



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

STADIUM-ARMORY STATION AREA PLANNING STUDY

**Final Report
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**Washington Metropolitan Area Transit Authority
Department of Planning and Information Technology
Office of Business Planning & Project Development**



STADIUM-ARMORY STATION AREA PLANNING STUDY

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STADIUM-ARMORY STATION AREA PLANNING STUDY

1. INTRODUCTION

Over the past five years, the District of Columbia has experienced a renaissance characterized by increased real estate values and a concerted effort by Mayor Anthony Williams, the Anacostia Waterfront Corporation (AWC), the District of Columbia Office of Planning (DCOP), and the District Department of Transportation (DDOT) to develop strategic land use and transportation plans that enhance existing public spaces, increase opportunities for cultural and recreational activity centers, and introduce mixed-use retail in older commercial corridors. The Stadium-Armory station area is one of the Metrorail station sites that will be impacted by many of the major infrastructure investments scheduled to be made by the District of Columbia in the next 10 years.

One program of strategic importance developing during this study period is the Anacostia Waterfront Initiative (AWI), with a study area that includes the Stadium-Armory Metrorail Station, among others. The AWI seeks to revitalize neighborhoods, enhance and protect parks, improve water quality and increase access to waterfront destinations. Other potential projects that could impact the station area include: the Hill East Waterfront Master Plan which envisions a mixed-use development with residential, commercial, medical center, government, and retail uses on the 67-acre area of public land known as Reservation 13; the Anacostia Riverwalk Trail; the Saint Coletta School

campus plan; and the Master Plan for the RFK stadium site being developed by the National Capital Planning Commission (NCPC).

Given these planned or potential projects, and other on-going transportation studies in the station vicinity, the District Office of Planning and WMATA determined that a station area study was warranted to evaluate existing pedestrian and vehicular access in and around the station, to identify opportunities for enhancing the overall transit experience, and to coordinate plans for station improvements with other transportation and master plans.

The primary objective of this study is to provide the District with a report to use as a blueprint for their future planning efforts on transportation and development projects in the station area and to identify WMATA operational needs and site planning goals before any District projects or other area projects go forward. The Stadium-Armory Station Area Planning Study provides conceptual planning and design analysis for proposed site improvements designed to enhance pedestrian and bicycle access, maximize the convenience of using transit, and generally enhance the overall appearance of the station site area.

STADIUM-ARMORY STATION AREA PLANNING STUDY

2. EXISTING CONDITIONS

Location

The Stadium-Armory Station is a transfer station located in SE Washington on the Orange and Blue Lines. The station is located between the Potomac Avenue Station and Minnesota Avenue Station on the Orange Line and the Benning Road Station on the Blue Line. The planning area generally encompasses the DC Jail site to the south, Constitution Avenue NE to the north, RFK Stadium, DC Armory and the Anacostia River to the east and 17th Street, SE to the west. Most of the area is near or within a quarter-mile radius of both station entrances as shown on Figure 1.

The planning area contains a mixture of land uses, centered on 19th Street SE (one-way northbound). To the west and north are typical Capitol Hill residential neighborhoods composed of two-three story attached row houses, apartment buildings, Eastern High School and small retail shops. The street grid is interrupted by two diagonal streets, Potomac Avenue and Massachusetts Avenue. To the south is the Congressional Cemetery and the DC Jail site. The area east of 19th Street is the site of the Hill East Waterfront Master Plan for the 67-acre area of land known as Reservation 13 (currently the site of vacated DC General Hospital). The parcel on the east side of 19th Street, between the north and south station entrances, is the site of the new St. Coletta's school campus. The DC Armory, RFK Stadium and their associated surface parking lots are between 19th St., SE and the Anacostia River.

Station Facilities

The Stadium-Armory Metrorail station is a center platform, underground station with two entrances, the Stadium & Armory (north) entrance and the DC General (south) entrance, both on the east side of 19th Street, SE. The entrances contain escalators with one street elevator located at the south entrance. New escalator canopies have been installed at both entrances. WMATA owns approximately three-quarters of an acre surrounding the north entrance at the corner of 19th Street and Independence Avenue.

There are no Park & Ride or Kiss & Ride facilities at the Stadium-Armory Station; however approximately 1,800 Metrorail customers use other parking lots in the area to access the station each weekday. There are 9 bus bays located at the north entrance—six on 19th Street and three on a diagonal cut-through at the corner of 19th Street and Independence Avenue. In addition, there is a WMATA chiller plant located to the east of the north entrance with service access from Independence Avenue. There are no bicycle racks or lockers at either station entrance.



Figure 1: Stadium-Armory Station Area

SCALE: 1"=750'

STADIUM-ARMORY STATION AREA PLANNING STUDY

2. EXISTING CONDITIONS



Figure 2: Stadium-Armory Station Plan—Existing Conditions

STADIUM-ARMORY STATION AREA PLANNING STUDY

2. EXISTING CONDITIONS



View 1: Stadium & Armory Station Entrance



View 2: DC Armory



View 3: WMATA Chiller Plant,
Diagonal Bus Bays



View 4: DC Armory West Parking Lot



View 5: DC General Station Entrance



View 6: Stadium & Armory Station Entrance,
Chiller Plant, and DC Armory

STADIUM-ARMORY STATION AREA PLANNING STUDY

3. PLANNING CONTEXT

Given the District's strong real estate market, ambitious revitalization plans for streets and neighborhoods, and the District Office of Planning's commitment to Transit-Oriented Development, the Stadium-Armory station area will likely experience major development growth in the next ten years. A primary goal of this study is to evaluate on-going District transportation and development studies and to coordinate any Metrorail station site improvements recommended in this study with any future District projects. This section of the study addresses the potential future District projects that may impact the Stadium-Armory station area.

Planning Initiatives

Anacostia Waterfront Initiative

The Anacostia Waterfront Initiative (AWI) is a plan for 900 acres of land along the Anacostia waterfront and the Washington Channel, ninety percent of which is publicly owned. The plan's objective is to "increase public access to the water, build new parks, and create mixed-use and mixed-income waterfront neighborhoods without displacing current residents."

The plan is organized in seven "Target Areas." The Station-Armory Station is within the Hill East area. This area includes Reservation 13, the eastern edge of Capitol Hill, RFK Stadium, the DC Armory and Congressional Cemetery. The "planning principles" for this Target Area include:

- Promote Transit-Oriented Development by introducing new uses near Metrorail stations;
- Create an environment where pedestrians, cycling and automobile routes are complementary and unobtrusive, reducing the impact of traffic on adjacent streets;
- Create a new village square around the Metrorail station at C Street and 19th Street, SE that serves the unmet commercial needs of the neighborhood.

Hill East Waterfront Master Plan

A master plan for the 67-acre DC General Hospital site known as Reservation 13 has been prepared and adopted by the District. The plan, which conforms to the objectives of the AWI, envisions a mixed-use neighborhood with a traditional street and block pattern that will "promote Transit-Oriented development and increase transit ridership." The area around the south station entrance has been designed as a public plaza where there is now only vacant land. The plan also provides for the construction of the St. Colletta School campus (under construction), between both station entrances on 19th Street.

The plan also calls for 19th St., SE to be returned to two-way traffic and the installation of traffic calming devices for safe and pleasant pedestrian movement.

Other Studies

Anacostia Riverwalk Trail

A major component of the AWI Framework Plan is a comprehensive trail system, including bicycle and pedestrian trails along the Anacostia River. Among the first of the AWI improvements to be built is the Anacostia Riverwalk Trail, which will run along both sides of the river. On the west bank, the trail will provide continuous access to the river from 11th Street, SE to Benning Road and will include branches leading into the neighborhoods and near the Stadium-Armory Station. DDOT and the National Park Service have completed the planning study and environmental analysis of the Riverwalk. Construction has begun and will be completed in 2006.

Capitol Hill Transportation Study

DDOT is investigating transportation improvements across the Capitol Hill area. The study is a comprehensive analysis of traffic, transit, bicycle and pedestrian conditions to identify measures to improve safety and mobility and to reduce speed and congestion. The study is considering traffic-calming measures and the conversion of one-way streets to two-way operation. The eastern boundary of the study area is 19th Street, SE.

The study is especially important because its recommendations could change the ways in which the surrounding transportation system provides access to the Stadium-Armory Station. The Capitol Hill Transportation Study was just beginning when this Stadium-Armory Station Area Planning Study was prepared, so no recommendations for changes had yet been developed. Not having recommendations limits the transportation analysis in this study, as some future transportation system characteristics and conditions cannot be known.

Middle Anacostia River Crossings Transportation Study

DDOT's Middle Anacostia River Crossings Transportation Study focuses on improvements to the Pennsylvania Avenue and 11th Street river crossings and the connecting roadways, with the southern Stadium-Armory Station entrance included in the northern edge of the study area. Among the study's recommended near-term improvements is the installation of bicycle storage facilities at the station entrances. The study also recommends improvements to the RFK stadium access road from Barney Circle, beginning with a near-term rehabilitation and including eventual construction of the Reservation 13 Road in the same area; one purpose of the road is to improve access to the Stadium-Armory Station.

STADIUM-ARMORY STATION AREA PLANNING STUDY

3. PLANNING CONTEXT



Figure 3: Stadium-Armory Station/Hill East Waterfront Master Plan

SCALE: 1"=450'

STADIUM-ARMORY STATION AREA PLANNING STUDY

3. PLANNING CONTEXT

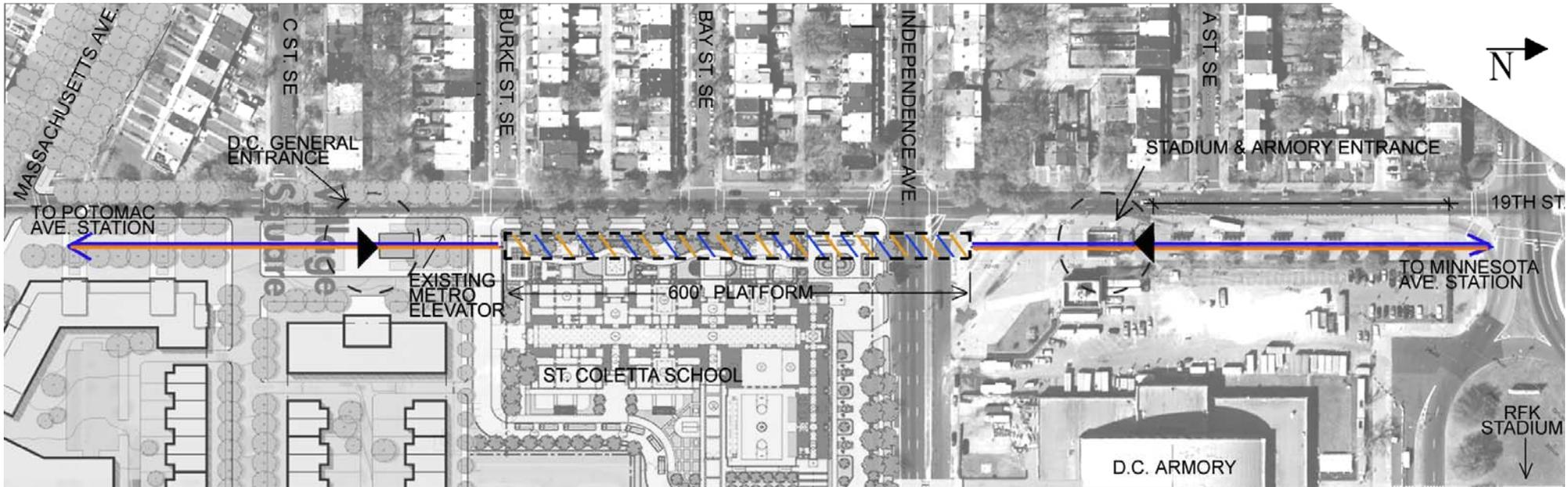


Figure 4: Enlarged Hill East Waterfront Master Plan

Planning Initiatives (continued)

SCALE: 1"=120'

District of Columbia Transit Alternatives Analysis (DCAA)

DDOT and WMATA completed a study of new transit alternatives, including streetcars, Rapid Bus, and Bus Rapid Transit (BRT), to complement Metrorail and Metrobus services. The DCAA analyzed transit improvements to be made by 2030 in multiple corridors across the District. One corridor includes 19th Street, SE, passing the Stadium-Armory Metrorail station. The DCAA identified appropriate types of transit improvements in each corridor studied. Rapid Bus was recommended for the corridor that includes 19th Street, SE. Rapid Bus and BRT service is faster than conventional bus service because buses stop only at the busiest stops instead of every few blocks, and traffic signals may give buses priority over other traffic.

Rapid Bus systems have distinctive vehicles, and stops typically feature enhanced shelters with improved information for passengers like BRT, however Rapid Bus vehicles are smaller than BRT vehicles. Some corridors in the District will be considered for future conversion to premium transit service, either bus rapid transit or streetcars. The Stadium-Armory Station Area Planning Study recognized the potential need to accommodate premium transit on 19th Street, SE, so this report illustrates the addition of streetcars and stops at the Metrorail station. Design concepts developed for streetcars could easily be adapted to meet simpler facility requirements for Rapid Bus service. Rapid Bus service can also utilize the existing bus bays.

STADIUM-ARMORY STATION AREA PLANNING STUDY

4. MASTER PLAN

The objectives of the Stadium-Armory Station Area Planning Study are to improve access to the station, enhance the appearance of the station and coordinate these improvements with other area planning initiatives including the Hill East Waterfront Master Plan, Anacostia Waterfront Initiative, and other District transportation and planning projects in the station vicinity. The Stadium-Armory Station Master Plan illustrates the addition of streetcars and stops on 19th Street, SE to provide for improved transit service. Rapid bus service, recommended for 19th Street, SE by the District of Columbia Transit Alternatives Analysis, would also fit within the master plan's design concepts. The Master Plan for this study proposes additional development on the DC Armory parking lot adjacent to the north station entrance.

This study proposes two alternatives with the only difference being the location of the streetcar stops. For this reason, both alternatives are described below, followed by options for the streetcar platform locations.

The master plan illustrates the following design elements for station site improvements:

- Clearly marked crosswalks at all intersections along 19th Street, SE between C Street and East Capitol Street with 10' minimum width.
- Street trees at 40' on center along 19th Street.
- Continuous bus shelter canopy at the north entrance, designed to complement the Metro escalator canopy.
- Addition of bicycle lanes to 19th Street connecting to the proposed Anacostia Riverwalk Trail.

- South Station Entrance: Station site improvements are proposed in this study to complement the Hill East Waterfront Master Plan which incorporates a new street and block layout around the Metro entrance. The entrance is situated within a 85'x300' parcel, surrounded on all sides by public streets:
 - Enhance the landscaping to soften the environment of the station entrance area and provide public art.
 - Add bike lockers and racks.
 - Provide canopy to shelter transit customers waiting to be picked up by automobile or shuttle.
- North Station Entrance
 - Maintain the existing five bus bays along 19th St., that are currently in use to serve existing and future demand, but add a continuous bus platform canopy to shelter customers. The unused sixth bay is currently part of the right turn lane.
 - Replace existing bus shelters with new glazed windscreen shelters to complement the architecture of the bus platform canopy and in accordance with the AWI standards.

- The corner of 19th Street and Independence Avenue has been redesigned to eliminate the diagonal cut-through and associated bus bays. WMATA has determined that an excess capacity of bus bays exists at this corner and has no plans for future bus service expansion at the station. The area with three bus bays could be converted to another use. The part of the site above the station mezzanine structure is shown as a public plaza with seating, landscaping and a place for public art. Vehicular access to the chiller plant shall be from the public plaza to allow development on the remainder of WMATA property.
- A pull-off lane is proposed on Independence Avenue for pick-up drop-off activity from private automobiles and shuttle buses with a canopy/shelter for waiting designed to match the continuous bus platform/canopy.
- Covered bike racks and lockers are proposed to serve the future Anacostia Riverwalk Trail.
- An area for potential development is proposed at the north station entrance. A site of approximately 59,000 square feet (1.35 acres) could be earmarked for redevelopment just east of the station entrance and bus bays. The site is owned by WMATA and the U.S. Park Service and is currently underutilized as bus bays and a surface parking lot for the DC Armory. The only existing structure on the site is the WMATA chiller plant. The proposed plan shows a rectangular footprint for a 3 to 5 story building, of 166,000 square feet to 285,000 square feet. Although no development program is being proposed for this building, ground floor retail would be appropriate to serve the neighborhood and transit customers, and to contribute to the street life of the area.

The planning concepts presented above are common to the two alternatives presented in the Master Plan.

Alternative 1

This Alternative places the streetcar platforms on the east and west sides of 19th St. between Independence Ave. and A St., adjacent to the north Metro entrance. The short block widths and the alley curb cuts prevent locating a station platform south of Independence Avenue on 19th Street, therefore, both platforms are located north of Independence Avenue. Since 19th St. is a one way street in the northbound direction, further study will be needed to determine required right-of-way and traffic flow issues. Also, the northbound streetcar could interfere with bus operations.

Alternative 2

This Alternative places the streetcar platforms on the east and west sides of the block between C St. and Burke St., at the corner of C St. and 19th St., adjacent to the south station entrance. The conditions in Alternative 1 also apply to this location. Capacity improvements inside of the station are described in Section 6.

STADIUM-ARMORY STATION AREA PLANNING STUDY

4. MASTER PLAN

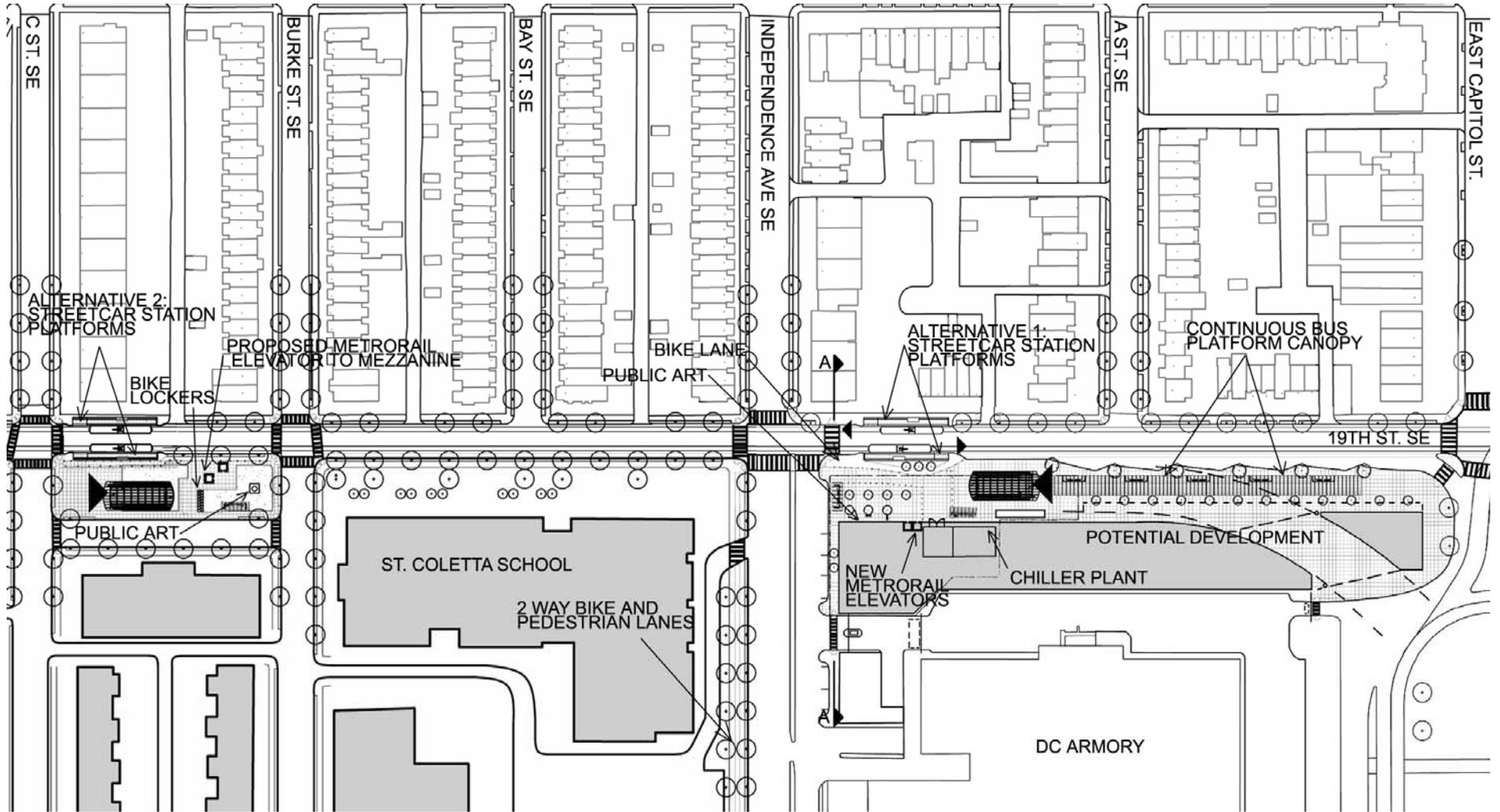


Figure 5: Site Plan

SCALE: 1"=120'

STADIUM-ARMORY STATION AREA PLANNING STUDY

4. MASTER PLAN

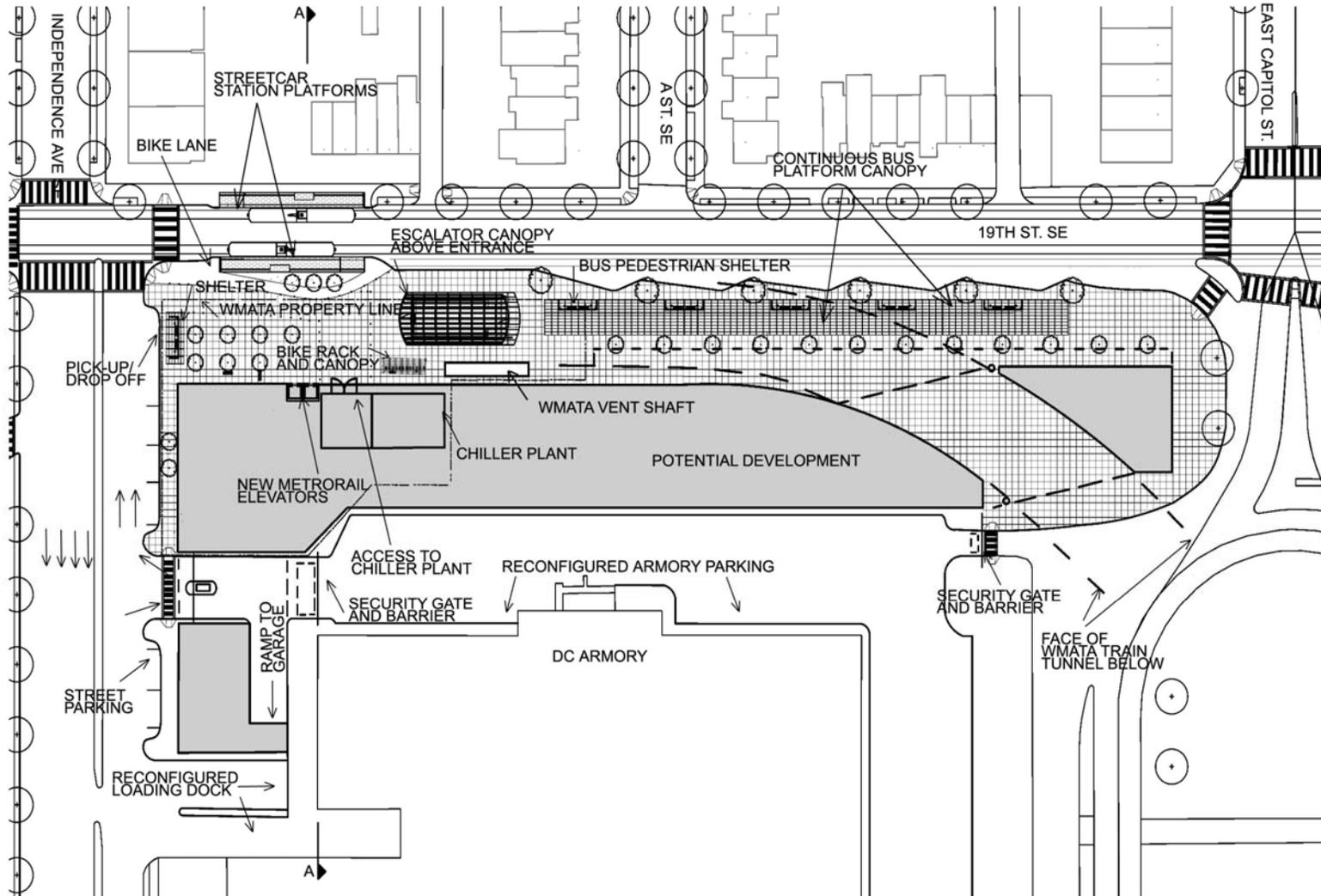


Figure 6: Enlarged Site Plan—North Entrance

SCALE: 1"=50'

STADIUM-ARMORY STATION AREA PLANNING STUDY

4. MASTER PLAN

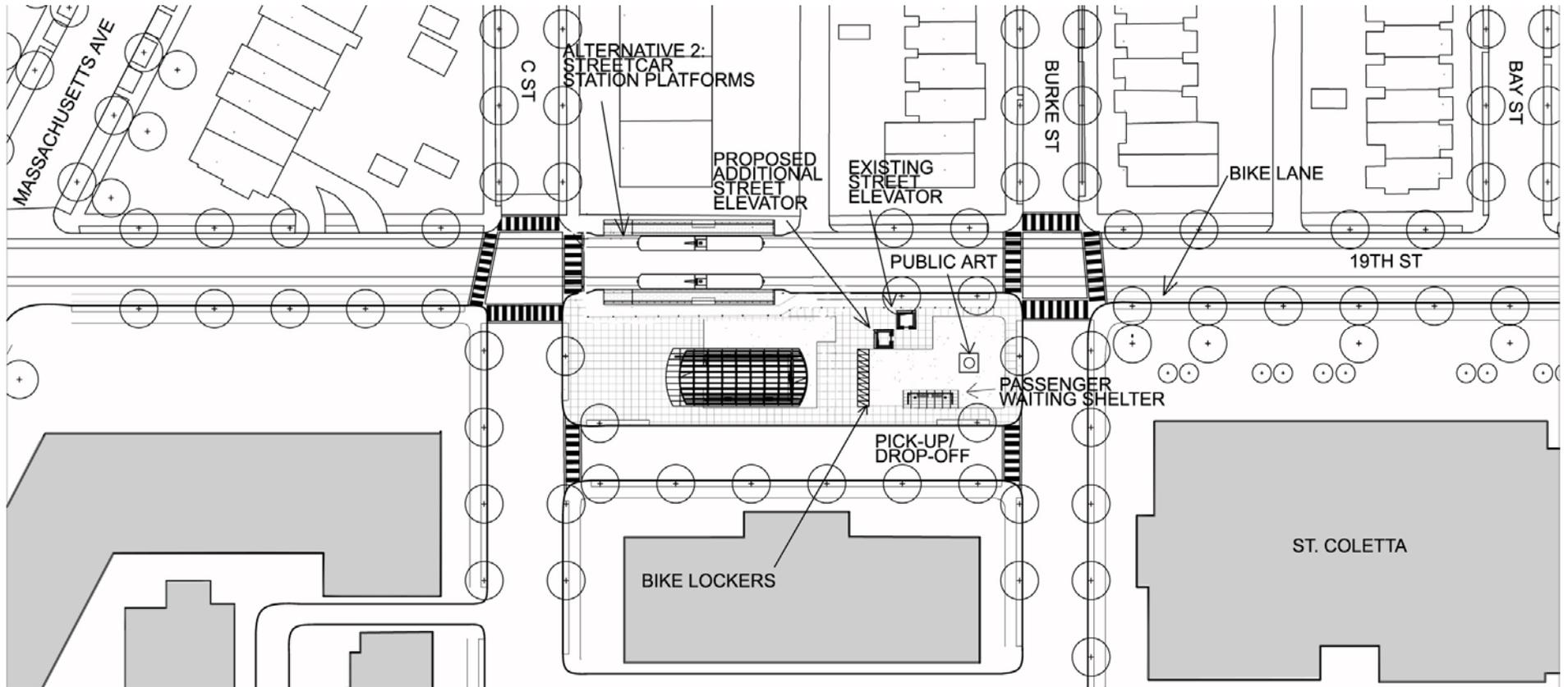
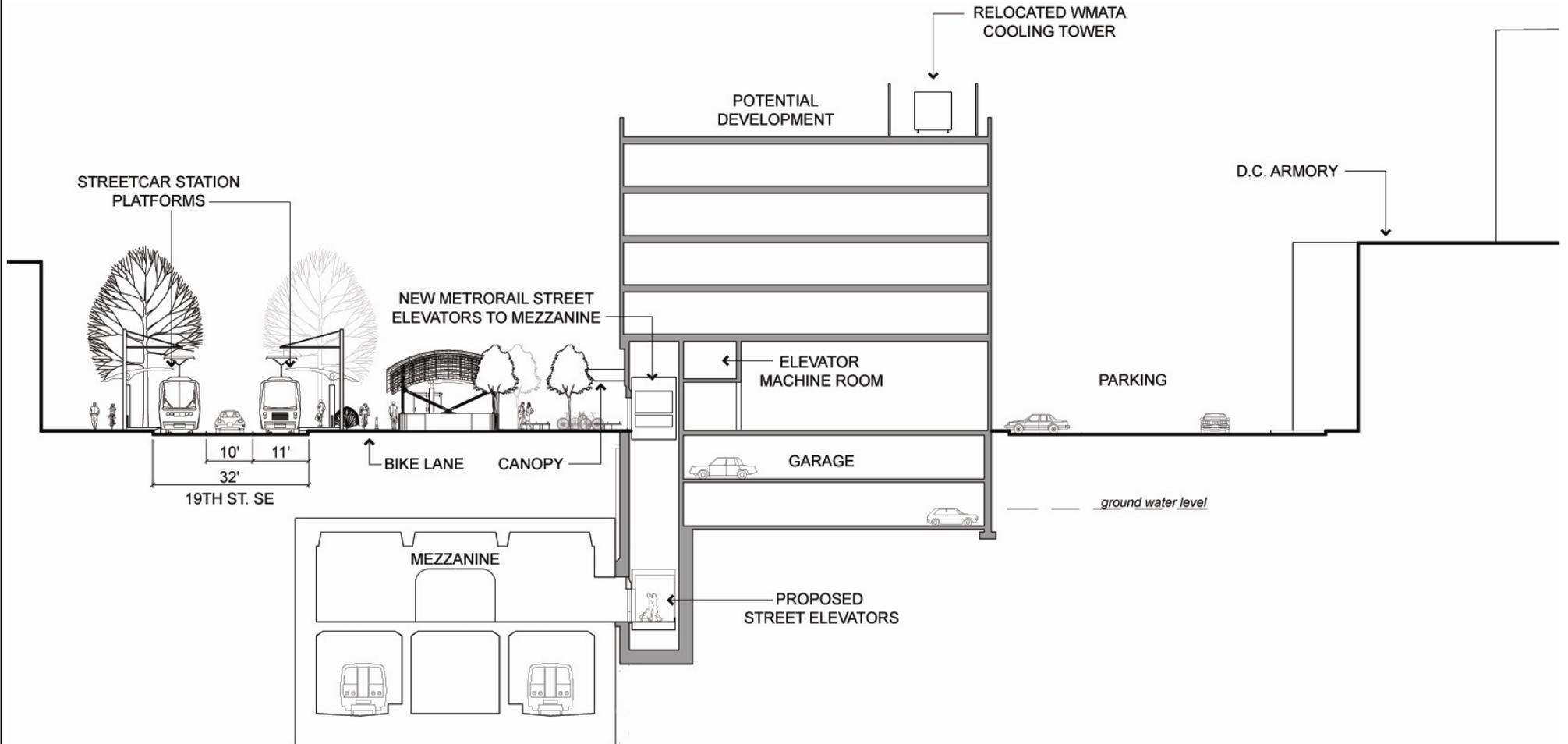


Figure 7: Enlarged Site Plan—South Entrance

SCALE: 1"=50'

STADIUM-ARMORY STATION AREA PLANNING STUDY

4. MASTER PLAN



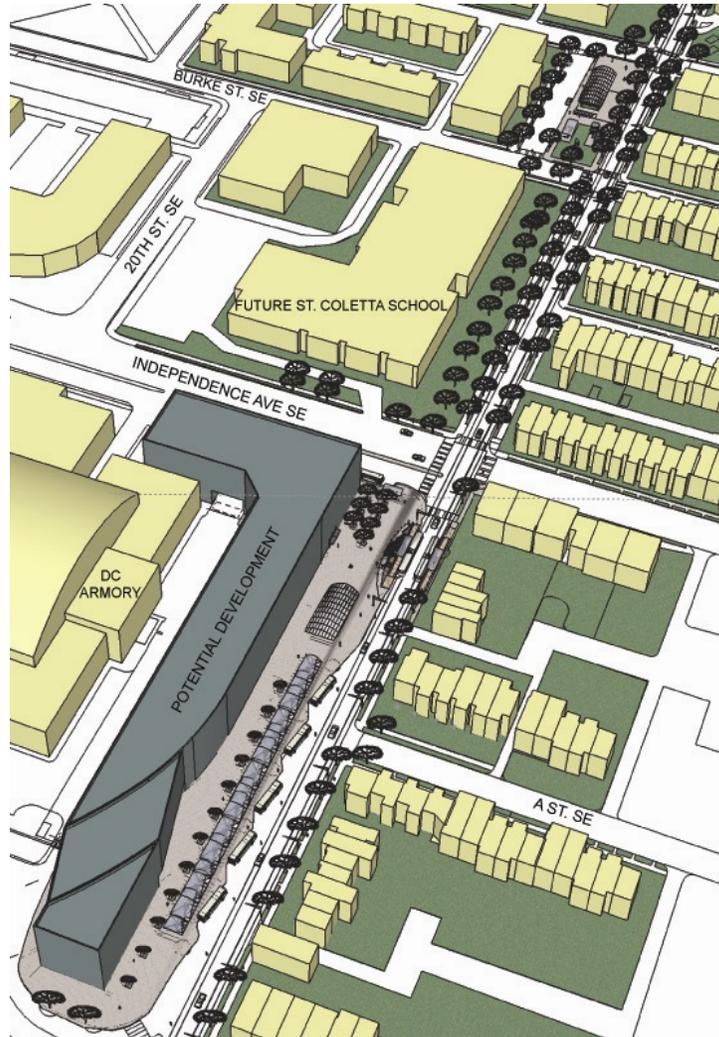
TYP. SECTION

SCALE: 1"=20'

Figure 8: Section—North Entrance

STADIUM-ARMORY STATION AREA PLANNING STUDY

4. MASTER PLAN



SOUTHBOUND 19TH ST.

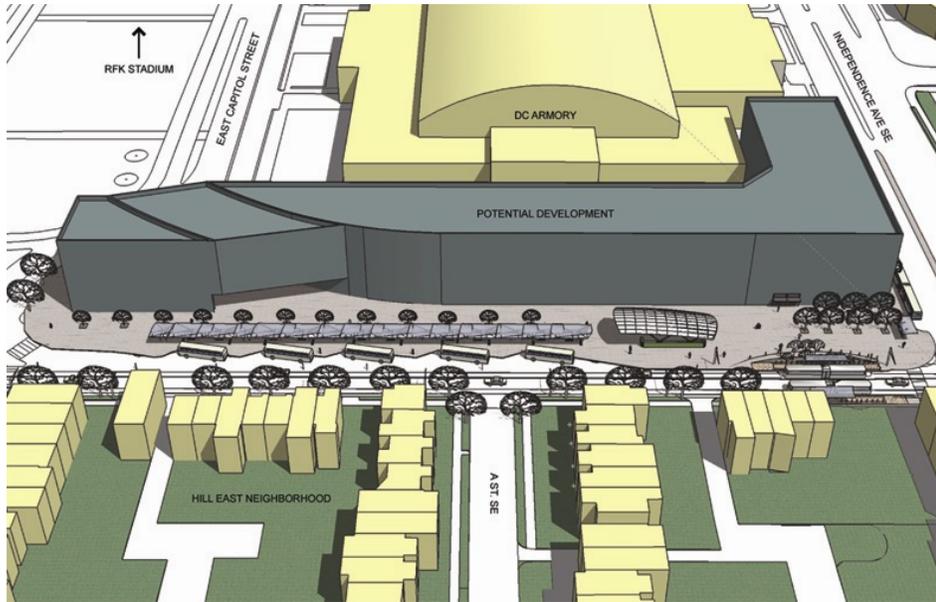


NORTHBOUND 19TH ST.

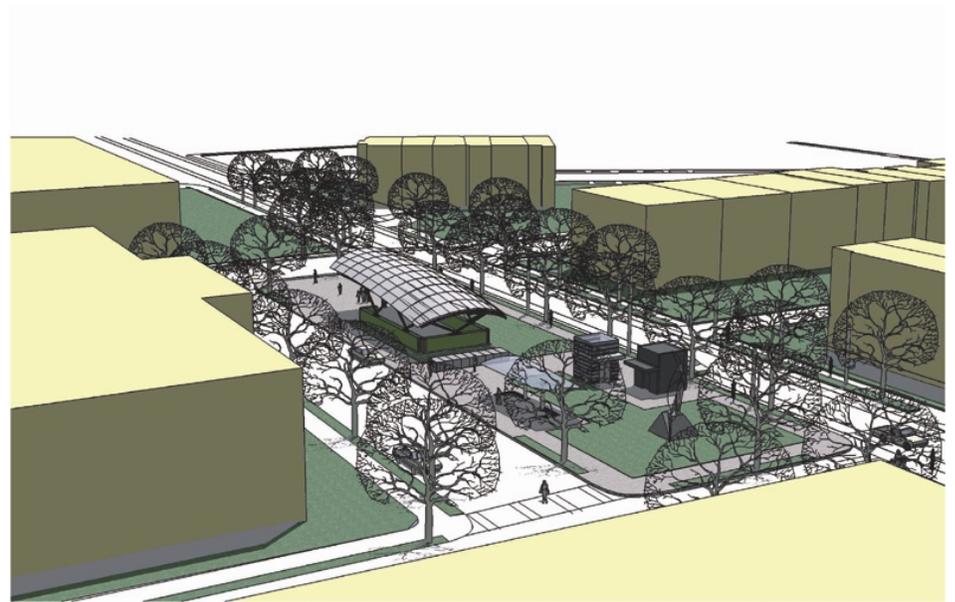
Figure 9: Aerial Perspective

STADIUM-ARMORY STATION AREA PLANNING STUDY

4. MASTER PLAN



NORTH ENTRANCE



SOUTH ENTRANCE

STADIUM-ARMORY STATION AREA PLANNING STUDY

4. MASTER PLAN

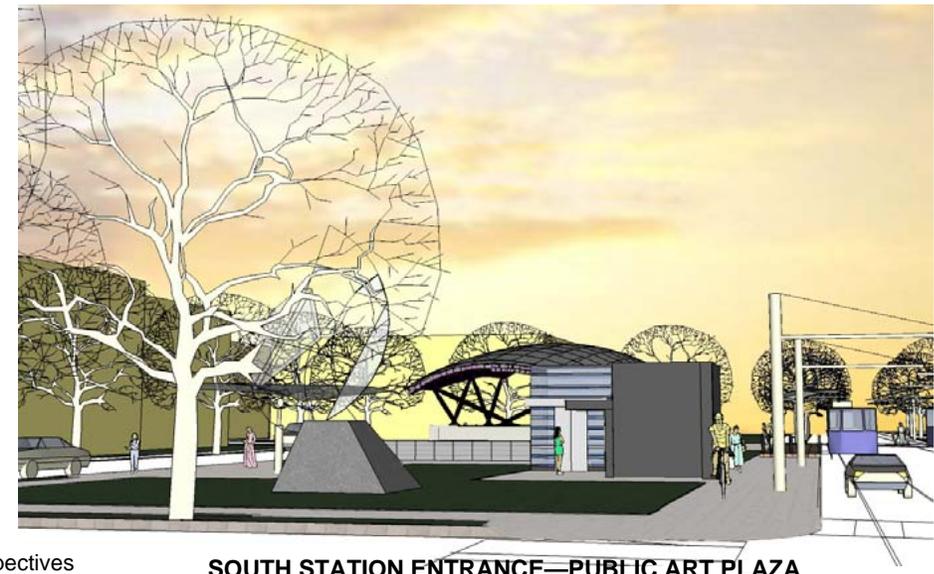


Figure 11: Perspectives

STADIUM-ARMORY STATION AREA PLANNING STUDY

5. TRAFFIC ANALYSIS

Motor Vehicles

Major arterials near the Stadium-Armory Metrorail station area are primary routes for commuters traveling between areas east of the Anacostia River and Washington's downtown core. These streets include East Capitol Street, C Street NE, and Independence Avenue SE. Near 19th Street, East Capitol Street carries approximately 14,000 vehicles per day (vpd). C Street NE carries 21,000 vpd, and Independence Avenue SE carries 14,000 vpd. Between 4,600 and 5,000 vpd use 19th Street SE/NE in the vicinity of the Stadium-Armory Metrorail station.[1]

There are three major intersections along 19th Street SE/NE that are close to the north entrance of the Metrorail station. All three are signalized. Traffic counts were performed recently at all three intersections:

- Independence Avenue SE and 19th Street SE, March 2004
- East Capitol Street and 19th Street SE/NE, June 2005
- C Street NE and 19th Street NE, March 2005

From the traffic count data, the morning peak period was determined to be from 7:00 a.m. to 9:00 a.m., and the evening peak period was determined to be from 4:30 p.m. to 6:30 p.m. The morning peak hour was calculated as 7:15 a.m. to 8:15 a.m., and the evening peak hour was calculated as 5:15 p.m. to 6:15 p.m. The highest approach volume in the morning peak hour was approximately 3,100 vehicles per hour (vph) westbound on C Street NE, and the highest approach volume in the evening peak hour was approximately 2,250 vph eastbound on Independence Avenue SE. Peak-hour volumes are in **Table 1** and **Figure 1**.

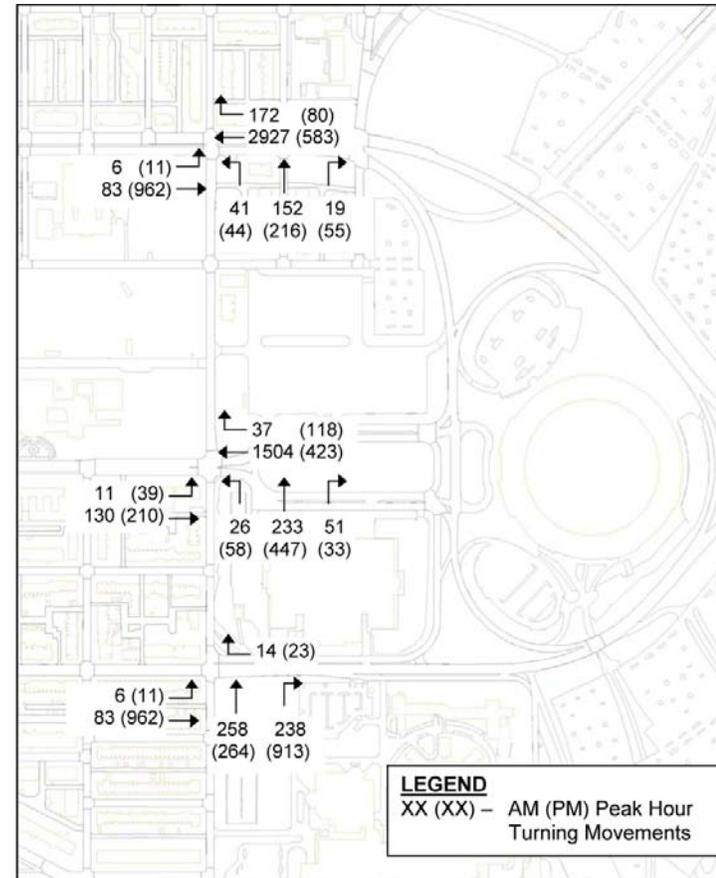
Table 1. Highest Peak-Hour Volumes

Source: Parsons Brinckerhoff, 2005

Link	Highest Peak-Hour Volume	
	AM	PM
NB 19th Street at Independence Avenue	496	1,178
EB Independence Avenue at 19th Street	461	2,258
NB 19th Street at East Capitol Street	310	538
EB East Capitol Street at 19th Street	141	249
WB East Capitol Street at 19th Street	1,541	541
NB 19th Street at C Street	212	315
EB C Street at 19th Street	89	973
WB C Street at 19th Street	3,099	663

[1] DDOT, 2002 Traffic Volumes

Figure 12. Existing Intersection Volumes



STADIUM-ARMORY STATION AREA PLANNING STUDY

5. TRAFFIC ANALYSIS

Highway Capacity Software[2] (HCS) was used to determine the intersection delays and the levels of service (LOS) for each of the three intersections. **Table 2** displays the results for existing conditions. All three intersections operate at LOS C or better in both the morning and evening peak hours, which is considered good traffic operations. Drivers experience delays on the average of 53 seconds per vehicle or less during peak hours.

Table 2. Existing Conditions Intersection Analyses

Source: Parsons Brinckerhoff, 2005

Intersection	Time Period	Fr South delay	Fr East delay	Fr West delay	Total delay	LOS ³
19th and Independence	AM	10.6	23.4	25.3	17.4	B
	PM	53.1	8.2	13.4	22.6	C
19th and East Capitol	AM	27.8	15.6	7.7	16.9	B
	PM	29.8	8.5	8.1	17.1	B
19th and C	AM	35.1	11.0	4.9	12.3	B
	PM	31.4	7.4	8.7	11.9	B

Transit

The bus facilities along the east side of 19th Street SE at the north station entrance include nine bus bays, but only five are currently in use. Six bus bays are located along the 19th Street SE east curb and three bus bays are located just north of Independence Avenue SE.

Four Metrobus routes serve the station, as shown in **Figure 13**. The routes and the frequency of service for the morning and evening peak hours are listed in **Table 3**.

Table 3. Number of Weekday Bus Stops during Peak Periods at the Stadium Armory Metrorail Station

Source: WMATA

Route	Westbound AM	Eastbound AM	Westbound PM	Eastbound PM
96	7	7	6	6
97	11	7	8	8
D6	12	6	7	11
	Northbound AM	Southbound AM	Northbound PM	Southbound PM
B2 ⁴	18	-	13	-
Total	68		59	

[4] Bus route B2 (southbound) does not stop at the Stadium Armory Metrorail Station, but does stop close to the station along 18th Street SE/NE.

Currently, 68 buses stop at the Stadium-Armory station during the morning peak from 7:00 to 9:00 a.m., and 59 buses during the evening peak from 4:00 to 6:00 p.m. There are 16 buses that stop on 18th Street during both the morning and evening peak periods.

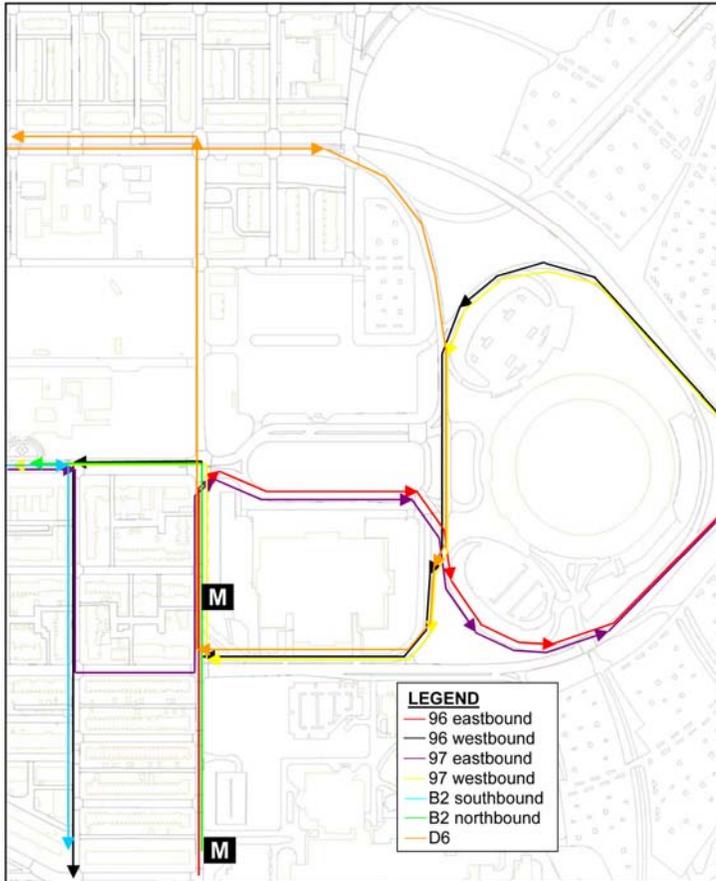
[2] Highway Capacity Software, version 4.1d. McTrans, University of Florida, 2003.

[3] The peak-hour level of service is a measure of the adequacy of the existing lanes and/or signalization at an intersection or roadway segment for the particular peak hour. Level of service is measured on a scale of A through F, with LOS A representing the best operating conditions with little or no delay and LOS F representing the worst with unacceptable delay. **LOS A** – less than 10.0 seconds of delay per vehicle; **LOS B** – between 10.0 and 20.0 seconds of delay per vehicle; **LOS C** – between 20.0 and 35.0 seconds of delay per vehicle; **LOS D** – between 35.0 and 55.0 seconds of delay per vehicle; **LOS E** – between 55.0 and 80.0 seconds of delay per vehicle; **LOS F** – greater than 80.0 seconds of delay per vehicle.

STADIUM-ARMORY STATION AREA PLANNING STUDY

5. TRAFFIC ANALYSIS

Figure 13. Existing Metrobus Routes at the Stadium-Armory Metrorail Station



Recent daily Metrobus boarding and alighting at the Stadium-Armory station for the four bus routes is summarized in Table 4.

Table 4. Metrobus Daily Ridership at Stadium-Armory Station

Source: WMATA, 2005

Route	Number of Passengers	
	Boardings	Alightings
96,97	285	332
B2	341	127
D6	370	212
Total	996	671

Pedestrian and Bicycle Access

Several pedestrian and bicycle traffic generators are located near the north entrance of Stadium-Armory Metrorail station, including the DC Armory and Robert F. Kennedy Memorial Stadium to the east; RFK Stadium parking lot #3, which is used as a park-and-ride lot, to the north; and Eastern Senior High School and the residential community to the west.

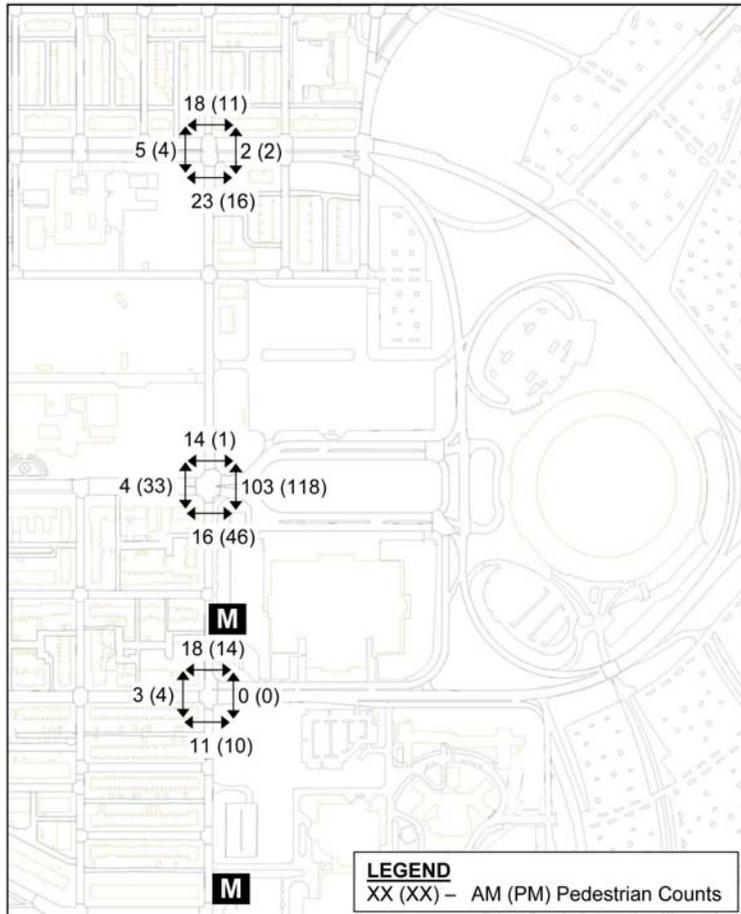
The three signalized intersections along 19th Street SE/NE all have countdown pedestrian signal heads, which provide safety for pedestrians and cyclists crossing at these locations by indicating the time remaining for the crossing before the crossing time ends.

Pedestrian and bicycle movements were observed at the intersection of East Capitol Street and 19th Street SE/NE in June 2005. Pedestrians do not always cross at the designated crosswalks at this intersection but cross outside the crosswalk areas to shorten their walking distances. Many pedestrians cross east of the intersection along the RFK Stadium mall to access the park-and-ride lot, which is the largest generator of pedestrian traffic during the morning and evening peak hours. Figure 14 presents the pedestrian volumes at the three signalized intersections along 19th Street SE/NE.

STADIUM-ARMORY STATION AREA PLANNING STUDY

5. TRAFFIC ANALYSIS

Figure 14. Pedestrian Counts near the Stadium Armory Metrorail Station



Deficiencies

On June 16, 2005, a site visit to the area was conducted to evaluate the needs for improvements for all modes of travel at the Metrorail station. Existing deficiencies were noted during the site visit. These are summarized below:

Independence Avenue SE and 19th Street SE

- Median on the east side of the intersection is too narrow.
- Wheelchair ramps are not aligned on both sides of the intersection, resulting in a “zigzag” pattern.
- The condition of the concrete pavement at the pedestrian crosswalk on the east side of the intersection is poor.

East Capitol Street and 19th Street SE/NE [1]

- Wheelchair ramps are narrow and do not meet current ADA standards.
- Sidewalks are too narrow or do not exist at the end of the wheelchair ramps in the northeast quadrant.
- The pedestrian crosswalk cut-through in the median on the east leg of intersection is too narrow.
- The traffic island in the southeast quadrant needs to be repaired.
- Lack of lane markings on the east leg of the intersection creates a lane imbalance.

C Street NE and 19th Street NE

- No median pedestrian crosswalk cut-through exist in the median on the west leg of the intersection.
- Pedestrian crosswalk cut-through in the median on the east leg of the intersection does not meet current ADA standards.
- Wheelchair ramps on the south side of the intersection do not meet current ADA standards.
- The mailbox on the northwest quadrant impedes pedestrian flow, as it is located between the two wheelchair ramps.
- The curb condition on the northwest quadrant is poor.

Bus Facilities

- No dedicated area for automobile passenger drop-off or pick-up exists.
- Some portions of the sidewalk should be replaced as the condition is poor.
- The condition of the curbing along bus bays is poor, with damaged, broken concrete.
- No streetscape furniture (such as benches) exists for pedestrians, other than the benches located inside the bus shelters.
- The station area lacks wayfinding signage, bus route maps and station-area maps.
- The station does not have any bike storage facilities.

[1] Many of these deficiencies identified for the East Capitol and 19th Street intersection will be corrected with the planned reconstruction of East Capitol Street between 19th and 22nd Streets.

STADIUM-ARMORY STATION AREA PLANNING STUDY

5. TRAFFIC ANALYSIS

Recommendations for Improvement

Recommendations have been developed to improve access for all modes of travel to the Stadium-Armory Metrorail station. These recommendations would improve the deficiencies that currently exist at the Metrorail station. The improvements have been summarized by location:

Independence Avenue SE and 19th Street SE

- Widen the median on the east side of the intersection to improve pedestrian safety.
- Realign the wheelchair ramps on the east side of the intersection so that the path is straight from the southeast corner of the intersection to the northeast corner of the intersection and through the bus lanes.
- Replace concrete sidewalks in disrepair in accordance with the AWI Transportation Architecture Design Standards.
- Place wayfinding signs in the southeast quadrant to direct people towards the Anacostia Waterfront when the Riverwalk Trail project is completed and to other areas at the station

East Capitol Street and 19th Street SE/NE [1]

- Increase width of sidewalk in the northeast quadrant of the intersection to six feet.
- Install new ADA compliant wheelchair ramps in the northeast and northwest quadrants.
- Widen the median cut-through in east leg of the intersection to six feet.
- Repair the traffic island in southeast quadrant and relocate the wheelchair ramps and the traffic signal pole to avoid conflicts for pedestrians.
- Place signage in the southeast quadrant to direct people towards the Anacostia Waterfront when the Riverwalk Trail project is completed.

C Street NE and 19th Street NE

- Replace existing wheelchair ramps in the south quadrants of the intersection with ADA compliant ramps.
- Install ADA compliant wheelchair cut-through paths in the median on the east leg and widen the cut-through path on the west leg.
- Relocate the mailbox in the northwest quadrant to avoid conflicts for pedestrians and disabled persons.
- Replace the curbing in the northwest quadrant.

Bus Facilities

- Replace curbing and sidewalks in poor condition with new concrete.
- Add directional signs to include layout of bus facilities and directions to RFK Stadium, Reservation 13, and Anacostia Waterfront.
- Install bicycle storage facilities in a highly visible, well lit area.

All Locations

- In strategic locations throughout the station site at both entrances, provide wayfinding signage to direct pedestrians to the station entrances, bus facilities, pick-up/drop off areas, and bicycle storage facilities. Also, provide signage directing customers exiting the station to points of interest in the station vicinity: the Anacostia Riverwalk Trail, the Congressional Cemetery, DC Armory, Kingman Island Park, government and municipal facilities within the Hill East Waterfront Development among others.

Summary of Findings

The existing level of service (LOS) at the three intersections adjacent to the Stadium-Armory Metrorail Station is LOS C or better, which signifies good traffic operations. The intersections provide sufficient capacity for pedestrians; however they do need infrastructure improvements to improve mobility for pedestrians and disabled persons. These improvements include installing or replacing wheelchair ramps, and constructing median cut-through paths to meet current ADA standards. Minor improvements are needed at the bus bay area. Sections of the concrete sidewalk that are in poor condition should be replaced. A bicycle rack should be installed in a highly visible area to encourage people to use bicycles to reach the Metrorail station. Directional signage near the entrance to the Metrorail station should be installed to guide people to the various attractions around the station, including RFK stadium, DC Armory, and the Anacostia Waterfront.

[1] Recommendations for improvements to the E. Capitol Street and 19th Street intersection shall be forwarded to DDOT's Infrastructure Project Management Administration.

STADIUM-ARMORY STATION AREA PLANNING STUDY

6. STATION CAPACITY AND ENHANCEMENTS

Existing Conditions:

The Stadium-Armory station has two mezzanines and entrances at each end of the station train room. The north entrance, known as the Stadium & Armory entrance, has three escalators from the platform to the mezzanine and three escalators and one stair from the mezzanine to the street. A bank of three escalators provides additional capacity for DC Armory and RFK Stadium events. The north entrance does not have elevator service. The south station entrance, known as the DC General entrance, has two escalators from the platform to the mezzanine and two escalators from the mezzanine to the street. There are thirteen faregates at the north mezzanine and six faregates at the south mezzanine. The station has only one elevator for each level of the station at the south entrance.

Ridership:

On a typical weekday, there are 3,015 customers entering the station with 740 entries at the south entrance and 2,275 entries at the north entrance. Excluding ridership from weekday Washington Nationals baseball games, ridership at the Stadium-Armory Station has remained virtually the same over the last five years. The 2002 WMATA Core Capacity study projected 4,980 daily boardings for the year 2025 at the Stadium-Armory station. Given the District's plans for the Hill East Waterfront development, ridership could exceed this projection within the next ten years, with the highest increase in entries at the south entrance. Ridership projections will be revised for all stations after WMATA completes the Station Inventory and Ridership Forecasts program later this fiscal year.

Mezzanine Capacity:

Without plans for a new, larger stadium on the RFK site, the thirteen existing faregates at the north mezzanine should provide sufficient capacity for the foreseeable future. The six existing faregates at the south mezzanine should provide adequate capacity to serve the projected increase in entries from the Hill East Waterfront Development and the future Medical Center, given that each faregate can handle up to 900 entries per half-hour. There is space available to add at least one additional faregate if it becomes necessary in the future.

Vertical Circulation Capacity:

Both station entrances should have adequate vertical circulation capacity to meet future ridership demand, given that each escalator can handle 3,000 people in a thirty-minute period. However, elevator service is inadequate and should be expanded, which is the case at other Metrorail stations. Customers using wheelchairs that rely on elevator service cannot access the station when either the single street elevator or the platform elevator is out of service. When either elevator is out of service at a Metrorail station for extended rehabilitation, customers using wheelchairs must use the elevators at the nearest station, then transfer to the destination station using expensive Metrobus shuttle service. For short-term elevator service disruptions, a bus must be dispatched on demand. During elevator outages, customers using strollers, wheeled luggage, and seniors with balance problems are forced to use escalators. WMATA policy prohibits strollers and wheeled luggage on escalators for safety reasons.

Current WMATA design criteria for the planning of new or expanded Metrorail station facilities require redundant elevator service between all levels of a station. When a minimum of two elevators is provided between each level in a station, access for station customers using a wheelchair can be provided even if one of the elevators is shut down for repairs or maintenance. Maintenance on one elevator could then be performed during revenue hours whenever necessary without restricting wheelchair access. Providing elevator redundancy at Stadium-Armory solves these access and safety issues for persons with disabilities and other customers. Figure 15 illustrates how additional elevators can be incorporated at both station entrances and mezzanines. The order of magnitude cost estimate for elevator improvements are described in Section 7.

Station Enhancements:

Enhanced signage inside the station should be provided to better direct customers to their desired station entrance and to station area destinations. During a recent site visit to the station, a station manager said he frequently has to redirect customers to the other entrance due to a lack of or unclear directions on signage, creating an unnecessary inconvenience for customers. Additional signage systems could be installed at the Stadium-Armory station similar to the signage provided as part of a successful pilot program at the Gallery Place-Chinatown station.

STADIUM-ARMORY STATION AREA PLANNING STUDY

6. STATION CAPACITY

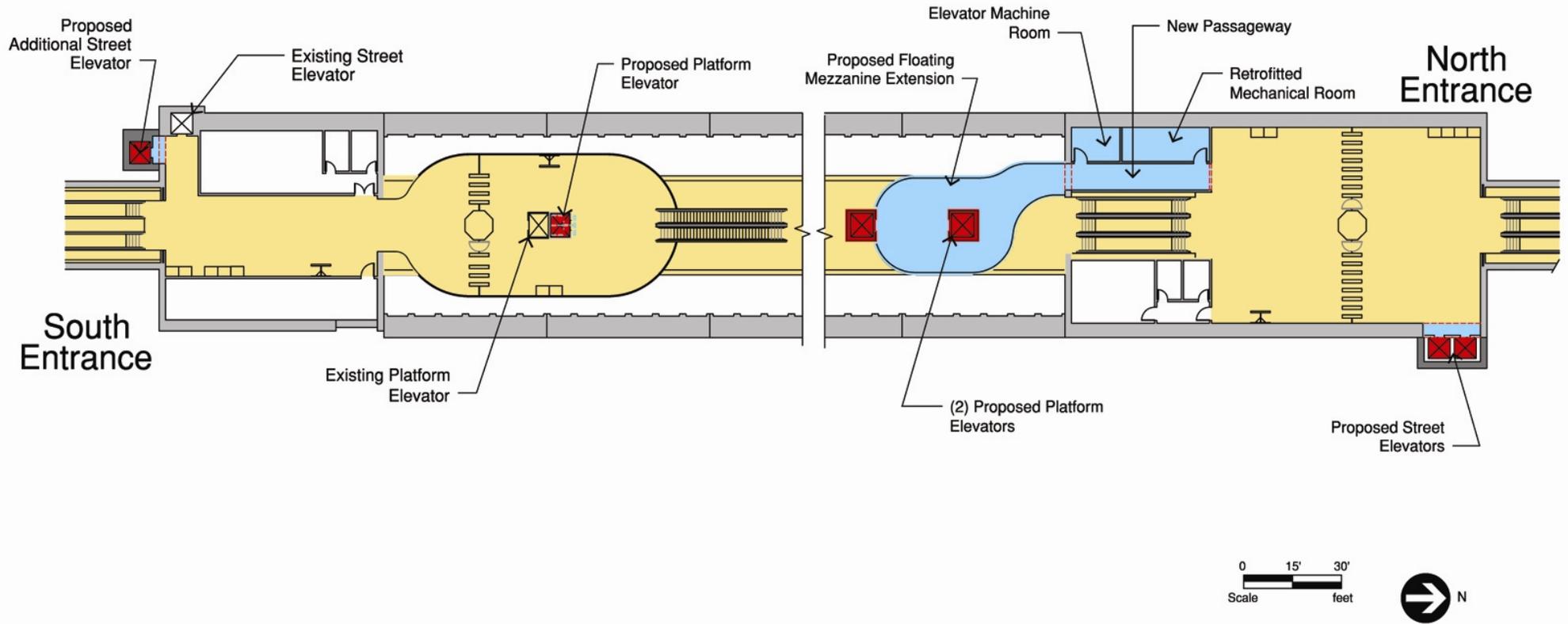


Figure 15: Proposed Station Capacity Improvements

STADIUM-ARMORY STATION AREA PLANNING STUDY

7. ORDER OF MAGNITUDE

8. NEXT STEPS

Table 5. Order of Magnitude Cost Estimate

Item No.	Element	Approx. Cost (FY06 \$)
1	South Entrance/Mezzanine: Platform Elevator, Street Elevator	\$2,703,700
2	North Mezzanine: Mezzanine Expansion, Platform Elevators, Mechanical Room Reconfiguration	\$3,010,300
3	North Entrance: Street Elevators	\$3,588,300
4	Site Work: Utilities Relocation, Sidewalks, Curbs, Furniture, Lighting, Traffic Controls	\$2,060,300
5	Interior Station Signage Enhancements	\$383,500
	Sub-Total	\$11,748,100
6	Contingency (30%)	\$3,524,430
7	Soft Costs: Design+Engineering (10%), Design Management (10%), Construction Support (10%), Insurance/Bond (5%)	\$4,111,835
	Total Cost	\$19,384,365

Cost does not include any potential land acquisition for development.

The Stadium-Armory Station Area Planning Study has been prepared to provide the District of Columbia with documentation for the feasibility of the proposed alternatives for station site and access improvements. If the District decides to move forward with the planning process for implementing any improvements to the station, then WMATA will work with the District in the conceptual engineering and environmental assessment process.

The conceptual engineering process will be subject to further review by WMATA, AWC, the District, and the citizens of the Stadium-Armory Station area community through the process of public hearing and environmental assessment. WMATA would also coordinate the design for any site improvements with other District transportation and development projects adjacent to the station.

The development proposed at the north station entrance would require significant coordination between WMATA, the District, NCPC, DCSEC, and the U.S. Park Service. Potential development is proposed as part of the station master plan to present a potential means for funding portions of the station site improvements (by direct contribution from a developer, through TIF funds from sale of WMATA property, or by the increase in tax revenue from the development) and for demonstrating how an important, but underutilized area adjacent to a station entrance can realize its highest and best use.