/northeast, the Washington Channel to the south/southwest, the I-395 to the west/northwest, and 6th Street SW to the east/southeast. The site is served by many regional roadways including Interstate 395 (I-395), Interstate 295 (I-295), and several interchanges and bridges. Arterials near the site include M Street/Maine Avenue SW, I Street SW, 14th Street SW, 9th Street SW, 7th Street SW, and 4th Street SW. Major collector roadways include D Street SW, C Street SW, and L'Enfant Promenade. The site is also served by several public transportation sources, including Metrorail, Metrobus, and the DC Circulator bus system.

The project site is also served by a pedestrian network consisting of sidewalks and crosswalks along the local streets surrounding the project site and the new Anacostia Riverwalk trail, which will connect the site and other locations along the Anacostia River and Washington Channel waterfronts. In addition to pedestrian accommodations, the site is also served by the on- and off-street bicycle network, which consists of bike lanes and signed bicycle routes along local roadways.

Roadways

As stated previously, the site is accessible via arterials, collector and local streets. Figure 2 shows the roadway network hierarchy and the annual daily traffic volumes for the roadways in the vicinity of the proposed development.

The immediate study area of the proposed development has several key local access roads. These include the following:

- Maine Avenue SW

Maine Avenue extends from M Street SW to 17th Street NW and serves as a connection between the Southwest Waterfront and the National Mall. DDOT classifies Maine Avenue as a minor arterial. It has an average daily traffic volume of 16,300 vehicles per day. Adjacent to the site, Maine Avenue has a six lane cross-section with a median, which is converted into center turn lanes at several intersections. Four-hour restricted residential parking is available along the southern side of the roadway. The posted speed limit in the vicinity of the site is 25 mph.

- M Street SW

M Street is a six-lane east-west minor arterial that connects Maine Avenue SW to 11th Street SE. Average daily traffic volumes are not available for M Street in the vicinity of the site. M Street has a six lane cross-section with a median, which is converted into center turn lanes at several intersections. Limited parking is available along both sides of the street, but parking is prohibited at these locations during peak hours. The posted speed limit in the vicinity of the Site is 25 mph.



Figure 1: Site Location

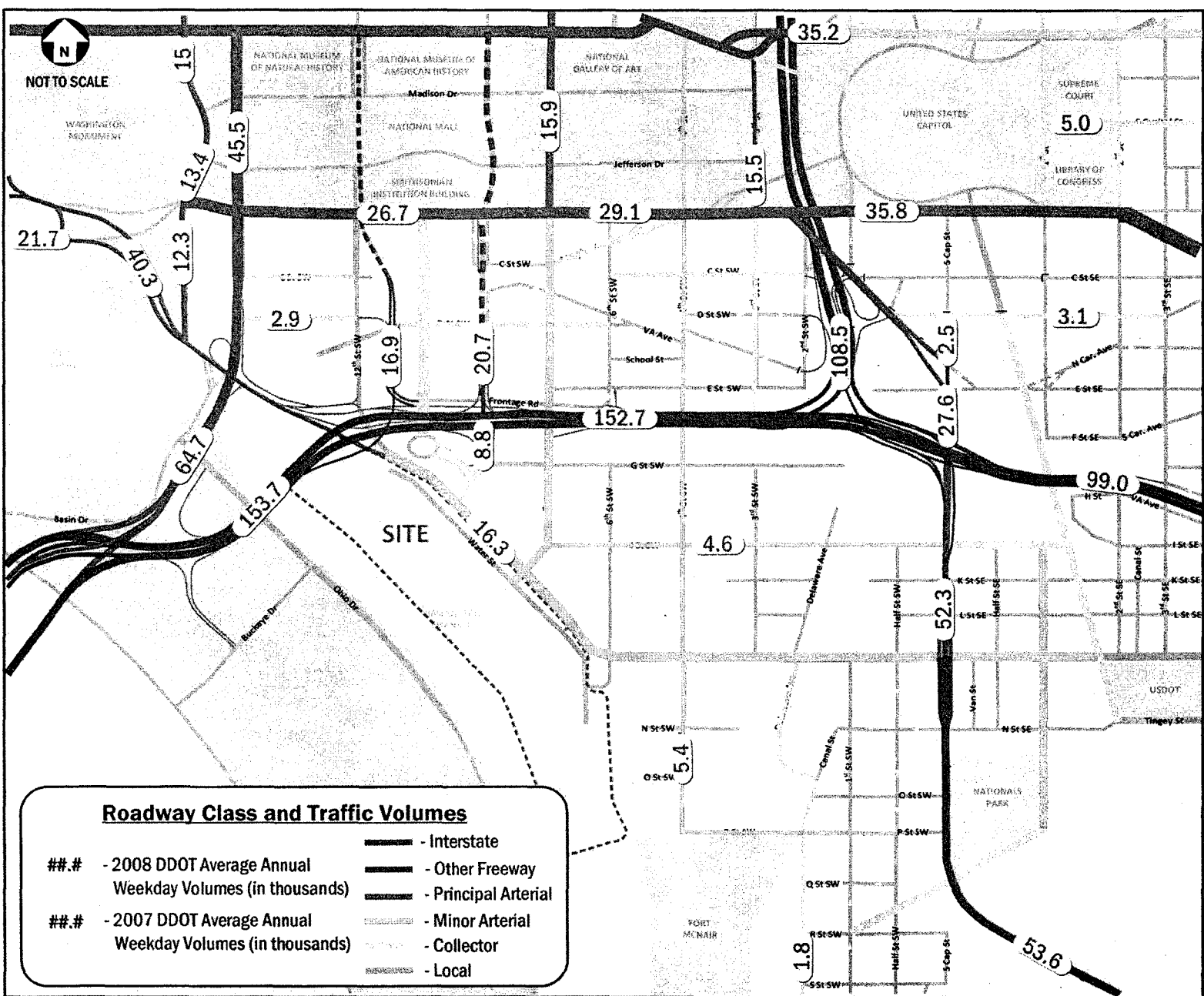


Figure 2: Roadway Classification and Average Daily Volumes

- I Street SW

DDOT classifies I Street as a minor arterial with average daily traffic volumes of 4,600 vehicles per day. Eye Street has a four-lane cross-section and operates east-west between 7th Street SW to New Jersey Avenue SE. Restricted residential parking and limited parking lines both sides of the roadway. The posted speed limit in the vicinity of the Site is 25 mph.

- G Street SW

DDOT classifies G Street as a local east-west roadway. It has a four-lane cross-section and connects 7th Street SW to 3rd Street SW. Average daily traffic volumes are not available for G Street. Restricted residential parking and limited parking lines both sides of the roadway. The posted speed limit in the vicinity of the Site is 25 mph.

- E Street SW

DDOT classifies E Street as a local east-west roadway. It has a four-lane cross-section and connects 7th Street SW to 2nd Street SW. Average daily traffic volumes are not available for E Street. Metered parking and limited parking lines both sides of the roadway. The posted speed limit in the vicinity of the Site is 25 mph.

- D Street SW

DDOT classifies D Street as an east-west collector street. It has a four-lane cross-section and average daily traffic volumes of 2,900 vehicles per day. There are segments of D Street between 14th Street and 2nd Street SW, but it is disconnected and traffic cannot travel the length of D Street because of the 12th Street Tunnel and the alignment of Virginia Avenue. Metered parking and limited parking lines both sides of the roadway. The posted speed limit in the vicinity of the Site is 25 mph.

- C Street SW

DDOT classifies C Street as an east-west collector street. It has a four lane cross-section. Average daily traffic volumes are not available for C Street. There are segments of C Street between 14th Street and 2nd Street SW, but it is disconnected and traffic cannot travel the length of C Street because of the 12th Street Tunnel and the alignment of Virginia Avenue. Metered parking and limited parking lines both sides of the roadway. The posted speed limit in the vicinity of the Site is 25 mph.

- 14th Street SW

Fourteenth Street SW is classified as a principal arterial with an average daily traffic volume of 45,500 vehicles per day north of Independence Avenue. 14th Street has a seven-lane cross-section that connects the 14th Street Bridge and Virginia with the National Mall, downtown Washington, and beyond. No on-street parking is permitted along 14th Street in the study area. The posted speed limit in the vicinity of the site is 25 mph.

- 12th Street Tunnel

The 12th Street Tunnel is classified as another freeway in the study area and has an average daily traffic volume of 16,900 vehicles per day. The 12th Street Tunnel has a two-lane cross-section that connects the Southwest Freeway with Constitution Avenue beneath the National Mall. No on-street parking is permitted along the 12th Street Tunnel in the study area. The posted speed limit in the vicinity of the site is 25 mph.

- L'Enfant Promenade

L'Enfant Promenade is classified as a collector street that operates between Benjamin Banneker Park and Independence Avenue. Average daily traffic volumes are not available for L'Enfant Promenade. The L'Enfant Promenade has a four-lane cross-section with one lane of on-street parking along both curb lanes. The posted speed limit in the vicinity of the site is 25 mph.

- 9th Street Tunnel

The 9th Street Tunnel is classified as another freeway in the study area and has an average daily traffic volume of 20,700 vehicles per day. The 9th Street Tunnel has a three-lane cross-section that connects the Southwest Freeway with Constitution Avenue beneath the National Mall. No on-street parking is permitted along the 9th Street Tunnel in the study area. The posted speed limit in the vicinity of the site is 25 mph.

- 9th Street SW

Ninth Street SW is classified as a principal arterial with an average daily traffic volume of 8,800 vehicles per day between Maine Avenue and the Southwest Freeway. This segment of 9th Street has five-lane cross-section that connects Maine Avenue with the 9th Street Tunnel. No on-street parking is permitted along this segment of 9th Street in the study area. The posted speed limit in the vicinity of the site is 25 mph.

- 7th Street SW

Seventh Street SW is a minor arterial with an average daily traffic volume of 15,900 vehicles per day north of Independence Avenue. 7th Street has a four-lane cross-section and connects Maine Avenue with the National Mall, downtown Washington and beyond. Parking is prohibited on both sides of the roadway. The posted speed limit in the vicinity of the site is 25 mph.

- 6th Street SW

DDOT classifies 6th Street SW as a local roadway. Average daily traffic volumes are not available for 6th Street. It has four-lane cross-section between Water Street and G Street and the Southwest Freeway and Independence Avenue. 6th Street is not continuous between Water Street and Independence Avenue because of the Southwest Freeway. 6th Street has a four-lane cross-section with two on-street parking lanes that provide residential parking south of the freeway and commercial parking north of the freeway. The posted speed limit in the vicinity of the site is 25 mph.

- 4th Street SW

DDOT classifies 4th Street SW as a minor arterial with an average daily traffic volume of 5,400 vehicles per day south of M Street. 4th Street has a four-lane cross-section and operates continuously between P Street SW and Pennsylvania Avenue NW. Restricted residential parking lines both sides of the roadway. The posted speed limit in the vicinity of the site is 25 mph.

- 3rd Street SW

Third Street is a local street that has a four lane cross-section and operates between M Street and G Street and E Street and Independence Avenue. Average daily traffic volumes are not available for 3rd Street. 3rd Street is not continuous between M Street and Independence Avenue because of the Southwest Freeway. Restricted residential parking lines both sides of the roadway. The posted speed limit in the vicinity of the Site is 25 mph.

- 2nd Street SW

Second Street is a local street that operates one-way southbound from Q Street SW to V Street SW. North of Q Street, 2nd Street becomes a two-way roadway as it extends to M Street. It has an average daily traffic volume of 1,800 vehicles per day. Restricted residential parking lines both sides of the roadway. The posted speed limit in the vicinity of the Site is 25 mph.

- 1st Street SW

First Street is a local street that is one-way northbound from V Street SW to Q Street SW. North of Q Street, 1st Street becomes a two-way roadway as it extends to M Street where it terminates. Restricted residential parking lines both sides of the roadway. The posted speed limit in the vicinity of the Site is 25 mph.

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

Car-Sharing

Car-sharing is provided in DC and the vicinity of the study area by Zipcar. Zipcar is a private company that allows registered users to reserve cars for a minimum of 30 minutes or for longer periods up to several days and provides individual access to variety automobiles for trips made easier by car. Table 1 lists the carsharing locations in the study area and the number of vehicles available.

Table 1: Carshare Location and Vehicles

Carshare Location	Number of Vehicles
1101 3 rd Street, SW	2 vehicles
1201 Maryland Avenue, SW	2 vehicles
3rd/M Street SW	4 vehicles
6th/I Street SW - On Street	1 vehicle
800 4th Street SW	1 vehicle
L'Enfant Metro - On Street	2 vehicles
L'Enfant Metro at 6 th /D Street SW	3 vehicles
SW Waterfront/I Street - On Street	1 vehicle
Total Number of Carshare Vehicles in Study Area	16 vehicles

Transit

The study area is served by commuter rail, heavy rail, commuter bus and local bus service. Combined, these transit services provide local, city wide and regional transit connective and link the site with major cultural, residential, employment and commercial destinations throughout the region. Figure 3 identifies the transit routes, stations and stops in the study area.

Commuter rail service is provided by Virginia Railway Express (VRE) and links Union Station, L'Enfant Plaza and Virginia. There are two VRE routes that provide weekday service between the District and Manassas and Fredericksburg. Trains operated on twenty to thirty minute headways during the AM and PM commuter peak periods and have limited mid-day service and no service after 7:00 PM. The commuter rail station is located at the intersection of 7th Street and Virginia Avenue and is a half-mile walk from the intersection of 7th Street and Maine Avenue. The station is beyond ideal walk distance for a heavy rail station, which is one-third of a mile, but is within comfortable cycling distance of the site.

The intersection of 4th and M Street is a multi-modal transportation hub with Metrorail service, commuter bus service, local bus service, carshare and Bikeshare. Rail and local bus service are provided by the Washington Metropolitan Area Transit Authority (WMATA), which operates the second largest heavy rail transit system (Metrorail) and the fifth largest bus network (Metrobus) in the United States¹. Commuter bus service is provided by the Maryland Transit Administration and the Potomac and Rappahannock Transportation Commission (PRTC).

WMATA's Southwest Waterfront-SEU Metrorail Green Line is station located at 4th and M Street. The Green Line connects the study area with L'Enfant Plaza and Chinatown/Gallery Place to the north and Anacostia and suburban Maryland to the south. Trains run frequently during the morning and afternoon peak hours. Trains run approximately every 5-6 minutes during weekday non-peak hour, every 10-15 minutes on weekday evenings after 7:00 pm and 6-15 minutes on the weekends.

A number of bus routes stop at 4th and M Street that do not stop closer to the site, including commuter bus routes operated by the Maryland Transit Authority and PRTC. The station has good bike and pedestrian connectivity and a number of retail outlets that serve the adjacent neighborhood, including a grocery store and convenience store and pharmacy. The station is within comfortable cycling distance of the site. It has good bicycle parking and a Capitol Bikeshare station.

The Southwest-SEU station is located approximately 1,800 feet walking distance from the intersection of 7th Street and Maine Avenue. Ideal walk distance for a heavy rail station is 1,760 feet, which results in site parcels northwest of 7th Street being beyond ideal walk distance. The station portal is located on the northeastern corner of the intersection of 4th and M Street. This requires pedestrians walking between the site and the Metrorail station to cross either Maine Avenue or M Street.

Additional Metrorail stations are located adjacent to the VRE station at 7th Street and Virginia Avenue, L'Enfant Plaza with Blue, Orange, Green and Yellow Line service, and west along M Street at Half and M Street, Navy Yard with Green Line service. These stations are beyond ideal walking distance but remain pedestrian accessible from the site and within comfortable cycling distance of the site. Both stations have similar multi-modal services as those provided at the 4th Street and M Street intersection.

The site is directly served by WMATA's local bus service and the Circulator. Stops for these bus services are located along Maine Avenue and Water Street between 7th and 6th Street and along 7th Street north of Maine Avenue. The location of bus stops southeast of 7th Street and along 7th Street result in the northern most parcels of the site being beyond ideal walk distance of a bus stop, approximately 1,320 feet, due to the length of the project site.

There are some bus stops with shelters in the study area that provide rider amenities, such as shelter, benches, route maps, and schedules, while those without shelters are designated by a WMATA or DDOT sign and do not have additional amenities. Some bus stops near the site are equipped with Next Bus technology, which allows customers to determine bus arrival times. Next Bus technology uses global positioning satellites and advanced computer modeling to track buses on their routes every 120 seconds. Customers can obtain bus information using desktop computers, wireless devices, phones calls to Metro Customer Service, and electronic message signs, though no electronic signs are located in the study area.

Table 2 summarizes the bus route information for the lines that serve the study area, including service hours and headways.

¹ American Public Transportation Association Ridership Report for the fourth quarter of 2009

Table 2: Bus Route Information

Route Number	Route Name	Service Hours	Headway
70, 71	Georgia Ave – 7 th Street Line	Weekdays 5 am – 3 am Weekends 5 am – 1 am	15-20 min for each route
A9	South Capitol Street Line	Weekdays 6:00 – 9:30 am, 3:00 – 7:00 pm	15 min
A42, 46, 48	Anacostia-Congress Heights Line	24-hour service	15-20 min for each route
P1, 2, 6	Anacostia-Eckington Line	24-hour service	20-30 min for each route
V7, 8, 9	Minnesota Ave-M Street Line	4:30 am – 1:30 am	15-20 min for each route
DC Circulator	Union Station-Navy Yard	Weekdays 6:00 am – 7 pm Extended service on Nationals game days	10 min
MTA 903	Charlotte Hall – Washington, DC	Weekdays 5:00 – 9:30 am, 3:00 – 5:00 pm	20 min
PRTC – OmniRide	Dale City-Washington Navy Yard	Weekdays 5:00 – 8:00 am, 12:00 – 8:00 pm	30 min

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

The streetcar system element of the plan, as shown on Figure 4, includes one route that travels adjacent to the project between 6th and 7th Streets on Maine Avenue. The streetcar system will consist of modern low-floor vehicles that operate on surface tracks embedded in the roadways, which will mostly operate in travel lanes that are shared with automobiles. Stops will generally be located every ¼- to ½-mile along the routes. The future planned route serving the study area, named Takoma Metrorail Station to Buzzard Point Line, will connect the site to several areas in the District including Buzzard Point, Chinatown, Metro Center, U Street and the Georgia Avenue corridor. Takoma Metrorail Station to Buzzard Point Line will be completed during phase three of the streetcar plan, which is currently schedule to be completed in 2018.

Bicycle Facilities

This section provides an inventory and review of existing bicycle facilities. Within the study area, bicyclists have access to multi-use trails, on-street bike lanes, signed bike routes, and local and residential streets that facilitate cycling. The site is directly served by multi-use trails, signed bicycle routes, and local streets that accommodate cycling. The bicycle network provides good local connections, but there are a number of barriers and roadway corridors with poor cycling conditions that reduce the quality of cycling conditions and limit the number of routes that directly link the site with destinations throughout the District and region. Figure 5 illustrates bicycle facilities in the study area, identifies street corridors with poor cycling conditions and specific locations where there are barriers to cycling. This portion of the District has several major roads with high traffic volumes and speeds, man-made and natural barriers, and a lack of existing bicycle facilities. These conditions contribute to low bicycle ridership in the study area and discourage people from using bicycles for short trips.



For cyclists, the most attractive routes are those that provide direct routing between origins and destinations and have good cycling conditions. In the study area, the most direct routes between the site and destinations to the north, east and south are provide along Maine Avenue, 7th Street, I Street, M Street and P Street. Maine Avenue and 7th Street provide the most direct access between the site and destinations to the west and north, such as the 14th Street Bridge, Georgetown, and downtown. Both these routes have barriers to cycling that diminish the attractiveness of cycling and, in many locations along Maine Avenue and 7th Street, poor cycling conditions prevail due to roadway conditions and vehicle volumes and speeds. For cyclists not comfortable cycling along Maine Avenue or 7th Street for north-south connectivity, 4th Street provides an alternative. 4th Street has fair cycling conditions, but adds several additional blocks to each trip. This reduces the attractiveness of cycling between the site and destinations to the west and north under existing conditions. This will mainly impact commuters traveling to downtown or Virginia and those taking short trips to the National Mall.

I, M and P Streets provide the east-west mobility in the study area. I Street is a signed bicycle route and has some segments with on-street bicycle lanes. I street generally provides good conditions for cycling, but there are some locations along the route that may prove challenging for novice cyclists, including the intersection of I Street and South Capitol Street. M Street is a signed bicycle route and cycling conditions along it are fair according to DDOT. Traffic volumes and speeds along M Street may discourage novice cyclists from using this route. To the south, the site is linked to an existing multi-use trail that operates between the south end of the site and P Street SW. P Street provides good cycling conditions and connects the site to destinations to the east and south, such as the Ballpark, The Yards and Anacostia via the Fredrick Douglas Memorial Bridge. P Street is a local street and cycling conditions along it are generally good due to low traffic volumes and speeds.

Some bicycle parking was observed in the study area though most cyclists typically use street signs, parking meters or similar objects to secure their bicycles. This indicates that there is demand for additional bicycle parking facilities in the study area.

The newly formed Capital Bikeshare will be launching in late September 2010 to replace the existing DC SmartBike program. This program will place 110 bicycle-share stations across Washington, DC and Arlington, VA with approximately 1,100 bicycles provided. In the vicinity of the proposed development, Capital Bikeshare stations have been placed along M Street near New Jersey Avenue and the Navy Yard Metrorail station², as shown in Table 4. In conjunction with the improvements proposed in the *Bicycle Master Plan*, the Capital Bikeshare program will increase accessibility of bicycles to the proposed development.

Table 3: Bikeshare Location¹ and Docking Stations

Bikeshare Location	Number of Docking Stations
7 th Street & Water Street SW / SW Waterfront	11 docking stations
4 th Street & M Street SW	15 docking stations
1 st Street & N Street SE	27 docking stations
M Street & New Jersey Avenue SE	17 docking stations
L'Enfant Plaza / 7 th Street & C Street SW	15 docking stations
USDA / 12 th Street & Independence Avenue SW	23 docking stations
Total Number of Bikeshare Docking Stations Study Area	124 docking stations

As shown in the *DC Bicycle Master Plan* from April 2005, DDOT's proposed bicycle infrastructure for the roadways in the vicinity of the proposed development includes several multi-use trails, on-street bike lanes, and signed bicycle routes. The

² Capital Bikeshare: www.capitalbikeshare.com

facilities will significantly improve bicycling conditions in the study area and may lead to higher rates of cycling. They also link the site with major residential and commercial destination in near Southeast, DC and beyond.

Pedestrian Facilities

This section provides an inventory of the existing site access facilities and deficiencies. Overall, the pedestrian facilities within the study area provide a good walking environment. Pedestrian access to the site is provided along all adjacent streets, including Maine Avenue, M Street, 7th Street, and 6th Street. Sidewalks, crosswalks and curb ramps are provided along the length of Maine Avenue and M Street for most crossings. Pedestrian activity within the study area occurs along transit access routes, around transit stops, at commercial nodes along Water Street and M Street and, to a lesser extent, between residential neighborhoods and transit and commercial nodes. Nearly all streets in the study area have adequate sidewalks, planted buffers between sidewalks and the curb, and on-street parking that provides additional buffer between pedestrians and vehicular traffic. Figure 6 shows primary and secondary pathways, walking time and distances and barriers and areas of concern.

The bus stops located along Maine Avenue and M Street serve bus routes that provide local and commuter service between the study area and destinations to the north, east and south. Pedestrians access these bus stops along the local pedestrian network at the site and within the residential neighborhoods located adjacent to the site. There is pedestrian activity between transit stops and residential areas throughout the day.

There are some barriers and areas of concern within the study area that negatively impact the quality and attractiveness of walking, including walking distance between the site and major destinations, manmade barriers and roadways conditions at several crossings. Walking distances are the primary impediment to walking between the site and major commercial and transit destinations. Ideal walk distances generally range from between a third of a mile to a half-mile. Much of the site northeast of the intersection of 7th Street and Maine Avenue is beyond ideal walking distance of transit stops located on Maine Avenue and M Street. Walking distances are increased by the current design of the site because most buildings are setback from Maine Avenue by 150' due to the location of Water Street and site parking facilities. Walking distances are an issue for those traveling between the site and major destinations to the north, including L'Enfant Plaza and the National Mall.

Man made barriers are an issue along north-south routes. Where Maine Avenue crosses under the interstate, sidewalks are narrow, there are narrow or no buffers between sidewalks and through traffic, and the sense of isolation and enclosure due to the overpass are off-putting. Conditions between the site and L'Enfant Plaza along 12th Street are negatively impacted due to the change in topography and the indirect routing of the sidewalk between Maine Avenue and Benjamin Banneker Park. This may discourage some from walking between the site and destinations to the north.

Adequate crosswalks are provided at the majority of intersections in the vicinity of the project site. Controlled crosswalks are provided where traffic signals exist to help control the flow of vehicles. Uncontrolled crosswalks are provided at the other intersections, where traffic volumes and speeds do not prohibit safe pedestrian movements. Table 4 shows the crosswalk length and the "Walk" + "Flashing Don't Walk" time for all signalized intersections in the study area, including the minimum time programmed into the controller and the morning and afternoon peak hour times. The majority of crosswalks provide adequate time for pedestrians. However, the intersection of 4th Street SW and M Street SW does not provide adequate time for pedestrians to cross M Street SW. It is recommended that the signal timing at this intersection be investigated in order to provide sufficient time for pedestrians. Additionally, a few intersections that provide a sufficient amount of total time for pedestrians to cross during the morning and afternoon peak hours do not provide adequate

minimum amount of time as programmed in the traffic signal controllers. While this may not be an issue in the existing conditions at the intersections, future signal timing changes may lead to insufficient pedestrian crossing times. For example, retiming the Maine Avenue SW crosswalk at 9th Street SW could lead to a total pedestrian “Walk” + “Flashing Don’t Walk” time of only 25 seconds, as that is the minimum programmed time, which would be insufficient to allow pedestrians to cross Maine Avenue.

Table 4: Crosswalk Lengths and Walk + Don’t Walk Time at Signalized Intersections

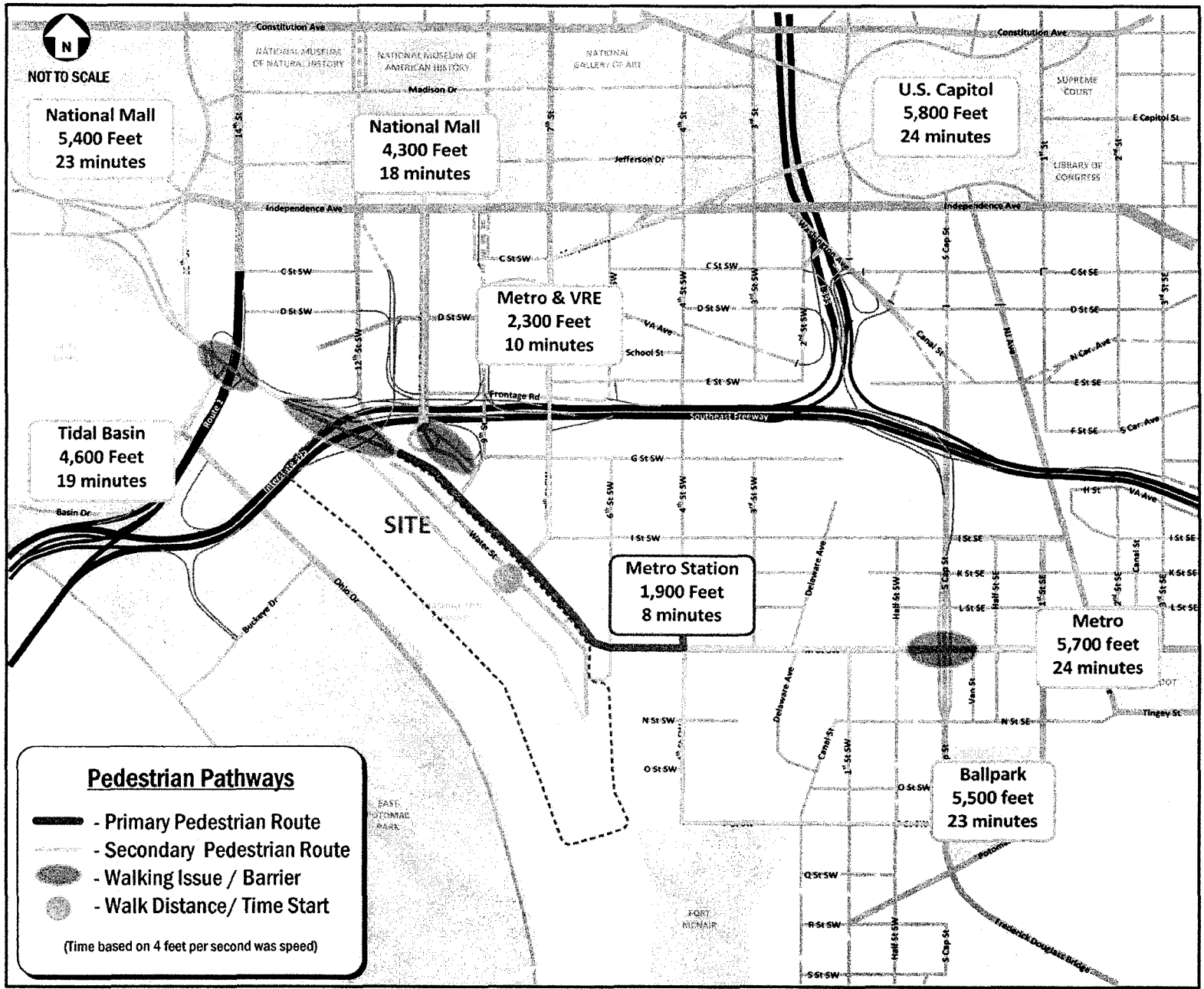
Signalized Intersection	Crosswalk Length [^] (feet)	Walk + Flashing Don’t Walk [~] (seconds)		Required* (seconds)
		Minimum	Total AM/PM	
14th Street SW & C Street SW				
Crossing 14 th Street SW	90	28	28/36	27
Crossing C Street SW	60	23	54/37	19
12th Street SW & C Street SW				
Crossing 12 th Street SW	65	24	29/29	20
Crossing C Street SW	55	20	38/41	18
12th Street SW & D Street SW				
Crossing 12 th Street	60	23	24/24	19
Crossing D Street	40	22	58/58	14
Maine Avenue SW & Route 1 Off-Ramp				
Crossing Off-Ramp	20	18	60/80	9
Maine Avenue Ramp & 12th Street SW				
Crossing Maine Avenue NB	35	16	67/49	13
Crossing Maine Avenue SB	45	20	31/49	15
Maine Avenue SW & 9th Street SW				
Crossing Maine Avenue	90	25	28/36	27
Crossing 9 th Street	70	25	42/36	22
Frontage Road/I-395 & 7th Street SW				
Crossing I-395 Off-Ramp	25	15	39/34	10
Crossing Frontage Road	40	15	55/55	14
Crossing 7 th Street	75	25	32/32	23
G Street SW & 7th Street SW				
Crossing G Street	75	23	27/44	23
Crossing 7 th Street	75	26	71/54	23
I Street SW & 7th Street SW				
Crossing I Street	40	26	72/72	14
Crossing 7 th Street	70	25	26/26	22
Maine Avenue SW & 7th Street SW				
Crossing Maine Avenue	90	25	29/36	27
Crossing 7 th Street	80	15	43/36	24
Maine Avenue SW & 6th Street SW				
Crossing Maine Avenue	90	27	28/29	27
Crossing 6 th Street	50	25	68/67	17
G Street SW & 4th Street SW				
Crossing G Street	45	22	68/70	15
Crossing 4 th Street	60	24	32/30	19
I Street SW & 4th Street SW				
Crossing I Street	50	30	30/30	17
Crossing 4 th Street	60	30	30/30	19
M Street SW & 4th Street SW				
Crossing M Street	90	19	19/19	27

Signalized Intersection	Crosswalk Length [^] (feet)	Walk + Flashing Don't Walk [~] (seconds)		Required* (seconds)
		Minimum	Total AM/PM	
Crossing 4 th Street	55	15	31/31	18
M Street SW & 3rd Street SW				
Crossing M Street	85	27	27/27	25
Crossing 3 rd Street	50	25	61/51	17
M Street & Delaware Avenue				
Crossing M Street	95	32	50/50	28
Crossing Delaware Avenue	85	19	48/48	25
M Street & 1st Street SW				
Crossing M Street	85	23	28/31	25
Crossing 1 st Street	105	24	38/37	30
M Street & Half Street SW				
Crossing M Street	85	30	30/30	25
Crossing Half Street	40	24	67/67	14

[^] Estimated using aerial photography from Google Maps

[~] Time includes minimum Walk time + Flashing Don't Walk + Yellow time, total time shown is total Split time – Red time

* Calculation: 4 second minimum walk time + 4 foot per second walking speed



Future Projects & Developments

District Initiatives

As stated previously, both the 11th Street Bridges project and the South Capitol Street Improvement project are currently underway in the vicinity of the project site. Both of these projects are summarized below.

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

The Phase I Alternative Design includes complete construction of three new river crossings and two new Anacostia Freeway interchanges on the east and west sides of the Anacostia River. The proposed improvements will no longer require traffic to use the neighborhood streets (Martin Luther King, Jr. Avenue, Good Hope Road, and Minnesota Avenue) to access the 11th Street Bridges because there will be a direct connection for trips between the Southeast/Southwest Freeway (I-395) and the Anacostia Freeway (I-295) from the north and a seamless connection to I-295 northbound at the southern end of the 11th Street Bridges complex where none exists today. In addition to the vehicular improvements, a 14-foot shared-use path will be provided on the downstream side (southwest) of the 11th Street Bridge from O Street to Good Hope Road. No sidewalk will be provided on the upstream side of the bridge due to safety concerns for pedestrians. Direct pedestrian access will be maintained between the bridges and the waterfront on both sides of the river, and bicycle facilities will be connected to the Anacostia Riverwalk Trail along both banks of the river. The DC Bicycle Master Plan will also be implemented in the study area. All pathways for pedestrians and bicycles will meet AASHTO policy and ADA standards for construction.

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

The purpose of the South Capitol Street project is to improve safety, mobility, and accessibility and to support economic development in the vicinity of the project. The project will: (1) correct the design and deteriorating condition of the transportation infrastructure which creates safety concerns for vehicular, pedestrian, and bicycle traffic and transit riders; (2) construct missing critical regional roadway connections for vehicles, pedestrians, and bicycles; (3) correct mobility barriers that limit access to activity centers in the study area; and (4) support economic growth in order to improve the density of employment and residential development.

The two Build Alternatives proposed include the reconstruction of South Capitol Street between Independence Avenue and Martin Luther King, Jr. Avenue SE as a grand, urban boulevard, which will provide a scenic gateway to the US Capitol and Monumental Core. The project also includes the replacement of the Frederick Douglass Memorial Bridge across the Anacostia River. Build Alternative 2 also includes the construction of a signalized interchange to allow all movements between Suitland Parkway and Martin Luther King Jr. Avenue SE. The two build alternatives are similar in scope for the construction of South Capitol Street and vary mostly in terms of reconfigurations of existing intersections. For Build

Alternative 2, the intersections of South Capitol Street with K, L, and M Streets will be reconfigured to create at-grade intersections and allow cross-traffic.

In addition to vehicular improvements, streetscape design features will be added to project area streets, including South Capitol Street, New Jersey Avenue, and Suitland Parkway. The reconstruction of South Capitol Street will also include pedestrian and bicycle facilities, which will consist of widened sidewalks, widened curbside lanes on some streets for bicycle travel, and increased pedestrian- and bicycle-oriented elements such as street trees, benches, and decorative streetlights. The proposed bicycle routes through the project area will consist primarily of signed bicycle routes that connect to local activity centers, as well as other area facilities such as the Anacostia Riverwalk Trail. Build Alternative 2 also includes the reconstruction of the existing pedestrian bridge over Suitland Parkway south of Martin Luther King, Jr. Avenue to accommodate the proposed interchange.

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

Developments

There are several other projects proposed, approved, or under construction located in the vicinity of the proposed development. The majority of these projects are mixed-use, consisting of office, residential, and retail development, as outlined below. A map of the locations of the background developments is included as Figure 7.

1. 1015 Half Street

The 1015 Half Street development consists of a mix of office and retail uses located north of K Street SE between South Capitol Street and Half Street SE. The development is projected to be completed in 2010.

2. Waterfront Station

The Waterfront Station development is currently under construction and partially completed, located north of M Street SW between 3rd Street SW and 5th Street SW. The remaining development consists of a residential building from Phase I, which is projected to be completed in 2010.

3. The Yards at Southeast Federal Center

The Yards at Southeast Federal Center development is currently under construction and partially completed. It consists of a mix of office, residential, and retail sites located south of M Street SE between 1st Street SE and 5th Street SE. The development is projected to be completed between 2011 and 2020.

4. Akridge Half Street/Square 700

The Akridge Half Street development is currently approved and awaiting construction. It consists of a mix of office, residential, and retail uses located south of M Street SE between Van Street SE and Half Street SE. The development is projected to be completed in 2013.

5. Florida Rock/RiverFront on the Anacostia

The Florida Rock development consists of a mix of office, residential, retail, and hotel uses located along Potomac Avenue east of South Capitol Street. The first phase of the development, which includes the residential and a portion of the office uses, is expected to be completed in 2012. The second phase of the development, which includes the remained of the office uses, the hotel uses, and the retail uses, is expected to be completed in 2017.

6. Half Street Phase II/Monumental Properties

The Half Street Phase II development is currently approved and awaiting construction, following the construction of Phase I of the development. Phase II consists of a mix of residential, retail, and hotel uses located north of N Street SE at Half Street SE, which is projected to be completed by 2012.

7. Marina Place

The Marina Place development consists of a mix of residential and retail uses located west of South Capitol Street near Buzzard Point. The development is anticipated to be completed by 2012.

8. 225 Virginia Avenue

The 225 Virginia Avenue development is an office building located south of Virginia Avenue between 2nd Street SE and 3rd Street SE. The development is anticipated to be completed by 2012.

9. Maritime Plaza Phases III, IV, & V

The Maritime Plaza development consists of a mix of office and hotel uses located south of M Street SE east of 12th Street SE. The development is currently under construction, with the remaining phases of the development projected to be completed in 2012.

10. Arthur Capper/Carrollsborg and Capitol Quarter

The Arthur Capper/Carrollsborg development is currently under construction and partially completed. It consists of a mix of residential sites located north of M Street SE and office sites located along M Street SE between 2nd Street SE and 7th Street SE. The development is projected to be completed between 2013 and 2016.

11. The Plaza on K

The Place on K development consists of a mix of office and retail uses located north of K Street SE between Half Street SE and 1st Street SE. The first phase of the development is expected to be completed by 2013.

12. 1111 New Jersey Avenue

The 1111 New Jersey Avenue development consists of a mix of office and retail uses located along New Jersey Avenue north of M Street SE. The development is projected to be completed by 2013.

13. 1100 South Capitol Street

The 1100 South Capitol Street development is an office building located north of M Street SE between South Capitol Street and Half Street SE. The development is anticipated to be completed by 2013.

14. WMATA Chiller Plant Apartments

The WMATA Chiller Plant Apartments are a mix of residential and retail uses located north of M Street SE between South Capitol Street and Half Street SE. The development is anticipated to be completed by 2013.

15. Admiral at Barracks Row

The Admiral at Barracks Row development consists of a mix of office and retail uses located north of M Street SE east of 9th Street SE. The development is projected to be completed by 2013.

16. Historic Car Barn

The Historic Car Barn development is a renovated retail building located north of M Street SE between 7th Street SE and 8th Street SE. The development is anticipated to be completed by 2013.

17. 50 M Street

The 50 M Street development is a mix of office and retail uses located north of M Street SE between Half Street SE and 1st Street SE. The development is anticipated to be completed by 2014.

18. 1 M Street

The 1 M Street development is a mix of office and retail uses located south of M Street SE between South Capitol Street and Van Street SE. The development is anticipated to be completed by 2014.

19. Square 699/Velocity

The Square 699N/Velocity development is a hotel building located north of L Street SE between Half Street SE and 1st Street SE. The development is anticipated to be completed by 2015.

20. Square 737

The Square 737 development is a mix of office, residential, and retail uses located between H Street SE and I Street SE, west of 2nd Street SE. The development is anticipated to be completed by 2015.

21. Square 701

The Square 701 development is an office building located south of M Street SE between Half Street SE and 1st Street SE. The development is anticipated to be completed by 2015.

22. 1100 South Capitol Street

The 1100 South Capitol Street development is an office building located north of K Street SE between South Capitol Street and Half Street SE. The development is anticipated to be completed by 2015.

23. The Randall School

The Randall School development is a renovated building consisting of a mix of residential and hotel uses located north of I Street SW at Half Street SW. The development is anticipated to be completed by 2015.

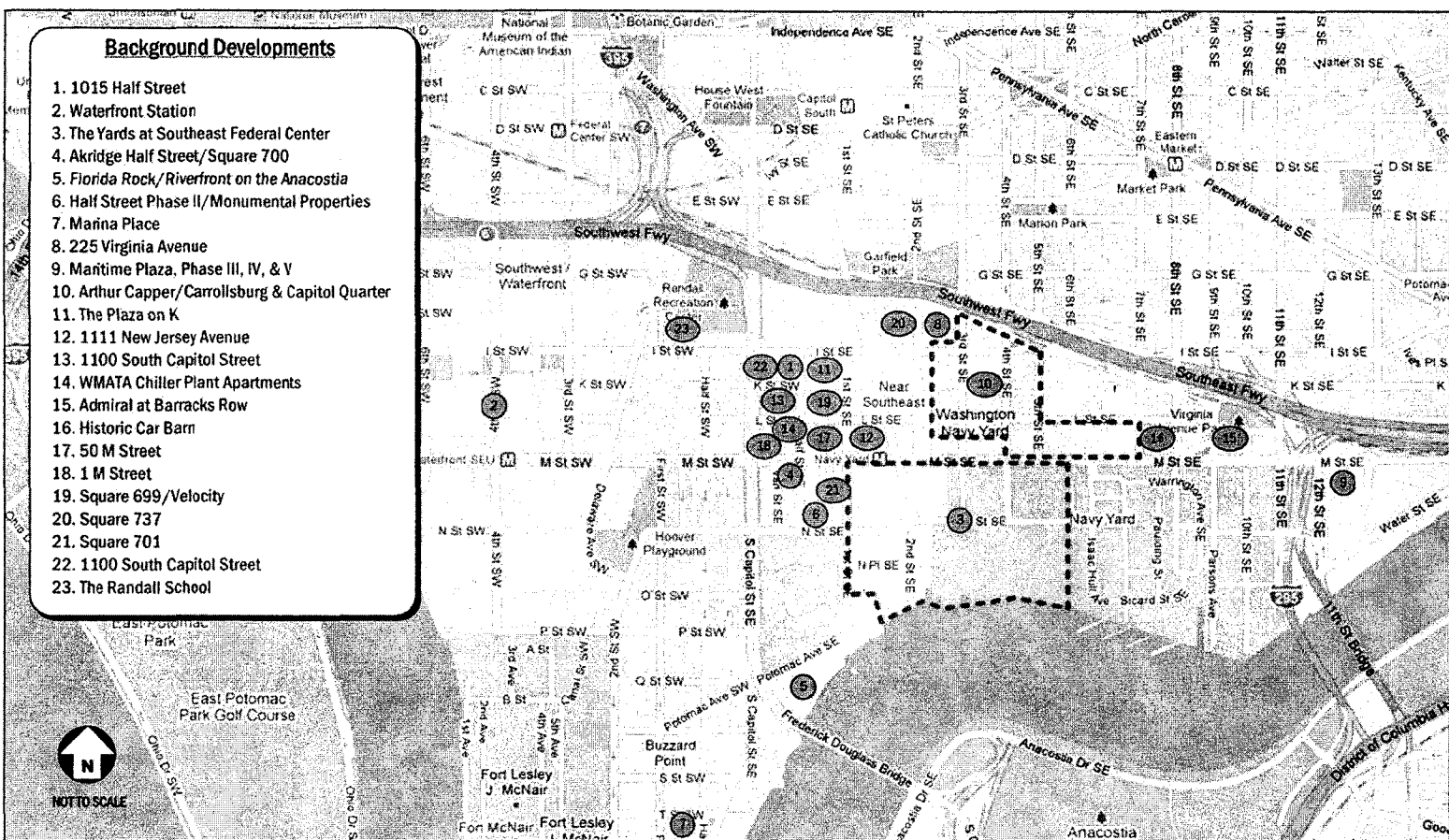


Figure 7: Location of Future Developments

(Source: Google Maps)

EXISTING CAPACITY ANALYSIS

This section reviews the capacity analyses performed as part of this study to help determine the existing conditions of the transportation network. These analyses represent the technical component of this Existing Conditions Analysis and were performed using DDOT approved methodologies and standards.

The pedestrian and vehicular analyses were performed using methodologies contained in the Highway Capacity Manual (HCM). The HCM employs a measure of quality known as Level of Service (LOS), which describes operational conditions for the transportation element being evaluated. LOS is provided as a letter grade; six LOS grades are defined for each type of facility (intersection, sidewalk, crosswalk, etc...) the HCM provides a methodology to evaluate. The grades range from LOS "A" to LOS "F" with LOS "F" representing the worst conditions. In urban areas such as the District, LOS "E" or better is considered an acceptable condition at times of heaviest usage (usually commuter morning and evening peak hours). Although for non-vehicular modes, better grades may be more desirable to attract users to those modes.

Pedestrian Analyses

The purposes of the pedestrian analyses are to review whether pedestrians traveling within the study area are accommodated. The components of the network evaluated include: (1) the existing sidewalk width and (2) the accommodations of pedestrians at crosswalks on existing walking routes.

The width of the sidewalks in the immediate study area meet the District standard of a 6-foot minimum. According to methodologies contained in the HCM, the LOS grade on a 6-foot wide sidewalk does not reach LOS D until the sidewalk volumes reach 2,000 pedestrians per hour. Similarly, LOS E is not reached until volumes reach 3,000 pedestrians per hour. The existing pedestrian counts adjacent to the site do not approach these thresholds. Thus, the sidewalk capacity is not exceeded.

The HCM provides methodologies for calculating LOS at signalized intersections. The signalized intersection LOS is a measure of the average delay experienced by a pedestrian. It is based on the signal timing at the intersection, including the green time provided to the pedestrian versus the cycle length, not on the capacity of the crossing, even when the pedestrian flow rates reach 5,000 persons per hour. Based on these methodologies, the signalized intersections in the study area identified in Table 4 generally have LOS grades of A or B on the crosswalks crossing side streets, and LOS C or D on crosswalks crossing M Street. The difference in the grades are attributable to how the traffic signals are oriented to process cars along M Street, providing more green time and thus longer 'Walk' times for pedestrians crossing side streets compared to M Street. Due to the standard 100-second cycle length at signals located within the study area, the majority of the signals will operate under acceptable conditions for pedestrians as long as 11 or more seconds of green time is provided.

Vehicular Analyses

The purpose of the vehicular capacity analysis is to determine the existing conditions of the intersections located in the immediate vicinity of the proposed development. The set of intersections was chosen to help determine the impacts consist of the nearest intersections along Maine Avenue, M Street, and I Street near the site, and several significant signalized intersections several blocks from the site.

As shown on Figure 8, the following intersections were chosen for analysis:

- | | |
|--|--|
| 1. C Street SW & 14 th Street SW | 13. G Street SW & 7 th Street SW |
| 2. C Street SW & 12 th Street SW | 14. I Street SW & 7 th Street SW |
| 3. D Street SW & 14 th Street SW | 15. Maine Avenue SW & 7 th Street SW |
| 4. D Street SW & 12 th Street SW | 16. Maine Avenue SW & Site Driveway #3 |
| 5. Maine Avenue SW & Route 1 Off-Ramp | 17. Maine Avenue/M Street SW & 6 th Street SW |
| 6. Maine Avenue Ramp & 12 th Street SW | 18. G Street SW & 4 th Street SW |
| 7. Maine Avenue SW & Site Driveway #1 | 19. I Street SW & 4 th Street SW |
| 8. Maine Avenue SW & Site Driveway #2 | 20. M Street SW & 4 th Street SW |
| 9. G Street SW & 9 th Street SW | 21. M Street SW & 3 rd Street SW |
| 10. L'Enfant Promenade & 9 th Street SW | 22. M Street SW & Delaware Avenue |
| 11. Maine Avenue SW & 9 th Street SW | 23. M Street SW & 1 st Street SW |
| 12. Frontage Road/I-395 Off-Ramp & 7 th Street SW | 24. M Street SW & Half Street SW |

Intersection capacity analyses were performed for the existing conditions at the intersections contained within the study area during the morning and afternoon peak hours. The existing conditions analysis results will be used to help determine the impacts of site generated traffic in the Final Traffic Impact Analysis. Synchro, Version 7.0 was used to analyze the study intersections based on the Highway Capacity Manual (HCM) methodology.

Traffic Volumes

In order to determine the peak hour turning movement traffic volumes, traffic counts were performed on Tuesday-Thursday, September 14-16, 2010 from 6:30 to 9:30 AM and from 4:00 to 7:00 PM. The existing traffic volumes for the intersections contained within the study area are shown on Figure 9, Figure 10, and Figure 11. Analysis of the existing traffic data determined that morning peak hour is from 7:30 to 8:30 AM, and the afternoon peak hour is from 4:30 to 5:30 PM. The existing turning movement counts are included in the Appendix. Gorove/Slade conducted field reconnaissance to obtain the existing lane configurations and traffic controls at the intersections within the study area, shown on Figure 12, Figure 13, and Figure 14.

Analysis Results

The results of the capacity analyses are expressed in level of service (LOS) and delay (seconds per vehicle) for each approach. An average delay (of each approach) and LOS for the signalized intersections is also shown for an overall intersection LOS grade. For the purpose of this analysis, it is desirable to achieve a level of service (LOS) of "E" or better on each approach. The HCM does not give guidelines for calculating the average delay for a two-way stop-controlled intersection, as the approaches without stop signs would technically have no delay. The detailed analysis worksheets are contained in the Appendix.

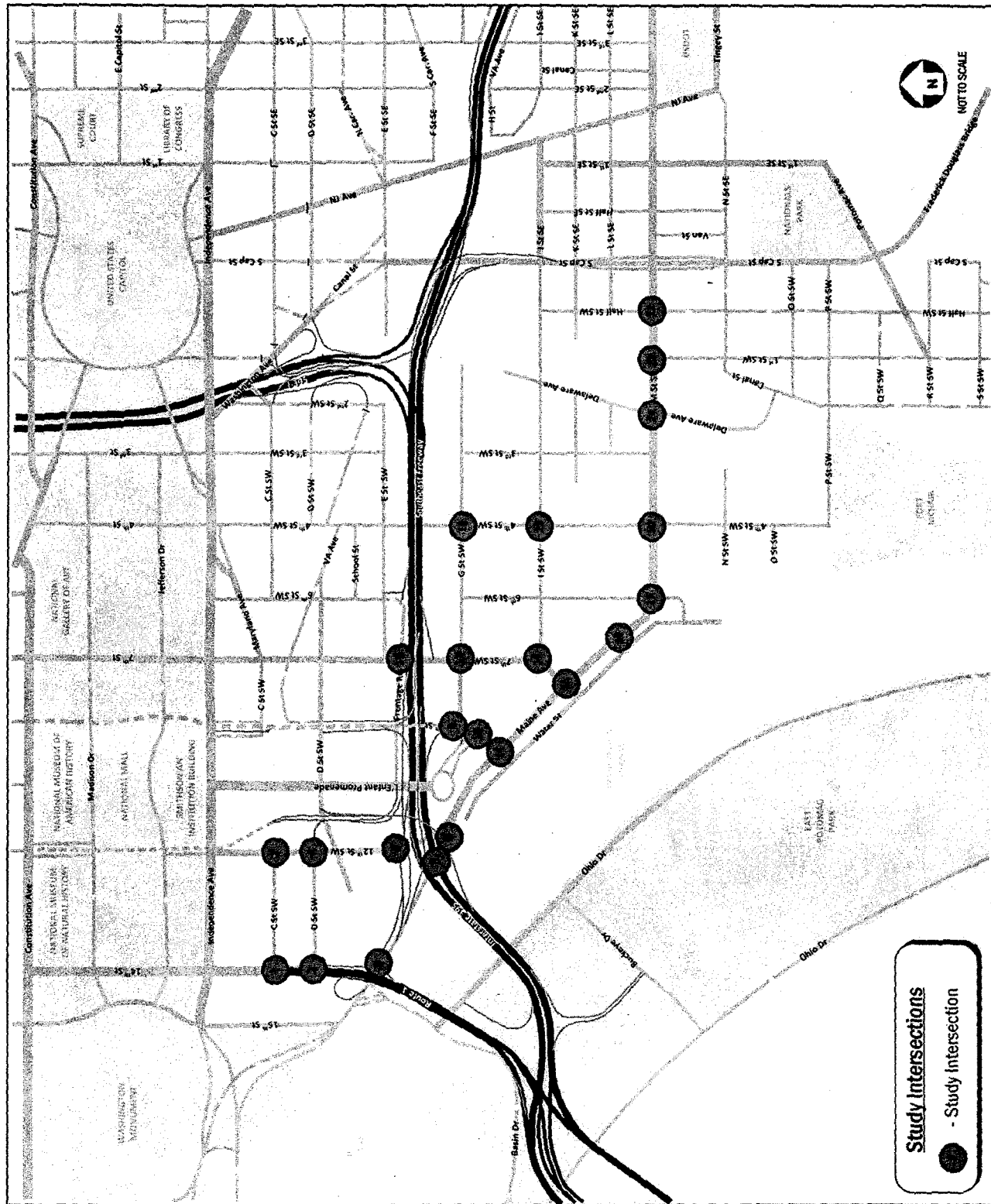


Figure 8: Study Intersections

The existing capacity analysis is based on the roadway network as shown in Figure 12, Figure 13, and Figure 14 and the traffic volumes described above and shown previously on Figure 9, Figure 10, and Figure 11. The results of the intersection capacity analyses are presented in Table 5 and shown on Figure 15, Figure 16, and Figure 17. All study intersections operate at acceptable conditions during the morning peak hour. During the afternoon peak hour, all study intersections, except the intersection of 4th Street SW and M Street SW, operate under acceptable conditions.

Additionally, during the afternoon peak hour, a few approaches operate under unacceptable conditions. This includes the westbound approach of 14th Street SW at C Street SW, the northbound approach of the Route 1 Off-Ramp at Maine Avenue SW, and the northbound approach of 4th Street SW at I Street SW. Retiming these intersections would allow these approaches to operate under acceptable conditions. The intersection of 4th Street SW and M Street SW also operates under unacceptable conditions due to the northbound approach of 4th Street SW. Retiming this intersection would allow it to operate under acceptable conditions. However, removing the split-phase for the north- and southbound approach and changing it to a protected-permitted turn would allow the intersection to operate under acceptable conditions.

Table 5: Existing Conditions (2010) Capacity Analysis Results

Intersection	Approach	Existing LOS			
		AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS
(1) C Street SW & 14 th Street SW	Overall	23.5	C	39.0	D
	Westbound	50.5	D	89.9	F
	Northbound	26.5	C	34.8	C
	Southbound	8.7	A	19.1	B
(2) C Street SW & 12 th Street SW	Overall	17.2	B	19.3	B
	Eastbound	29.8	C	44.0	D
	Westbound	28.2	C	28.6	C
	Northbound	4.3	A	5.3	A
	Southbound	25.0	C	25.9	C
(3) D Street SW & 14 th Street SW	Westbound	16.9	C	14.2	B
(4) D Street SW & 12 th Street SW	Overall	18.6	B	19.7	B
	Eastbound	33.4	C	62.0	E
	Westbound	44.2	D	35.1	D
	Northbound	14.3	B	5.9	A
	Southbound	7.8	A	7.3	A
(5) Maine Avenue SW & Route 1 Off-Ramp	Overall	11.1	B	21.4	C
	Eastbound	24.5	C	6.1	A
	Westbound	0.3	A	0.3	A
	Northbound	28.6	C	272.6	F
(6) Maine Avenue Ramp & 12 th Street SW	Overall	9.1	A	18.9	B
	Eastbound	0.0	A	0.0	A
	Northbound	2.3	A	21.4	C
	Southbound	39.1	D	12.4	B
(7) Maine Avenue SW & Site Driveway #1	Eastbound	4.3	A	3.2	A
(8) Maine Avenue SW & Site Driveway #2	Northbound	0.0	A	10.9	B
(9) G Street SW & 9 th Street SW	Northbound	10.3	B	12.1	B
	Southbound	9.5	A	13.5	B
	South East bound	11.8	B	9.7	A
(10) L'Enfant Promenade & 9 th Street SW	Eastbound	9.7	A	0.0	A
	Northbound	8.6	A	9.9	A
(11) Maine Avenue SW & 9 th Street SW	Overall	22.4	C	24.2	C
	Eastbound	20.9	C	24.0	C

Intersection	Approach	Existing LOS			
		AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS
(12) Frontage Rd/I-395 Off-Ramp & 7 th Street SW	Westbound	17.1	B	19.8	B
	Northbound	32.7	C	29.8	C
	Southbound	35.3	D	30.1	C
	Overall	28.1	C	19.1	B
	Eastbound	26.3	C	27.8	C
(13) G Street SW & 7 th Street SW	Westbound	46.2	D	29.3	C
	Northbound	16.4	B	17.2	B
	Southbound	13.0	B	14.4	B
	Overall	27.1	C	17.3	B
	Eastbound	7.0	A	14.6	B
(14) I Street SW & 7 th Street SW	Westbound	12.6	B	11.8	B
	Northbound	46.7	D	24.6	C
	Southbound	41.7	D	16.1	B
	Overall	21.7	C	12.4	B
	Westbound	50.4	D	45.9	D
(15) Maine Avenue SW & 7 th Street SW	Northbound	12.6	B	2.7	A
	Southbound	16.6	B	4.8	A
	Overall	26.7	C	13.8	B
	Eastbound	5.5	A	14.1	B
	Westbound	46.8	D	13.4	B
(16) Maine Avenue SW & Site Driveway #3	Northbound	28.3	C	23.8	C
	Southbound	21.2	C	10.2	B
	Overall	12.5	B	12.6	B
	Eastbound	4.8	A	10.8	B
	Westbound	18.0	B	12.8	B
(17) Maine Avenue SW & 6 th Street SW	Northbound	29.1	C	28.6	C
	Southbound	30.0	C	30.3	C
	Overall	25.0	C	13.4	B
	Eastbound	47.5	D	29.0	C
	Westbound	28.3	C	28.6	C
(18) G Street SW & 4 th Street SW	Northbound	18.4	B	7.3	A
	Southbound	8.2	A	8.5	A
	Overall	35.7	D	55.8	E
	Eastbound	6.9	A	34.0	C
	Westbound	20.5	C	20.6	C
(19) I Street SW & 4 th Street SW	Northbound	44.0	D	93.7	F
	Southbound	49.8	D	50.7	D
	Overall	26.9	C	99.1	F
	Eastbound	23.0	C	58.7	E
	Westbound	20.0	B	8.0	A
(20) M Street & 4 th Street SW	Northbound	49.2	D	344.7	F
	Southbound	66.6	E	26.8	C
	Overall	10.4	B	20.6	C
	Eastbound	8.4	A	3.5	A
	Westbound	9.6	A	33.4	C
(21) M Street SW & 3 rd Street SW	Northbound	30.0	C	29.8	C
	Southbound	32.2	C	41.2	D
	Overall	2.0	A	2.4	A
	Eastbound	8.4	A	3.5	A
	Westbound	9.6	A	33.4	C
(22) M Street SW & Delaware Avenue	Northbound	30.0	C	29.8	C
	Southbound	32.2	C	41.2	D
	Overall	2.0	A	2.4	A
	Eastbound	8.4	A	3.5	A
	Westbound	9.6	A	33.4	C

Intersection	Approach	Existing LOS			
		AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS
(23) M Street SW & 1 st Street SW	Eastbound	0.6	A	0.5	A
	Westbound	0.4	A	0.2	A
	Northbound	46.1	D	48.7	D
	Southbound	43.5	D	45.1	D
	Overall	15.5	B	15.8	B
(24) M Street SW & Half Street SW	Eastbound	26.8	C	19.5	B
	Westbound	9.8	A	8.6	A
	Northbound	23.7	C	21.4	C
	Southbound	38.4	D	42.9	D
	Overall	12.3	B	12.6	B
	Eastbound	4.1	A	5.1	A
	Westbound	14.3	B	17.6	B
	Southbound	29.6	C	32.9	C

Summary of Results

The capacity analysis results were as follows:

- The sidewalk widths adjacent to the proposed development and on major walking route to and from the development operate at acceptable pedestrian levels of service (per methodology contained in the HCM).
- The crosswalks at signalized intersections on major walking routes to and from the development operate at acceptable pedestrian levels of service (per methodology contained in the HCM). The signal timing at the intersection of M Street and 4th Streets, SW does not meet the District standard for pedestrian walking time across M Street.
- All study intersections operate at acceptable conditions during the morning peak hour.
- During the afternoon peak hour:
 - All overall study intersection LOS grades, except the intersection of 4th Street SW and M Street SW, are at acceptable conditions. Retiming this intersection would allow it to operate under acceptable conditions. The improvement in delays would be even greater if the split-phase for the north- and southbound approach could be changed to protected-permitted turn operations.
 - The following intersections approaches operate under unacceptable conditions:
 - The westbound approach of 14th Street SW at C Street SW;
 - The northbound approach of the Route 1 Off-Ramp at Maine Avenue SW; and
 - The northbound approach of 4th Street SW at I Street SW.
 - Retiming these intersections would allow these approaches to operate under acceptable conditions.

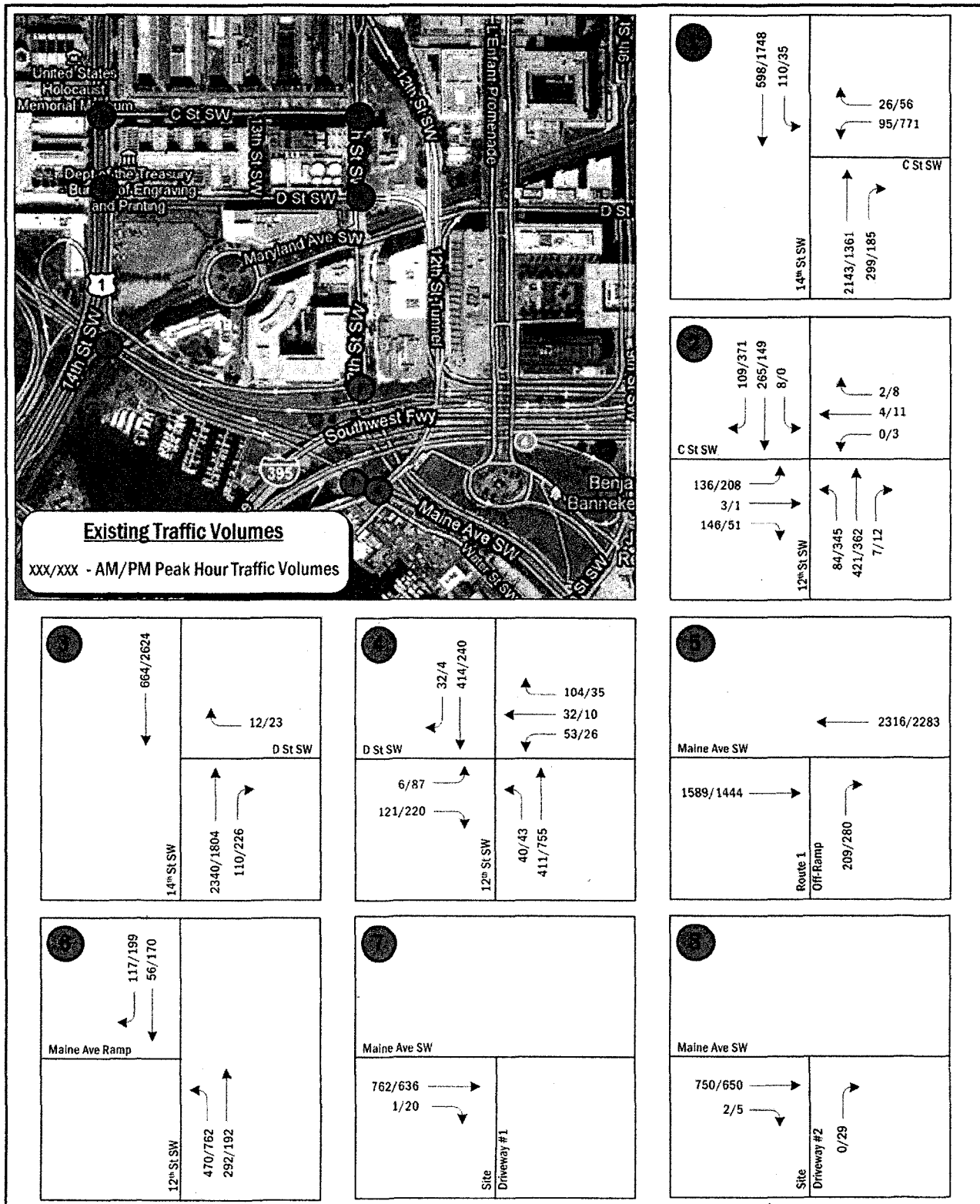


Figure 9: Existing Conditions (2010) Traffic Volumes, Page 1 of 3

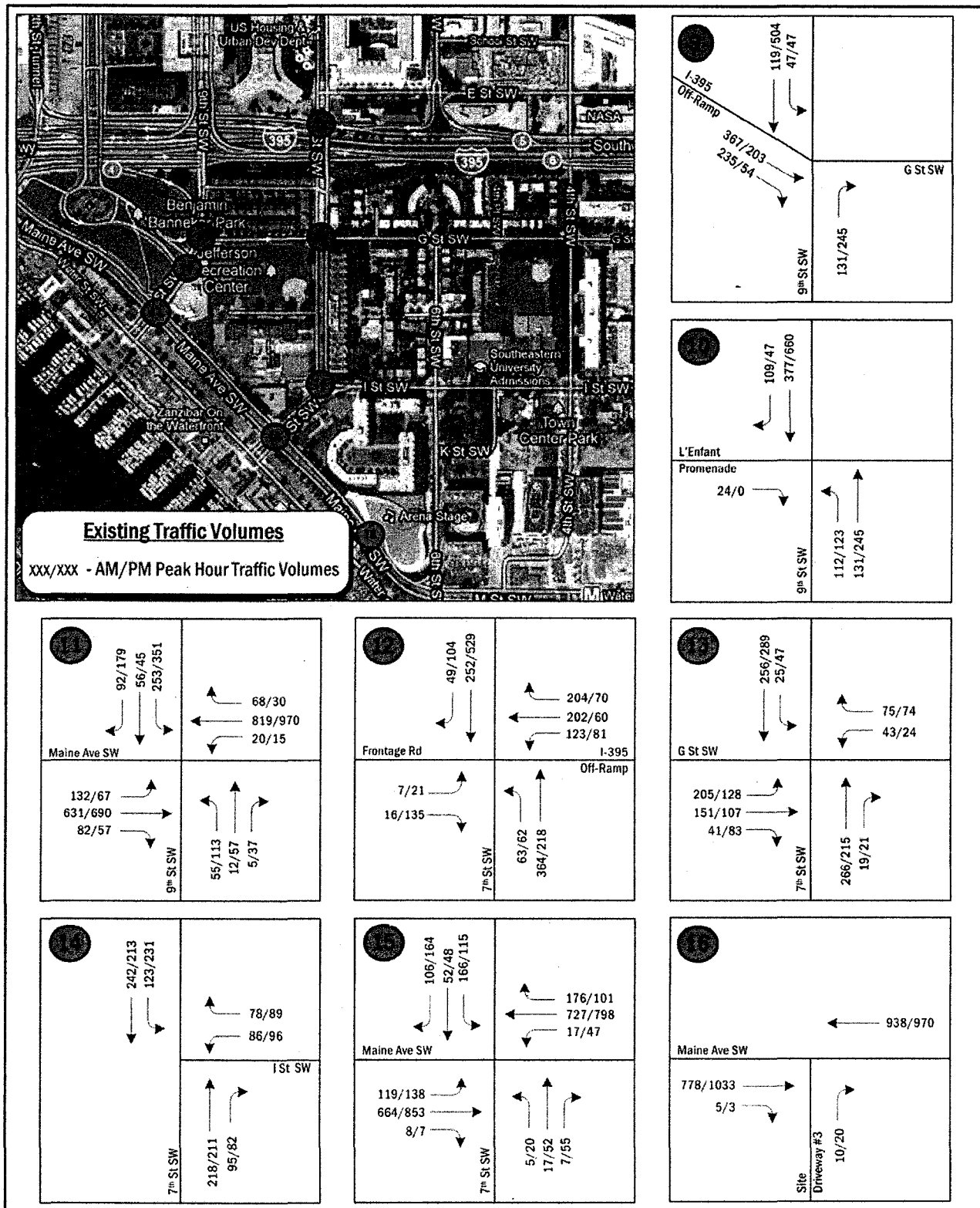


Figure 10: Existing Conditions (2010) Traffic Volumes, Page 2 of 3

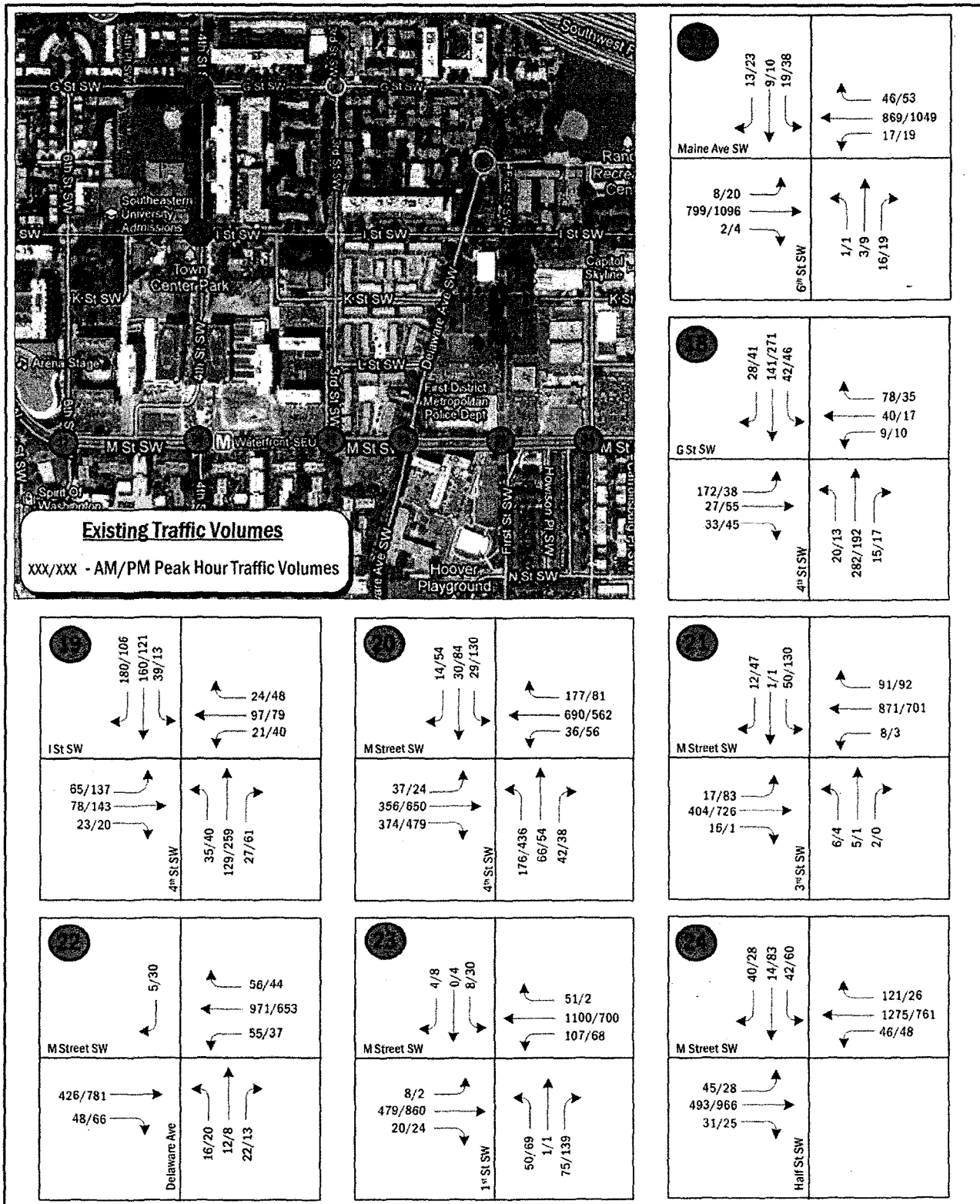


Figure 11: Existing Conditions (2010) Traffic Volumes, Page 3 of 3

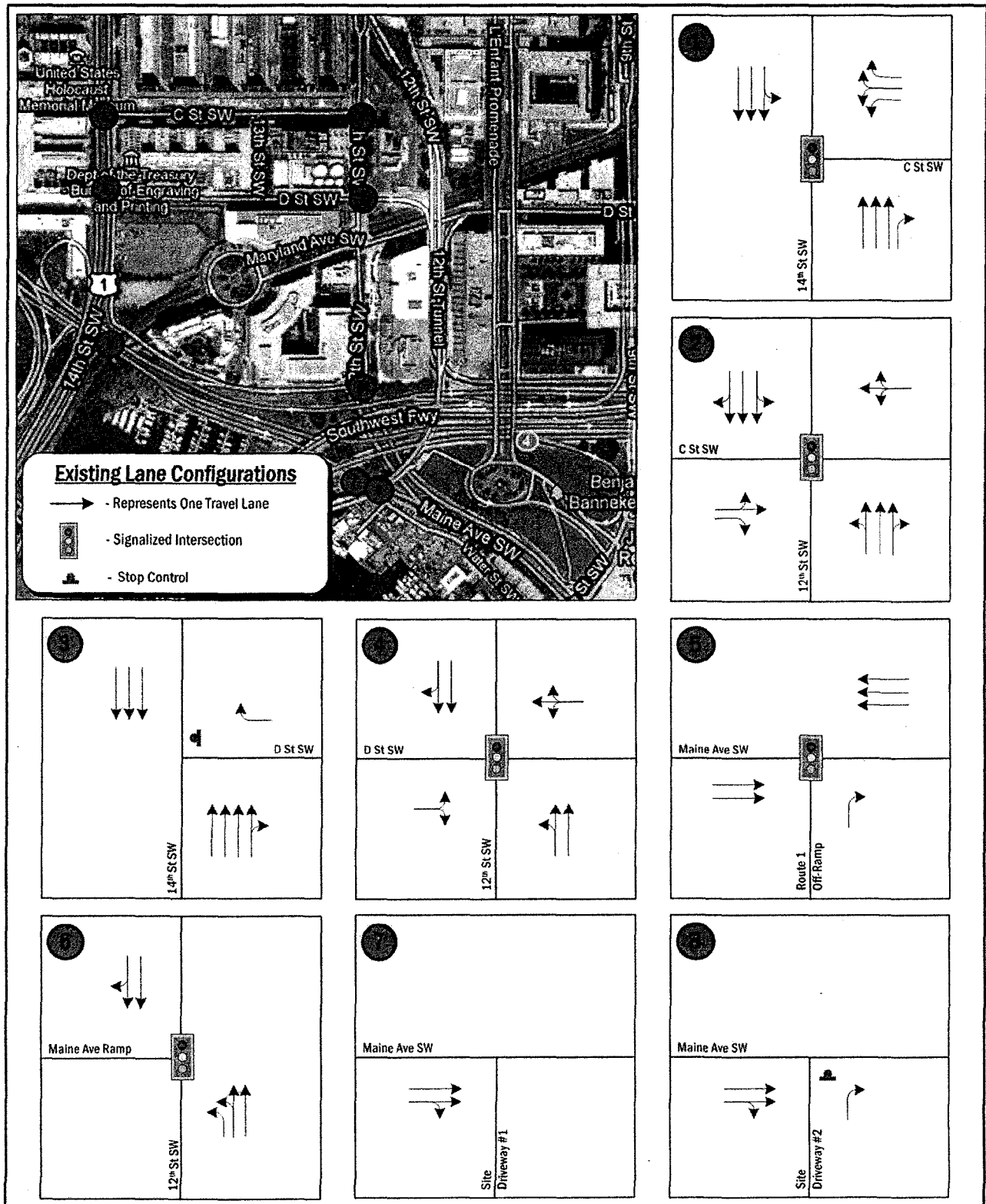


Figure 12: Existing Conditions (2010) Lane Configurations and Traffic Controls, Page 1 of 3

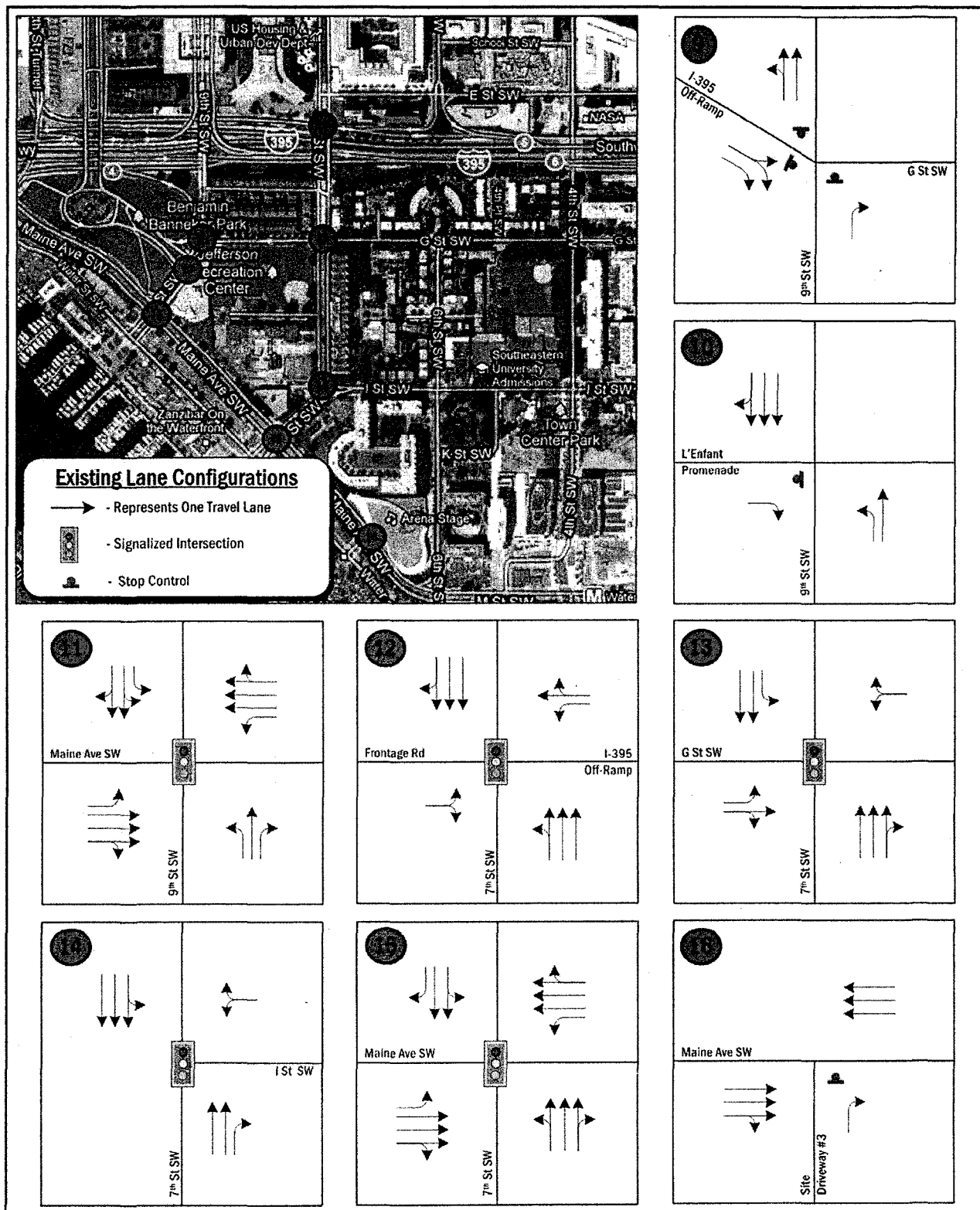


Figure 13: Existing Conditions (2010) Lane Configurations and Traffic Controls, Page 2 of 3

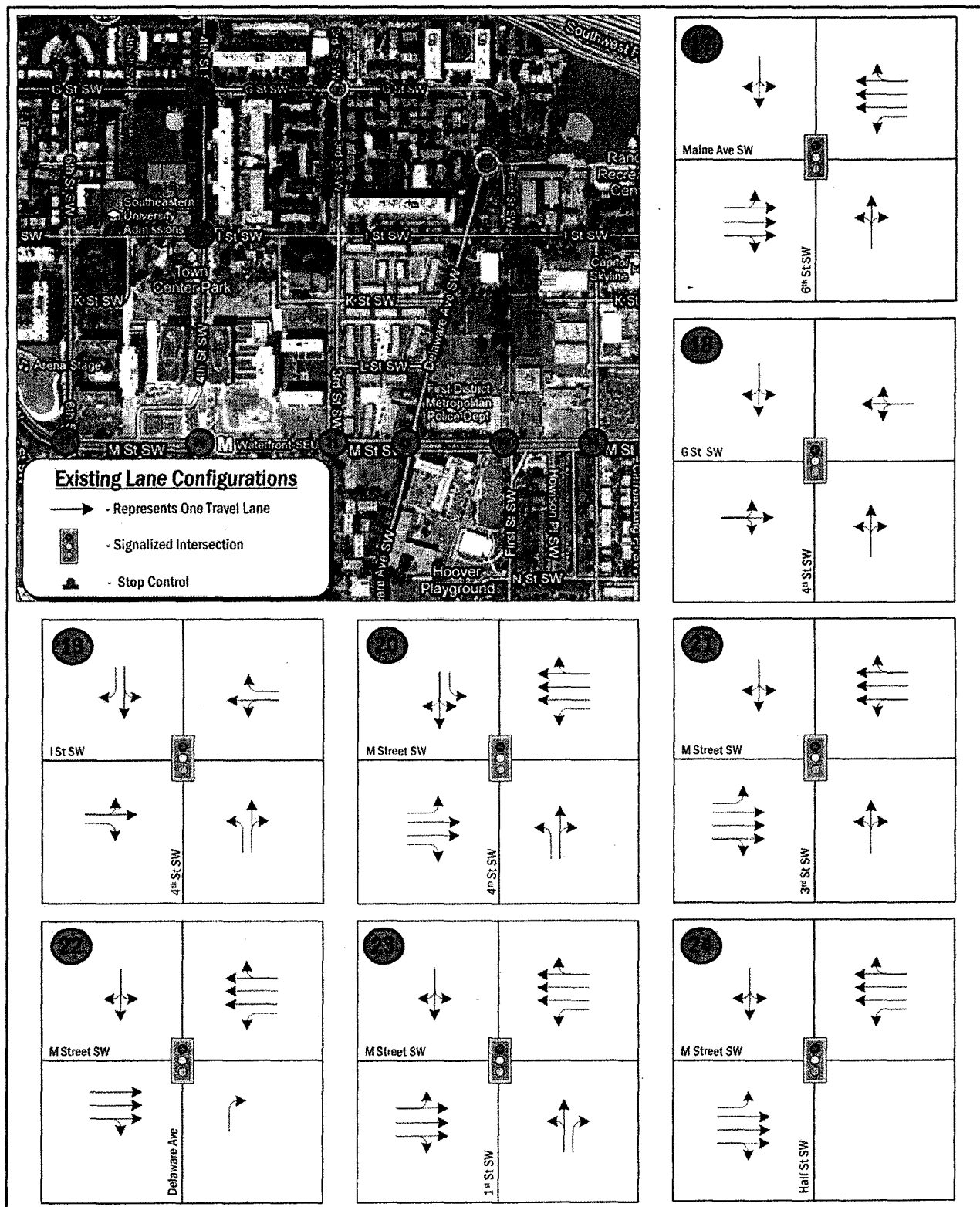


Figure 14: Existing Conditions (2010) Lane Configurations and Traffic Controls, Page 3 of 3

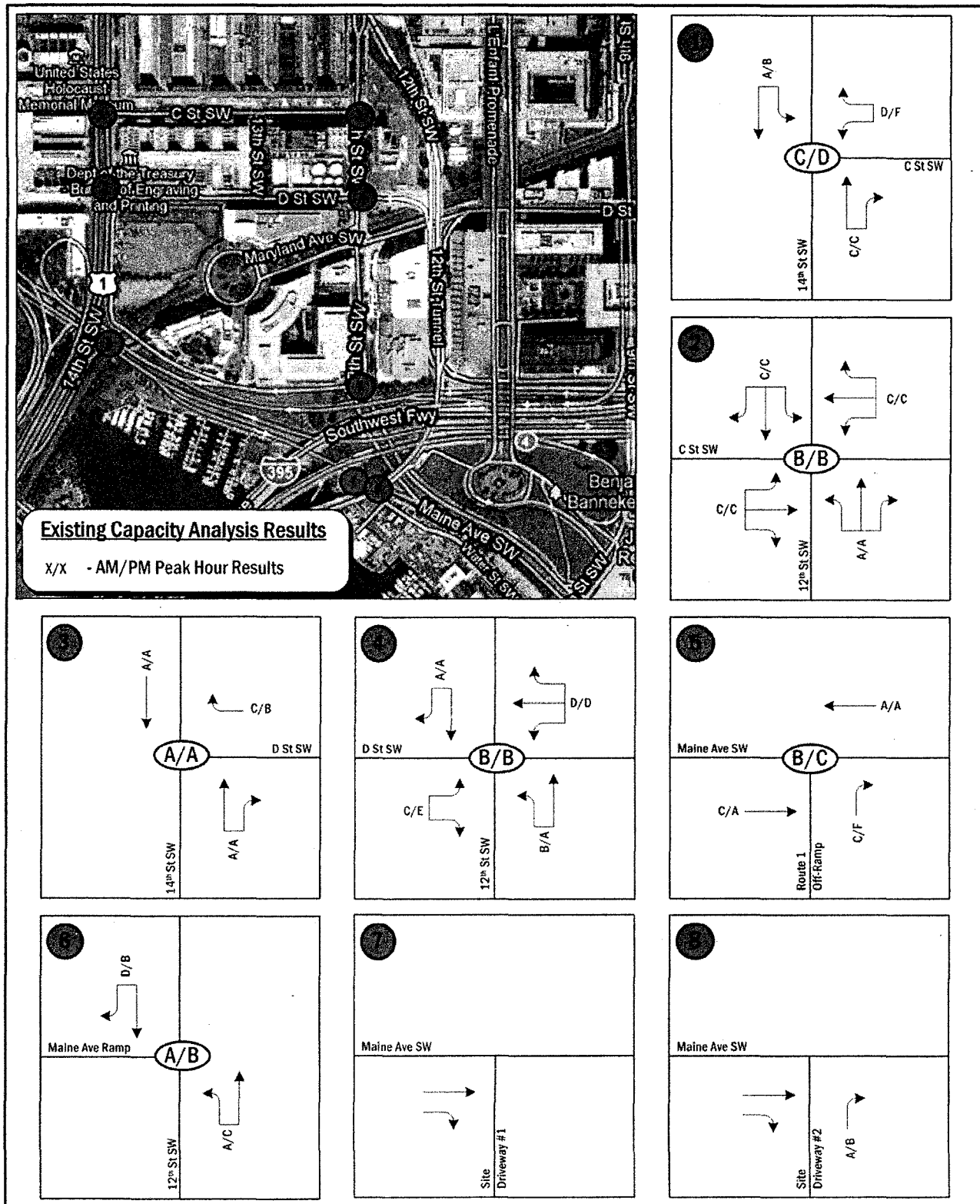


Figure 15: Existing Conditions (2010) Capacity Analysis Results, Page 1 of 3

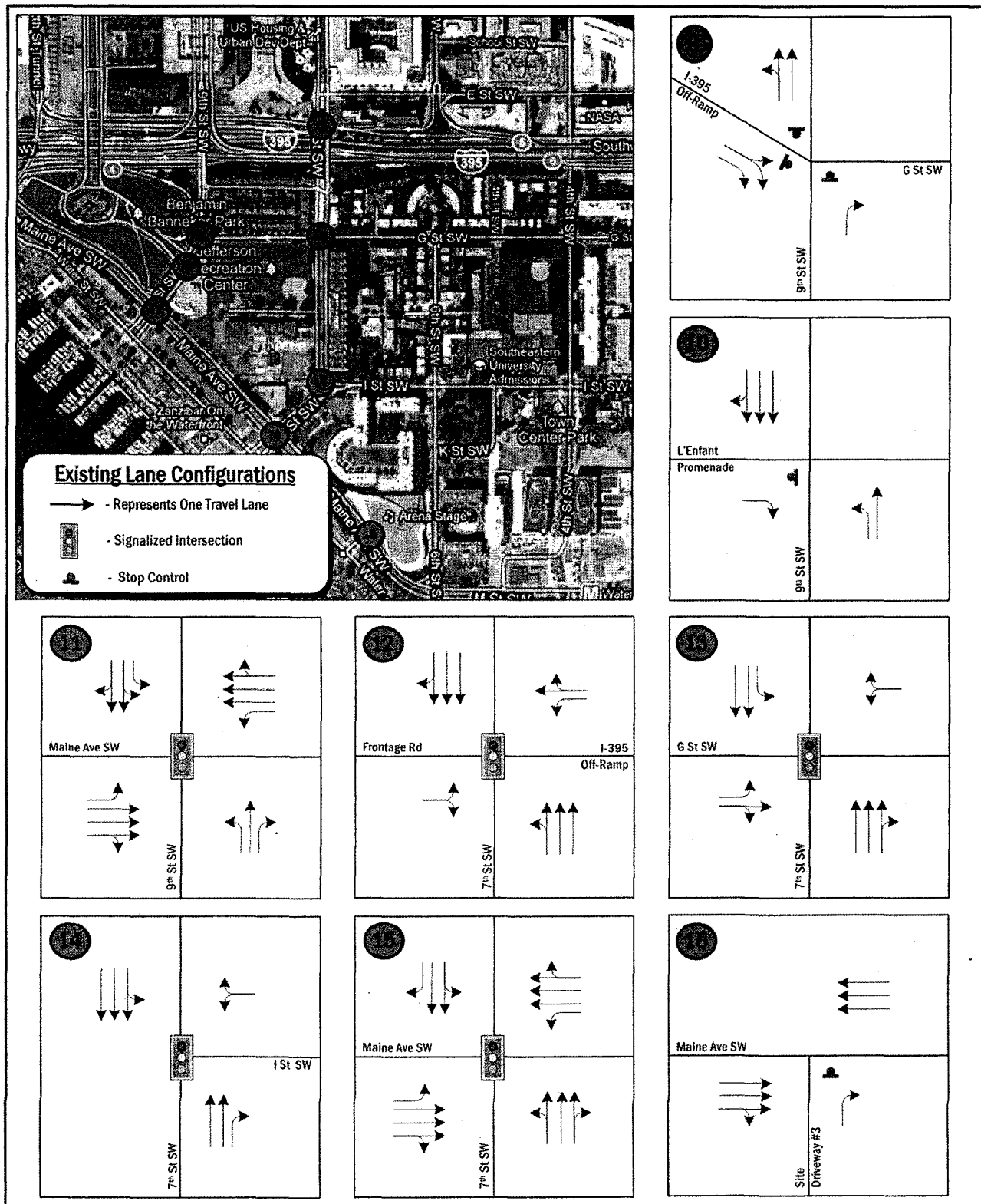


Figure 16: Existing Conditions (2010) Capacity Analysis Results, Page 2 of 3

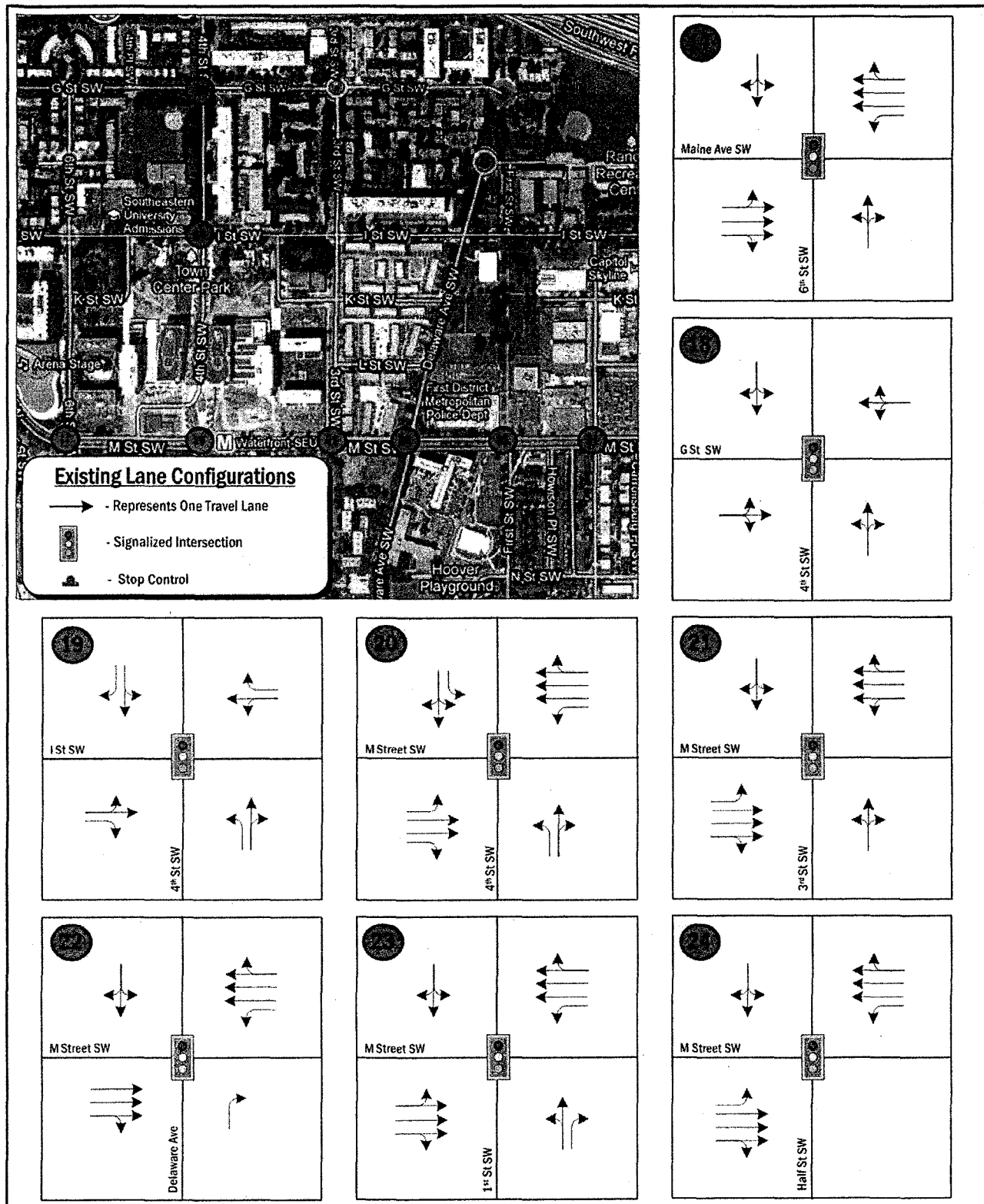


Figure 17: Existing Conditions (2010) Capacity Analysis Results, Page 3 of 3