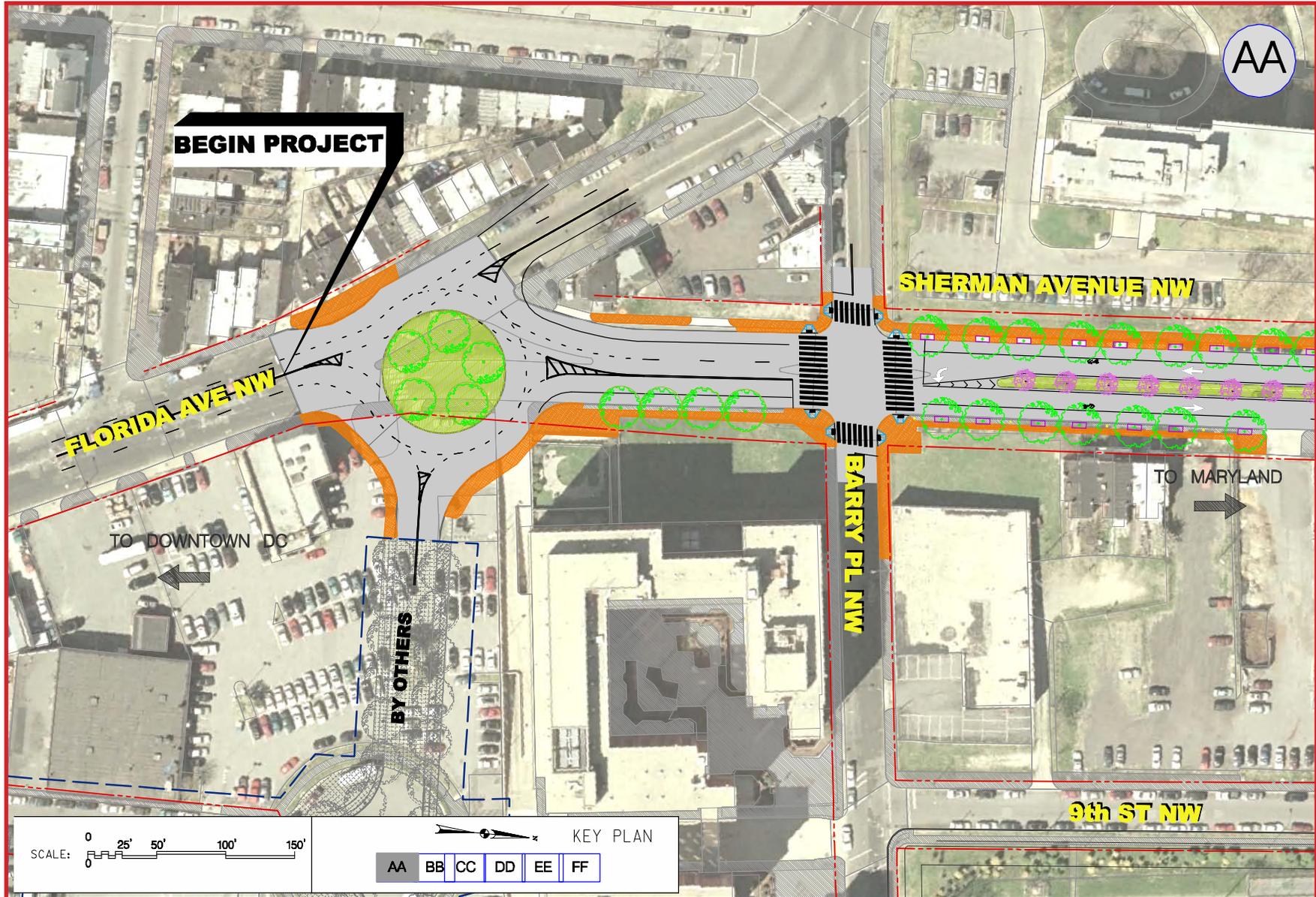
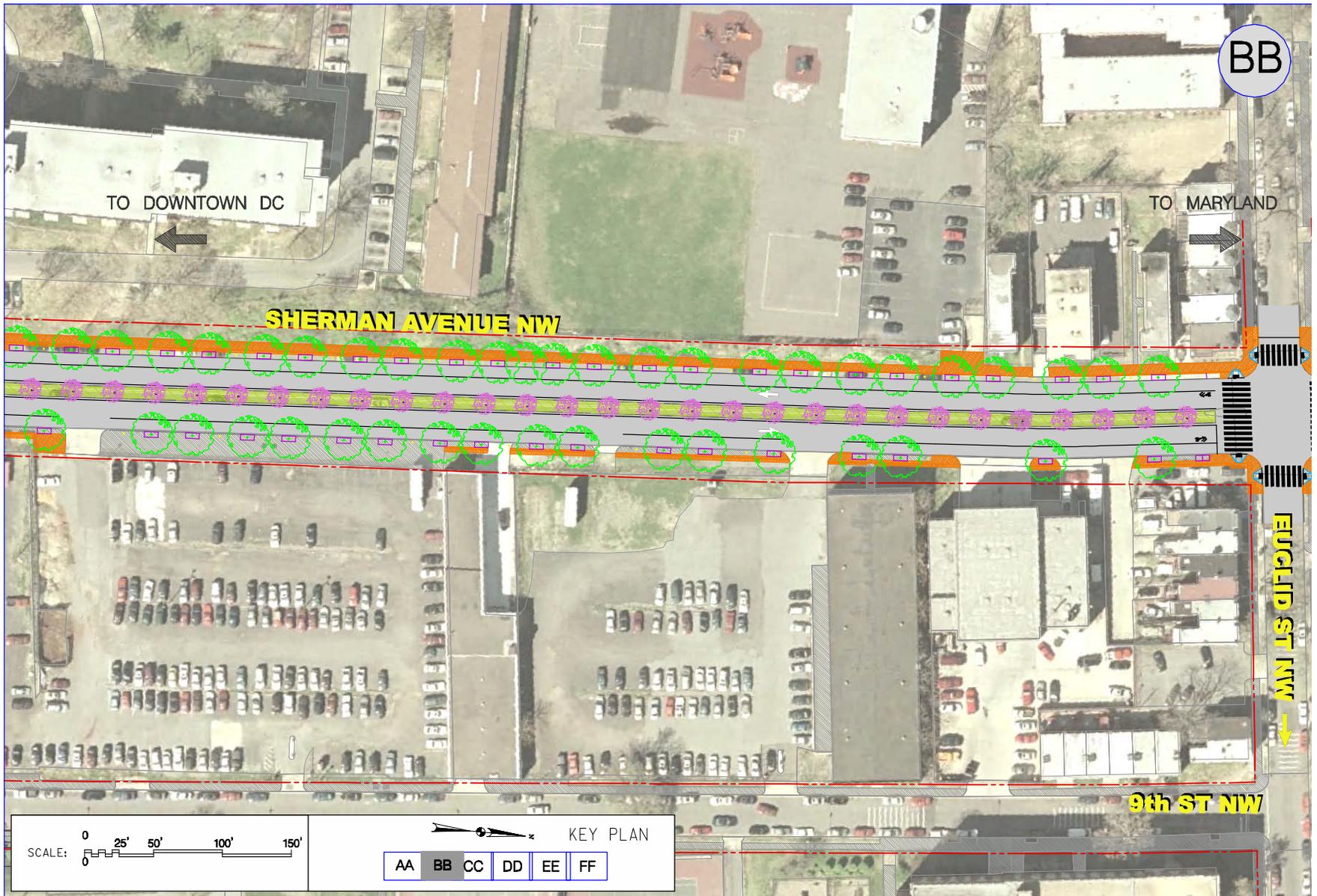
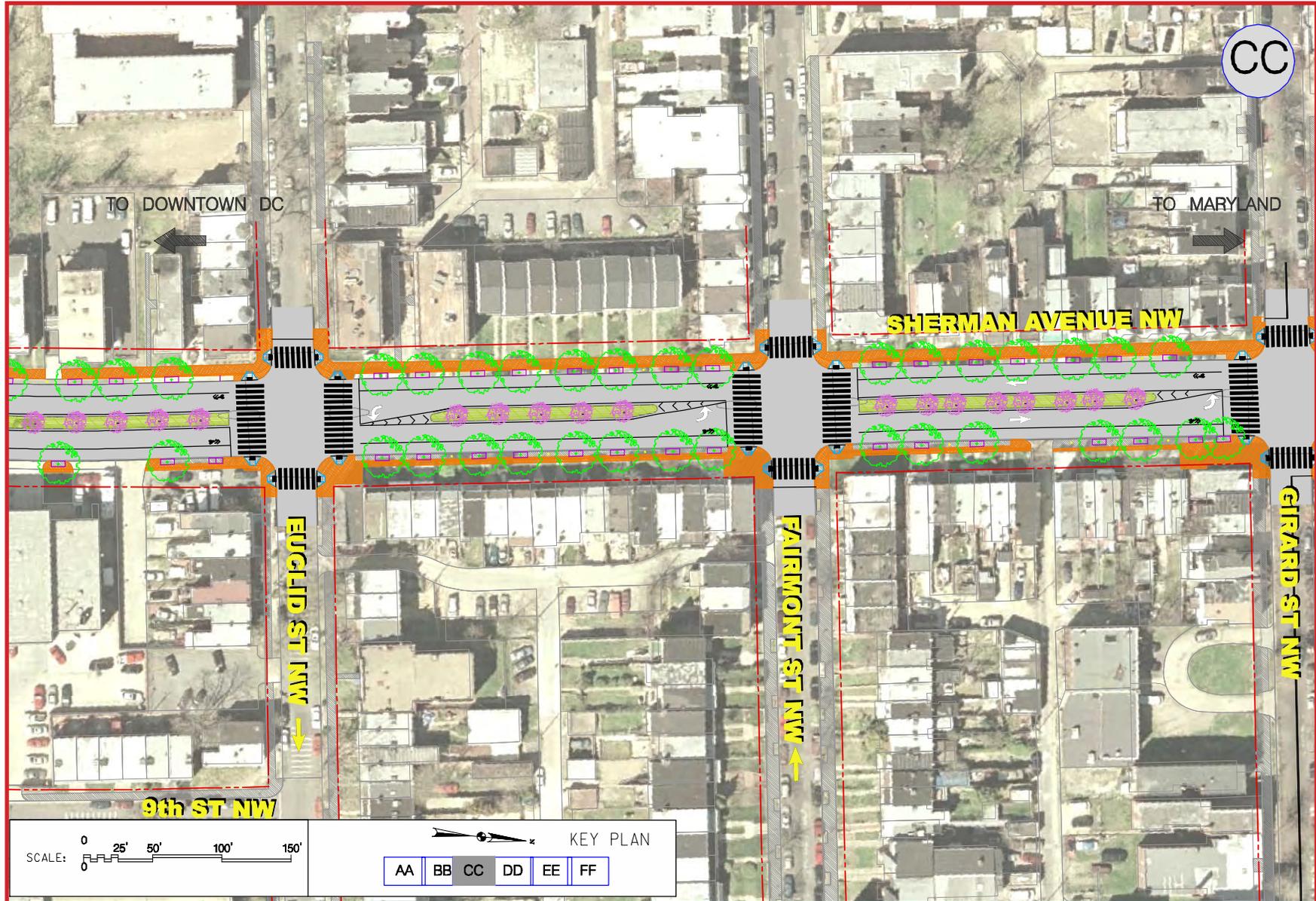


# Preferred Alternative



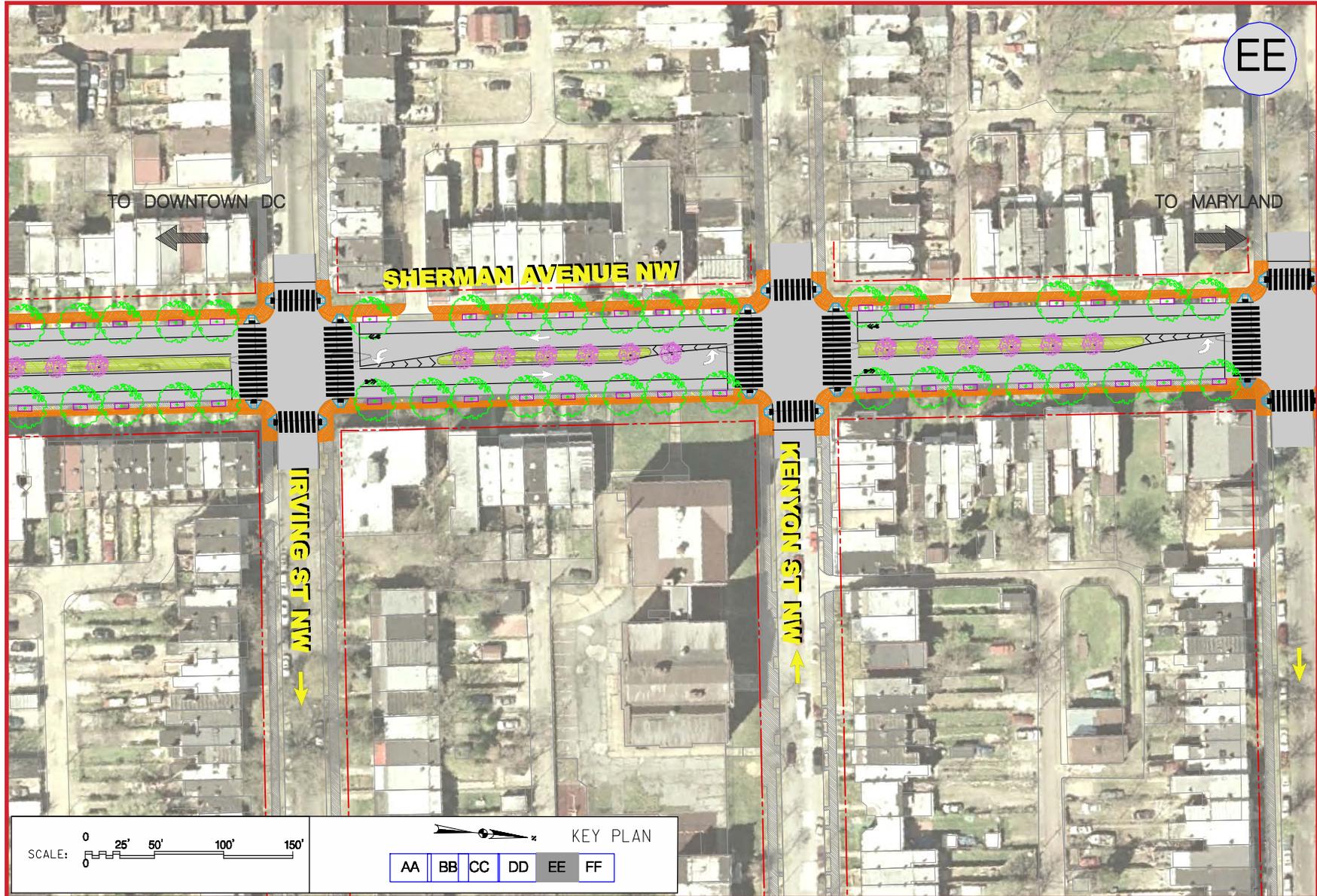


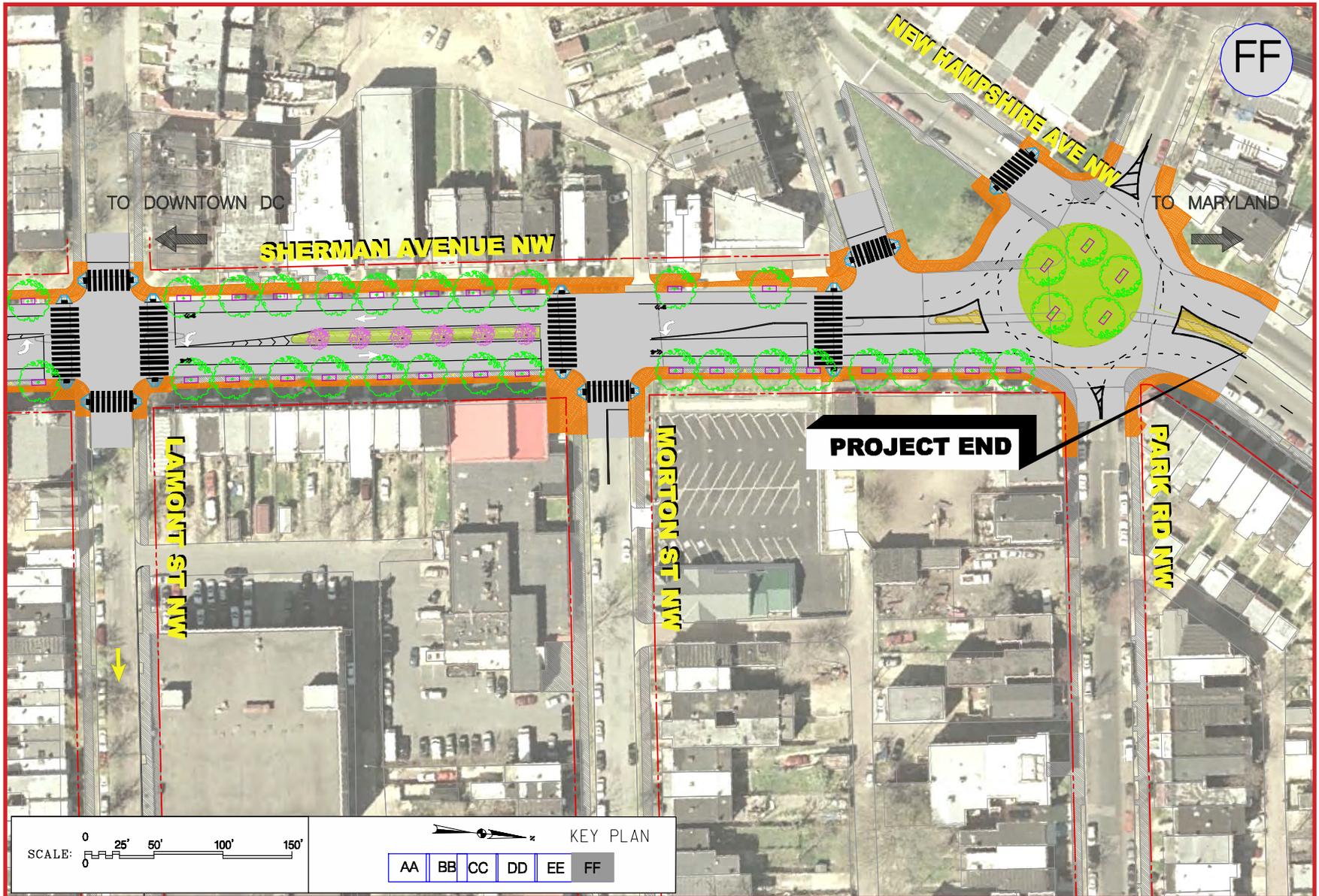
# Preferred Alternative





# Preferred Alternative





## Transportation Recommendations

### Traffic

As explained in detail in the Future Traffic Conditions Memo (Appendix I), some possible signal improvements were studied as part of the traffic engineering analysis. At Georgia Avenue and Park Road, the spatially offset westbound and eastbound approaches of Park Road were separated and served in different phases to improve conflicts between vehicles turning left onto Georgia Avenue and the through movement of vehicles traveling on Park Road (see Figures K-2 and K-3). Another change was analyzed at Georgia Avenue and Princeton Place. Since the existing left turning volumes are very low (i.e., 8 vehicles per hour (veh/hr) and 4 veh/hr for MD and PM peak hours), the protected left-turn phase on the southbound approach was changed to a permissive phase (left turns must yield to oncoming through traffic) to increase the time available for other approaches. Under current traffic operations, left turns at Georgia Avenue and Barry Place and at Georgia Avenue and Bryant Street are controlled by protected turn phases. The preferred alternative has a transit-only lane in this segment of Georgia Avenue. As a result, through and left-turn movements would share the same lane, making it difficult to serve all left turns with only protected phases. Therefore, left turns onto Barry Place and Bryant Street would be served by protected and permissive turn phases. The three-way intersection of New Hampshire Avenue, Monroe Road, and Park Road, and the intersection of Florida Avenue and Sherman Avenue are currently signalized controls. However, roundabouts would be built at these locations as part of the proposed changes for Sherman Avenue.

The impact of parallel parking for the preferred alternative was modeled using the traffic analysis software. It was assumed that there would be two maneuvers per hour (per block) on Sherman Avenue during both the midday and PM peak hours, and two per hour (per block) and four per hour (per block) on Georgia Avenue for mid-day and PM peak hours, respectively.

The impact on traffic of buses dwelling at stops on Georgia Avenue and Sherman Avenue was also analyzed. The 70/71 route operates at 10-minute and 7.5-minute average headways during mid-day and PM peak hours, respectively. It was assumed that, in the absence of a transit-only lane, each bus stop would on average generate six and eight bus blockages (which reduce the saturated flow rates on Georgia Avenue) per hour during the mid-day and PM peak hours, respectively. During PM peak hours, the MetroExtra Bus Rapid Transit (BRT) 79 route serves the Georgia Avenue corridor with headways of 10 minutes. Therefore,



Figure K-1: Traffic Analysis Performed Using Synchro Model Originally Developed by DDOT



Figure K-2: Conflict Between Eastbound Through Traffic and Westbound Left-Turning Traffic at Georgia Avenue and Park Road



Figure K-3: Conflict Between Westbound Through Traffic and Eastbound Left-Turning Traffic at Georgia Avenue and Park Road

for bus stops used by both the 70/71 and BRT buses, the total number of bus blockages was assumed to be 14 per hour where there is no dedicated transit-only lane. The number of bus blockages due to the 68 route along Sherman Avenue was assumed to average four per hour and six per hour in the mid-day and PM peak hours, respectively, based on current average headways.

#### Overview of Key Intersection Improvements

Traffic engineering analysis showed that even though Sherman Avenue and Georgia Avenue were planned to operate with only one general purpose traffic lane, there would not be any significant increases in delays. The analysis also showed that all key intersections in the study area would still operate with acceptable LOS under optimum timings, as shown in Figure K-4 and Table K-1.

Under optimum timing conditions, most key intersections on Georgia Avenue may operate slightly better than they do currently, with the exception being Georgia Avenue and Park Road during PM peak hours due to the safety improvements explained above. The analysis predicts a mixed result along the section of Georgia Avenue with a transit-only lane. Georgia Avenue's intersections with Florida Avenue and Barry Place would operate with better levels of service and fewer delays for both midday and PM peak hours. There may be insignificant increases in delays at Bryant Street and W Street. Queue lengths would be within acceptable limits, and the volume-to-capacity ratio would not exceed 1.0 along Georgia Avenue during both mid-day and PM peak hours.

Although the preferred alternative results in increased delays on Sherman Avenue due to the lane reduction, the delays can largely be alleviated by optimization of signal timings. During midday peak hours under optimum signal timings, operations would improve at Sherman Avenue and Kenyon Street, at Sherman Avenue and Columbia Street, and at Florida Avenue and Vermont Avenue compared to current conditions. During PM peak hours, however, these intersections would experience a slight increase in delays.

The new roundabout at New Hampshire Avenue, Monroe Road, and Park Road may increase the delay to approximately 30 seconds and reduce the LOS from B to D in the PM hours. However, the roundabout may enhance operations and improve the LOS from B to A during the mid-day peak hour. Operations at the unsignalized intersection of New Hampshire Avenue and Spring Street would improve as a result of changes in the lane configurations and timings for the PM peak hours, operating at LOS A during both the AM and PM peak

# Preferred Alternative

hours. Volume exceeds capacity slightly at Sherman Avenue and Columbia Road in the northbound direction, and some long queues may occur on side streets and Sherman Avenue at key intersections.

## Parking

Under the preferred alternative, parking on both sides of Sherman Avenue would remain as it is currently. There would be sections where parking is not permitted, as well as sections of time-regulated parking and unregulated parking. It is important to keep parking in the area since most buildings along the corridor are residential.

There also would be no change in the parking policy on side streets between Sherman Avenue and Georgia Avenue. Parking in the northern part of the study area would mostly be time-regulated. Parking would not be permitted on one side of some major side streets such as Kenyon Street, Columbia Road, and Irving Street. Buildings on side streets are mostly residential, as are most buildings on Sherman Avenue.

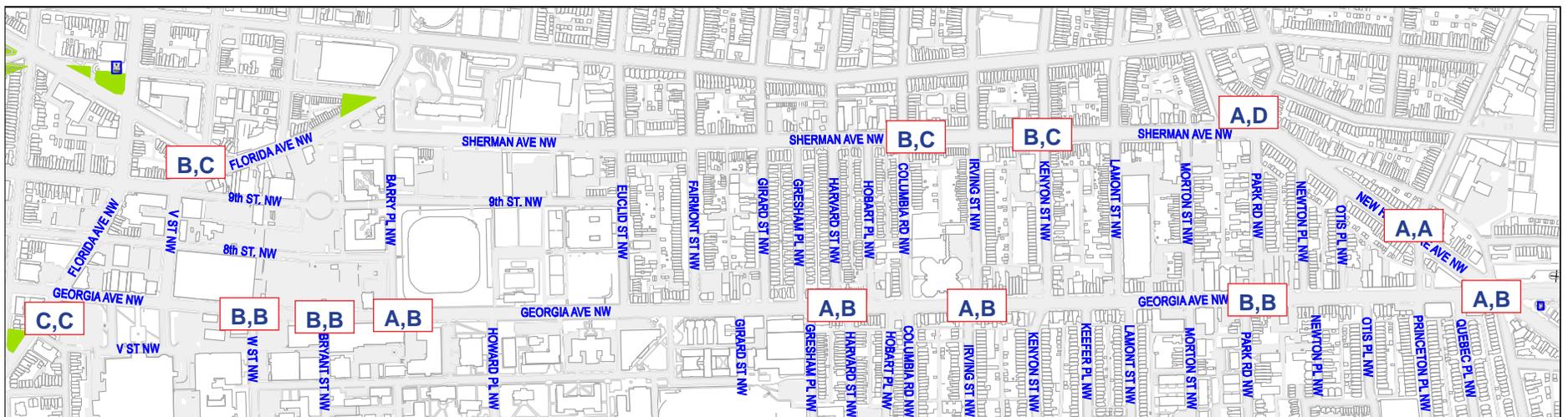
On Georgia Avenue, between Barry Place and Florida Avenue, parking would be

removed completely to provide sufficient width for the new transit-only lanes. Removal of parking may improve traffic along the lower part of the Georgia Avenue corridor since there would be no parking maneuvers in this section. The transit and bicycle modes would also benefit from the change because these modes would share a lane separated from general traffic. There would be no change in parking on the section of Georgia Avenue between New Hampshire Avenue and Howard Place.

## Transit Operations and Facilities

The 70/71 line and the 68 line will continue to operate along Sherman Avenue and Georgia Avenue. After the new design for Sherman Avenue is implemented, vehicular traffic and transit would only have one travel lane in each direction. However, traffic analysis shows that once the signalized intersections are optimized, transit service would not experience significant delays at most intersections along Sherman Avenue. The exceptions are Sherman Avenue and Euclid Street, and Sherman Avenue and Fairmont Street in the PM peak hours.

Figure K-4: Level-of-Service (LOS) Ratings of Key Intersections in 2008 (*mid-day peak first, PM peak second*)



Buses on the 68 line may experience significant delays at these locations during the PM peak hour. A bus stop on the northbound side of Sherman Avenue at Euclid Street may preclude buses on this line from benefiting from the coordination of signals along Sherman Avenue.

### Transit-Dedicated Lane

The line 70/71 regular and BRT buses would operate in mixed traffic in the northern sections of Georgia Avenue. After the signalized intersections are optimized, both services may experience fewer delays. In the lower part of the corridor between Barry Place and Florida Avenue, where there would be a dedicated transit lane, the bus lane is expected to reduce transit travel times and improve schedule adherence, increasing the effectiveness of transit signal prioritization (also planned for the corridor) and resulting in increased ridership.

### Pedestrian and Bicycle Improvements

#### Sidewalks and Walkability

Walkability currently varies on both Sherman Avenue and Georgia Avenue from good to very poor. Walkability would improve once proposed changes, such as new sidewalks (with a 13-foot width on Georgia Avenue and an 8-foot width on Sherman Avenue), better street lights, and more accessible wheelchair ramps are completed. The distance that pedestrians need to travel to cross an intersection would decrease as a result of installing the proposed bulb-outs. The current minimum green time that pedestrians need to cross signalized intersections on Sherman Avenue and Georgia Avenue, was considered during the analysis of signal optimizations.

#### Bicycle Facilities

Bike racks would be located within the curb zone and in bulb outs where space permits, significantly improving the parking

**Table K-1: Delays and LOS for the key intersections in 2008**

Intersection		MD Peak Hour					PM Peak Hour					
		Approaches	Cycle Length	Delay	LOS	Average Delay	Int. LOS	Cycle Length	Delay	LOS	Average Delay	Int. LOS
New Hampshire Avenue NW	Princeton Place NW	EB	N/A	22.9	C	2.9	A	N/A	133.6	F	8.6	A
		WB		N/A	N/A				N/A	N/A		
		NB		1.2	A				1.3	A		
		SB		1.1	A				1.7	A		
New Hampshire Avenue NW *	Park Rd & Monroe St NW	EB	N/A	23.2	C	5	A	N/A	353.8	F	32.6	D
		WB		20.1	C				134.1	F		
		NB		0.7	A				0.6	A		
		SB		0.3	A				0.3	A		
Sherman Avenue NW	Kenyon Street NW	EB	70	N/A	N/A	11.3	B	100	N/A	N/A	25.9	C
		WB		21.5	C				41	D		
		NB		5.9	A				29.2	C		
		SB		7.2	A				5.4	A		
Sherman Avenue NW	Columbia Road NW	EB	70	N/A	N/A	10	B	100	N/A	N/A	33	C
		WB		15.9	B				54.2	D		
		NB		4.2	A				35	C		
		SB		8.5	A				7.3	A		
Georgia Avenue NW	New Hampshire Avenue NW	EB	70	11.6	B	9.9	A	100	20	C	16.5	B
		WB		11.6	B				20.6	C		
		NB		3.5	A				10.1	B		
		SB		15.3	B				18.7	B		
Georgia Avenue NW	Park Rd NW	EB	70	30.8	C	10.9	B	100	41.1	D	14.7	B
		WB		28.3	C				44.6	D		
		NB		8.7	A				11	B		
		SB		7.2	A				10.6	B		
Georgia Avenue NW	Irving Street NW	EB	70	7.6	A	6.9	A	100	25.7	C	12.7	B
		WB		N/A	N/A				N/A	N/A		
		NB		6	A				8	A		
		SB		7.4	A				10	A		
Georgia Avenue NW	Harvard Street NW	EB	70	7	A	5.6	A	100	25.2	C	14.1	B
		WB		N/A	N/A				N/A	N/A		
		NB		4.9	A				11.2	B		
		SB		5.7	A				8.6	A		
Georgia Avenue NW	Barry Pl NW	EB	70	23.1	C	9.3	A	100	45.2	D	11.4	B
		WB		N/A	N/A				N/A	N/A		
		NB		13.5	B				4.9	A		
		SB		2	A				5.7	A		
Georgia Avenue NW	Bryant Street NW	EB	70	30.3	C	10.4	B	100	46.4	D	11.4	B
		WB		N/A	N/A				N/A	N/A		
		NB		12.7	B				10.1	B		
		SB		7.1	A				12.4	B		
Georgia Avenue NW	W Street NW	EB	70	N/A	N/A	11.9	B	100	N/A	N/A	18.8	B
		WB		22.3	C				29.9	C		
		NB		10.7	B				12.1	B		
		SB		7.2	A				19.6	B		
Georgia Avenue NW	Florida Avenue NW	EB	70	15.4	B	22.8	C	100	15.3	B	25.3	C
		WB		22	C				26.3	C		
		NB		38.6	D				42.2	D		
		SB		22.8	C				24.4	C		
Florida Avenue NW	Vermont Avenue NW	EB	100	22.8	C	12.1	B	100	36	D	22.7	C
		WB		N/A	N/A				N/A	N/A		
		NB		8	A				19.9	B		
		SB		10.9	B				15.7	B		

\* This roundabout was analyzed by HCS+ as an unsignalized intersection.

## Preferred Alternative



Figure K-5: Proposed Streetscape Improvements for the Intersection of Georgia Avenue and Bryant Street

availability for bicyclists. Bicyclists would share the transit-only lane with transit and right-turning vehicles between Howard Place and Florida Avenue, which would reduce their overall interaction with vehicular traffic. Bicyclists will share the transit-only lane with transit and right turning vehicles between Howard Place and Florida Avenue, which will result in a reduction in overall interaction with vehicular traffic.

### Public Realm Recommendations

The Georgia Avenue corridor is one of the most traveled streets in the District of Columbia, providing connections from the National Mall and Downtown DC to Silver Spring, MD. The boundaries for the streetscape design are Georgia Avenue from Florida Avenue to Otis Place, and Sherman Avenue from Florida Avenue to New Hampshire Avenue. A number of significant commercial businesses and institutions are located in the study area, including Howard University and Howard University Hospital. These streetscape design recommendations are intended to improve pedestrian safety, incorporate low impact streetscape strategies, and to create overall visual enhancements throughout the corridor that directly reflect the culture and history of the community.

### Georgia Avenue

Georgia Avenue is primarily characterized by the presence of Howard University, the future Howard Town Center, and Banneker Park at the southern end of the study area. The northern end of the study area consists of university-oriented businesses, neighborhood-oriented businesses, and transition areas of mixed-use development.

There is a rich heritage of cultural and academic contributions from generations of African-American families and scholars along Georgia Avenue, particularly around historic Howard University. This heritage was a major source of inspiration for the streetscape design, which is reflected in various elements such as paving, crosswalks, artwork, and signage. The design process included a number of meetings with the community and area stakeholders. From these outreach meetings, the study area was divided into three areas based on the character and function of the street: Howard University/Howard Town Center (Florida Avenue to Gresham Place), the Cross Town Connection (Gresham Place to Kenyon Street), and the Neighborhood Connection (Lamont Street to Otis Place).

## Howard University/Howard Town Center

The Howard University and the Howard Town Center area is, in part, the southern gateway to the study area. As vehicular and pedestrian traffic enter, wider sidewalks and special sidewalk and street paving would help create a sense of arrival. The roadway enhancements include colored asphalt surface treatment and special thermoplastic crosswalk designs. The colored asphalt surface treatment would highlight the dedicated bus lanes that would extend from Florida Avenue to Barry Place. This surface, along with a unique stamped pattern, would highlight the entire roadbed around Howard Town Center, creating a special pedestrian zone. Thermoplastic custom designed crosswalks also would be incorporated throughout this area. These crosswalks are inspired by African patterns and are a major design element that would contribute to the uniqueness of this urban environment.

Sidewalk enhancements include wider sidewalks, low impact development (LID) planting zones, and unique sidewalk paving. A 20-foot sidewalk setback standard for all new development in this area would help provide accommodations for the larger volumes of pedestrians, outdoor seating and outdoor cafes, larger tree pits and healthier trees, and room for bus shelters and other site furniture.

On the west of the street, sidewalks would be widened in front of the future Howard Town Center as well as in front of Banneker Park. A continuous LID planting zone would include open-planted tree pits with a continuous tree pit zone covered with cobblestones. The LID zones would allow sidewalk runoff to slowly percolate through the extended tree roots. Street furniture would also be located within this area so as to not interfere with pedestrian traffic. The sidewalk would be paved with poured-in-place concrete laid diagonally. At intersections, the sidewalk material would change to colored precast concrete pavers set diagonally as an extension of the crosswalk pattern.

Unique enhancements to this area include a linear sidewalk park along the street edge of Banneker Park that provides shaded seating for pedestrians and a gateway into the park. This park is used primarily for recreation and is the final destination for the annual Caribbean Carnival. Another feature of this area, located opposite from Banneker Park, is the proposed “Howard University Legacy Walk,” which consists of bronze plaques embedded into pavers and engraved with the name or image of people influential to Howard University.

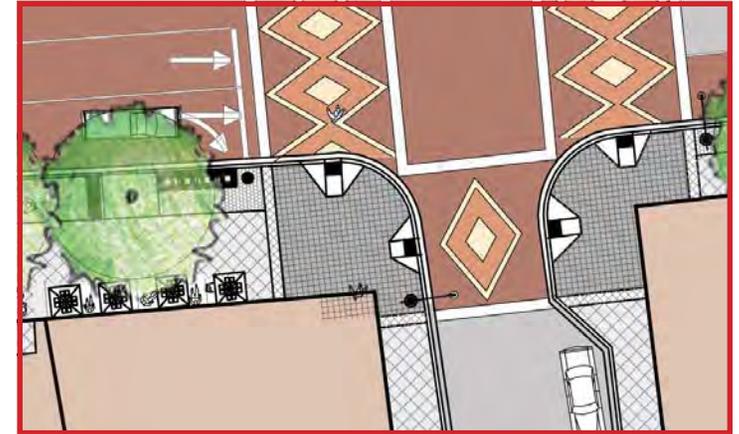


Figure K-6: Close-Up of Public Realm Recommendations for the Intersection of Georgia Avenue and Barry Avenue



Figure K-7: New Linear Entrance at Banneker Park

## Preferred Alternative

**Table K-2: Streetscape details for the Howard Town Center vicinity (Florida Avenue to Gresham Place):**

SIDEWALKS		STREET	SITE FURNITURE	SPECIAL FEATURES
CURB ZONE	SIDEWALK ZONE			
<p><u>Florida Avenue to W Street</u> 5' x 10' continuous tree pit Granite cobble/LID in between tree pits.</p> <p><u>W Street to Bryant Street</u> 8' x 10' continuous tree pit Benches placed on granite cobble/LID in between tree pits.</p> <p><u>Bryant Street to Barry Place</u> 5'x10' continuous tree pits Granite cobble/LID in between tree pits.</p> <p><u>Barry Place to Howard Place</u> West sidewalk: 5' to 15' wide tree pit East sidewalk: 10' wide No parking is available</p> <p><u>Howard Place to Euclid Street</u> West sidewalk: 5' wide, open with cobblestone access to parked vehicles East sidewalk: 4' wide, open with cobblestone access to parked vehicles</p> <p><u>Euclid Street to Gresham Place:</u> West sidewalk: 5' wide by 10' East sidewalk: 4' wide by 10' Granite cobble/LID in between tree pits</p> <p>Locate site furniture in curb zone when possible.</p> <p>Street Trees: London Planetree Nuttal Oak Red Maple</p>	<p>Poured in place concrete 2'x2' with control joints on 45 degree angle to face of curb</p> <p>DDOT standard concrete mix</p> <p><u>Corner Zone:</u> 12"x12" concrete unit pavers, (new DC standard color) and band with 12"x12" colored concrete pavers.</p> <p><u>W Street-Bryant:</u> Bench seating and planting beds south of the Howard Bookstore entrance</p>	<p>Standard asphalt paving unless other specified</p> <p><u>Bryant to Barry:</u> Colored asphalt (oxide red)</p> <p><u>Barry –Howard:</u> Bus dedicated lanes colored asphalt (oxidite red)</p> <p><u>Bus stop pads:</u> poured-in-place concrete paving</p> <p><u>Howard Place:</u> parking lane starts Parking lanes - LID pavers.</p> <p><u>Special crosswalks:</u> street print paving pattern.</p> <p><u>Other intersections:</u> standard ladder crosswalks</p>	<p>U shaped bike racks</p> <p>Trash receptacles</p> <p><u>Light fixtures:</u> Teardrop at intersections, double Washington Globe mid-block</p> <p>Newspaper corrals</p> <p>Benches</p> <p>Bus shelters</p>	<p>Banneker Park: removal of the fence, special brick paving treatment, seat retaining walls, planting areas and formal entrance into the park.</p> <p>Public art opportunities at V Street, Barry Place, Banneker Park, Euclid Street, and Fairmont Street</p> <p>Howard University Legacy Walk on the west side of street between Howard Place and Euclid Street</p>

### Cross-Town Connection

The second public-realm area is the Gresham Street to Kenyon Street span of Georgia Avenue, which includes four main intersections that serve as the primary east-west bus and vehicle thoroughfare. These intersections have high volumes of pedestrian traffic and have major pedestrian safety issues caused by very narrow sidewalks that do not accommodate wheelchair access, inadequate lighting, damaged sidewalks, and dangerous unsignalized crosswalks. The proposed streetscape would address these problems and improve pedestrian safety by widening sidewalks with bulb-outs at critical locations to decrease the crossing distance for pedestrians and accommodate wheelchair ramps and high visibility crosswalks. The custom-designed thermoplastic crosswalks would extend throughout this area. On-street parking surfaces would be permeable concrete pavers that would capture street runoff. Sidewalks would be poured-in-place concrete set diagonally to be consistent with the Howard University/Howard Town Center area and would have continuous open-planted tree pits where possible. Locations for public art have been identified at the southwest corner of Harvard Street, northeast and southwest corners of Columbia Road and the southwest corner of Harvard Street.



Figure K-8: Close-Up of Public Realm Recommendations for the Central Portion of the Study Area

Table K-3: Streetscape details for Gresham Place to Kenyon Street:

SIDEWALKS		STREET	SITE FURNITURE	SPECIAL FEATURES
CURB ZONE	SIDEWALK ZONE			
<p>Provide continuous open tree pits where there is adequate sidewalk space.</p> <p>Provide 3' openings paved with granite cobble to connect sidewalk to parking areas.</p> <p>In areas with narrow sidewalks, provide 4.5' x 8' tree pit.</p> <p>Pave the areas between tree pits with granite cobble over permeable base.</p> <p>Locate site furniture in curb zone when possible.</p> <p>Street Trees: London Planetree Nuttal Oak Red Maple</p>	<p>Poured in place concrete 2'x2' with control joints on 45 degree angle to face of curb</p> <p>DDOT standard concrete mix</p>	<p>Standard asphalt paving</p> <p>Poured-in-place concrete paving for bus stop pads</p> <p>LID pavers for parking lanes</p> <p><u>Special crosswalks:</u> (Harvard Street, Columbia Street, Irving Street, Kenyon Street) street print paving pattern.</p> <p><u>Other intersections:</u> standard ladder crosswalks</p>	<p>U shaped bike racks</p> <p>Trash receptacles</p> <p><u>Light fixtures:</u> Teardrop at intersections, single Washington Globe mid-block</p> <p>Newspaper corrals</p> <p>Benches</p> <p>Bus shelters</p>	<p>Public art opportunities at Columbia Street, Harvard Street, and the historic retail row (see public art opportunities document)</p>

# Preferred Alternative

## Neighborhood Connection

The third public-realm area, from Kenyon Street to Otis Place, primarily contains mixed-use buildings with small businesses that cater to neighborhood needs. The design for this area includes poured-in-place concrete sidewalks with diagonal-patterned joints and continuous open-planted tree pits with intermittently spaced 3-foot flush cobble-paved paver islands to provide access to and from parked cars. Bulb-outs also would be provided at critical locations to provide safer crossings for pedestrians, to make crosswalks wheelchair accessible, and to provide bus stops with a commuter waiting area that does not interfere with the flow of pedestrians on the sidewalk. New single globe and teardrop lighting would also be added at fixed intervals. Parking lanes along both sides of the street would be paved with permeable pavers to let stormwater absorb into the ground.

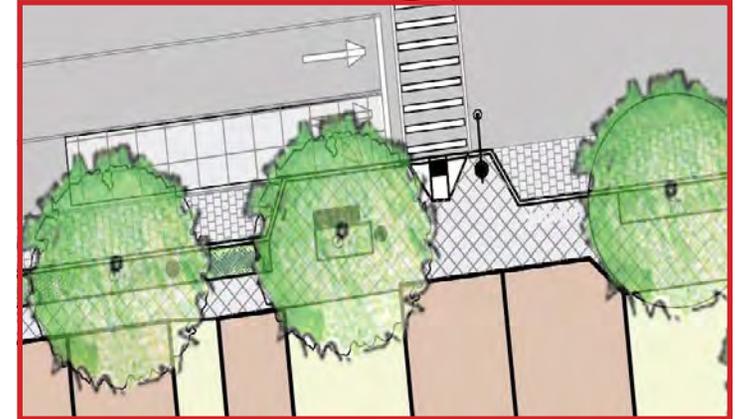


Figure K-9: Close-Up of Public Realm Recommendations for the Northern Portion of the Study Area

Table K-4: Streetscape details for Kenyon Street to Otis Place:

SIDEWALKS		STREET	SITE FURNITURE	SPECIAL FEATURES
CURB ZONE	SIDEWALK ZONE			
Provide continuous open tree pits where there is adequate sidewalk space.  Provide 3' openings paved with granite cobble to connect sidewalk to parking areas.  In areas with narrow sidewalks, provide 4.5' x 8' tree pit.  Pave the areas between tree pits with granite cobble over permeable base.  Locate site furniture in curb zone when possible.  Street Trees: London Planetree Nuttal Oak Red Maple	Poured in place concrete 2'x2' with control joints on 45 degree angle to face of curb  DDOT standard concrete mix	Standard asphalt paving  Poured-in-place concrete paving for bus stop pads  LID pavers for parking lanes  Standard ladder crosswalks at Intersections	U shaped bike racks  Trash receptacles  <u>Light fixtures:</u> Teardrop at intersections, single Washington Globe mid-block  Newspaper corrals  Benches  Bus shelters	Public art opportunities at Morton Street, Lamont Street, and Kenyon Street

## Sherman Avenue

Sherman Avenue has a different character from Georgia Avenue in that it is a residential street with some corner commercial uses. Sherman Avenue currently accommodates high volumes of traffic that use the street to bypass Georgia Avenue. The wide streets have reduced sidewalk widths to as little as 2.5 feet in some locations. Utilities placed in the sidewalk make it impossible to navigate this area in a wheelchair. Currently there are no street trees on Sherman Avenue due to lack of adequate sidewalk space. The design for this area focuses on providing increased pedestrian safety and a more pleasant pedestrian environment. The roadway would be reduced from two through lanes and one parking lane in each direction to one through lane and one parking lane in each direction. The former roadway space would be used to widen sidewalks on both sides of the street to a minimum of 8 feet and to create a centered planting median. Sidewalks would be able to accommodate 4-foot by 6-foot open tree pits with continuous LID zones covered with granite cobble. The sidewalk would be poured-in-place concrete with diagonal joint lines. The center median would be a raingarden. Openings in curbs would allow runoff to flow into the median, which would be planted with native grasses and flowering trees. The Florida Avenue and New Hampshire Avenue intersections would be traffic circles and also planted with flowering trees and native grass species.

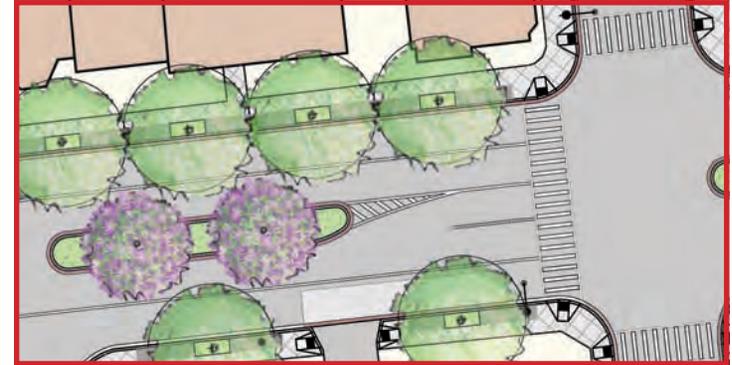


Figure K-10: Close-Up of Proposed Improvements for Sherman Avenue

**Table K-5: Streetscape details for Sherman Avenue from Florida Avenue to New Hampshire Avenue:**

SIDEWALKS		STREET	SITE FURNITURE	SPECIAL FEATURES
CURB ZONE	SIDEWALK ZONE			
Provide 4' x10' tree pits and continuous LID granite cobbles in between tree pits.  Street Trees: Little Leaf Linden Golden Rain Tree Alleghany Serviceberry Okame Cherry	Poured in place concrete 2'x2' with control joints on 45 degree angle to face of curb	Standard asphalt paving  Poured-in-place concrete paving for bus stop pads  Center planted median with rain garden  Raised curb with curb-cut openings to collect runoff in median  Standard ladder crosswalks at Intersections	U shaped bike racks  Trash receptacles  <u>Light fixtures:</u> Teardrop at intersections, single Washington Globe mid-block  Newspaper corrals  Benches	Public art opportunities at Girard Street, Columbia Road, and Harvard Street

# Preferred Alternative

## Public Art

Public art created by Howard University students and faculty and local artists would be installed at central locations along the corridor. Some potential art forms include art in the sidewalk, free-standing sculpture, and mosaics. This art would contribute to an urban environment that would attract visitors and potential new residents to the area.

A number of locations have been identified on Georgia Avenue as potential locations for public art (See Figure K-13)



Figure K-11: Proposed Streetscape Improvements for the Intersection of Georgia Avenue and Bryant Street



Figure K-12: Proposed Gateway Treatment for Lower Georgia Avenue

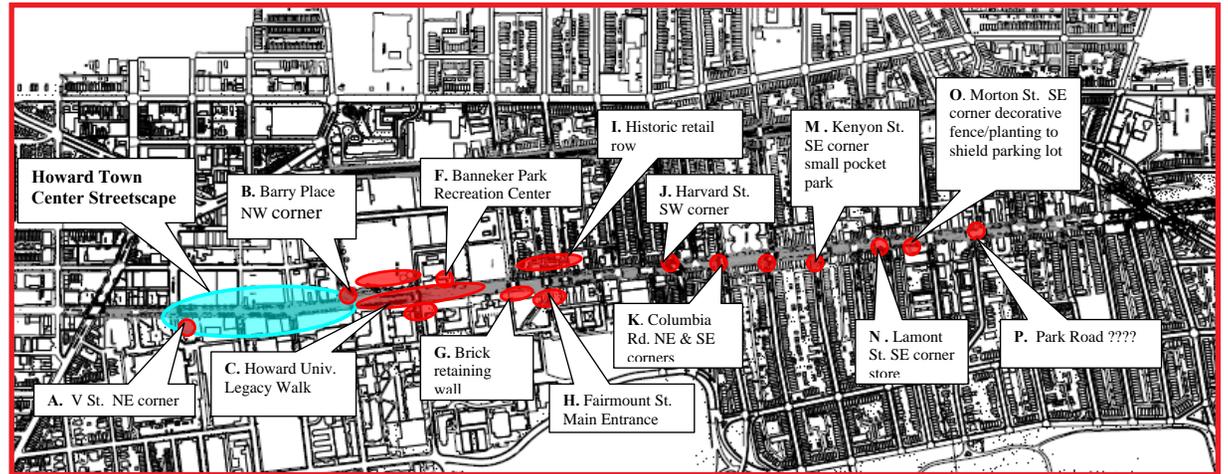


Figure K-13: Public Art Opportunity Sites



Figure K-14: Current Conditions at Georgia Avenue and Bryant Street



Figure K-16: Current Conditions on Banneker Park Road



Figure K-18: Current Conditions on Sherman Avenue



Figure K-15: Proposed Improvements at Georgia Avenue and Bryant Street

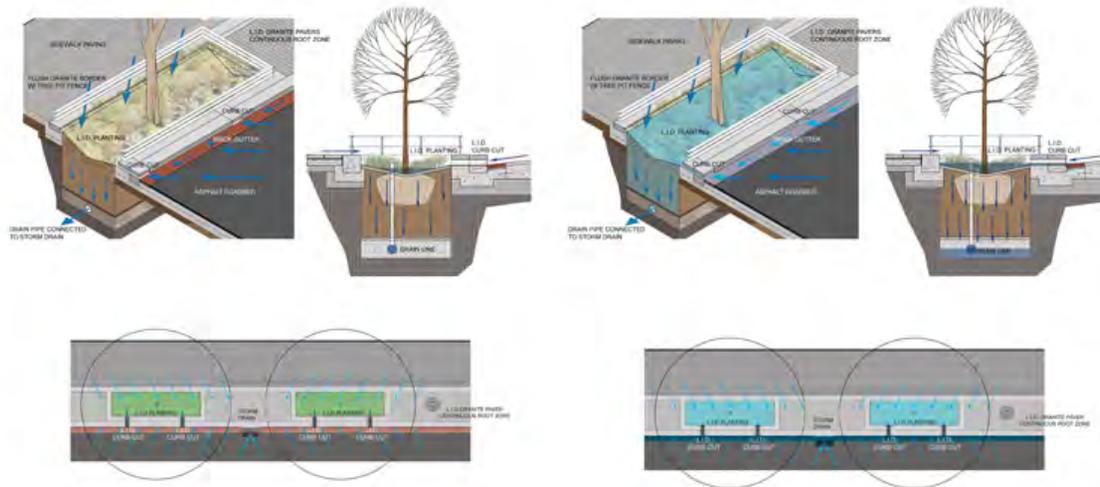


Figure K-17: Proposed Improvements on Banneker Park Road



Figure K-19: Proposed Improvements on Sherman Avenue

# Preferred Alternative



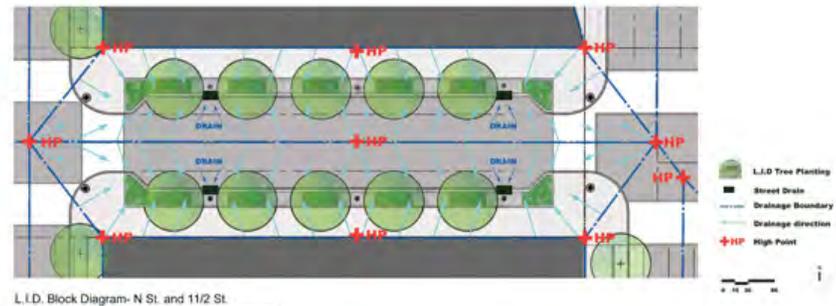
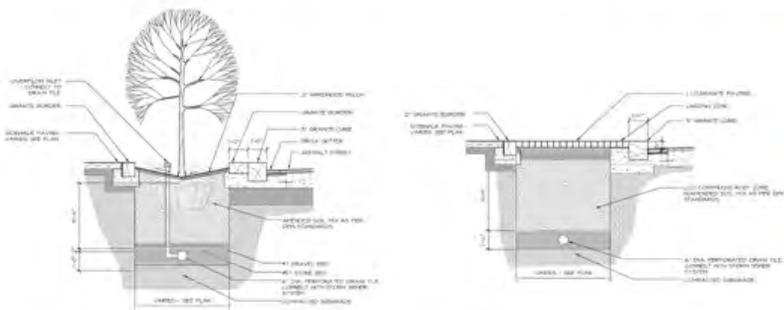
## PART A L.I.D. PLAN

Low Impact Development (L.I.D.) is a storm water management strategy that treats storm run off and pollution at the local site through small scale techniques. It serves as a complement to or replacement for traditional, large scale storm drain sewer systems and treatment facilities. Green roofs, rain gardens, permeable paving, and other L.I.D. technologies, gather rain water and help remove pollutants before slowly releasing the water into the watershed or sewer system. In our site, L.I.D. Tree Planting is used to gather and treat storm water from the sidewalk. This strategy will help improve the environmental health of the Anacostia and Potomac Rivers.

L.I.D. Tree Planting - Storm Water Capture

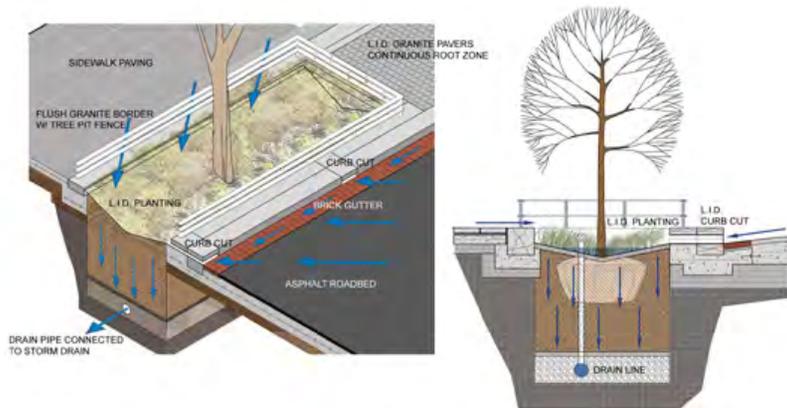
L.I.D. Tree Planting - Storm Water Bypass

### L.I.D. TREE PLANTING DETAILS

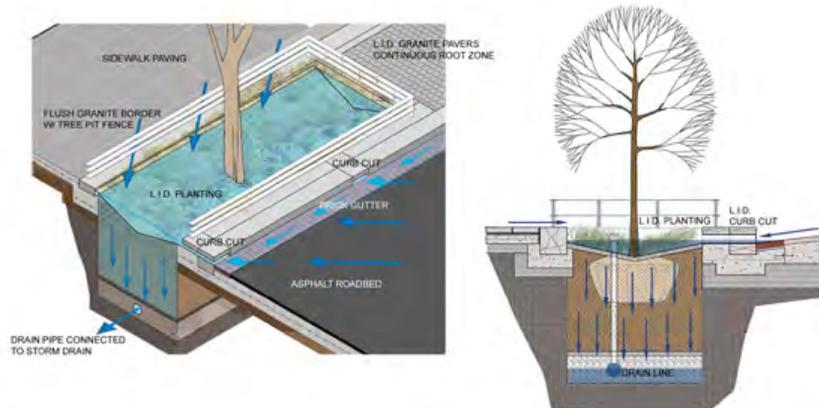


L.I.D. Block Diagram- N St. and 11/2 St.

Figure K-20: LID Details for the Preferred Alternative



L.I.D. Tree Planting - Storm Water Capture



L.I.D. Tree Planting - Storm Water Bypass

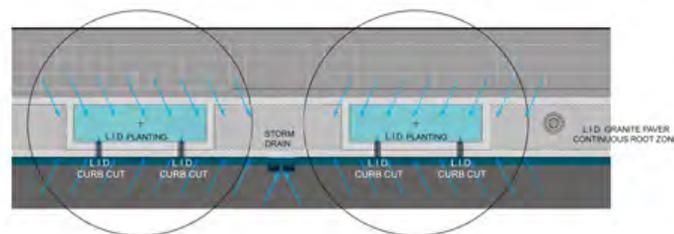
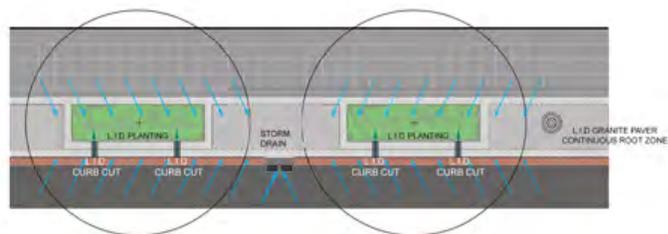


Figure K-21: LID Tree Pit Options for the Preferred Alternative

## Preferred Alternative

### Bryant Street Extension

Currently, Bryant Street NW is a one-way one-lane eastbound roadway which begins with a T-intersection at Georgia Avenue NW. The intersection with Georgia Avenue is controlled by a three-head signal and the corridor allows on-street parking on both sides of the roadway for most of the day. Currently, on the west side of Georgia Avenue (across from Bryant Street), is a parking lot used by Howard University employees.

In order to improve both vehicular and pedestrian accessibility in the east-west direction across the Howard University Campus and to the planned traffic circle at Sherman Avenue NW and Florida Avenue NW, an extension is proposed for Bryant Street from the intersection with Georgia Avenue to connect with the traffic circle. As a part of this extension of one-way eastbound Bryant Street, Barry Place is proposed to become one-way westbound from Georgia Avenue to Sherman Avenue to create a one-way pair. Four alternatives were developed for Bryant Street, all with a 32-foot-wide typical section, capable of accommodating two travel lanes with one lane of on-street parking or one lane of travel with two on-street parking lanes. The Bryant Street extension would provide quicker access to Sherman Avenue, alleviating delays and queues on New Hampshire and Florida Avenues to the north and south of the project area, as well as on Georgia Avenue itself, facilitate better pedestrian accessibility to the Howard University dormitory and the commercial areas on Georgia Avenue and Florida Avenue.



Figures K-22: Intersection of Bryant Street and Georgia Avenue (Current Conditions)



For each of the alternatives developed, the roadway alignments differ for Bryant Street, with some alternatives minimizing impacts to adjacent parcels along the south side of Bryant Street and some alternatives minimizing impacts to an adjacent electrical sub-station on the south side of 8<sup>th</sup> Street NW. In addition, avoidance of two electrical transformers at the intersection of 8<sup>th</sup> Street and Bryant Street (to the north of 8<sup>th</sup> Street), and at the intersection of Sherman Avenue and Bryant Street which serve the Howard University dormitory was considered. The alternatives developed are as follows:

- Alternative 1 proposes to avoid the sub-station and transformer at 8<sup>th</sup> Street completely, but minimizes the impact to the parcel at the west end near the traffic circle.
- Alternative 2 proposes to offset each intersection along Bryant Street, avoiding the substation, but impacting both transformers and minimizing the impacts to the adjacent parcels.
- Alternative 3 proposes to relocate the sub-station and both transformers while minimizing the impacts to the adjacent parcels. This alternative creates a skewed intersection at Georgia Avenue.
- Alternative 4 proposes to avoid the transformers and the sub-station completely by creating a straight alignment for the entire corridor, having the most impact to the adjacent parcels.

Although Alternatives 2 and 3 minimize the amount of land taken for the extension, the offset intersections (for Alternative 2) provide poor traffic operations and the high cost and time required for relocation of the sub-station (for Alternative 3) make these alternatives less desirable, therefore, alternatives 1 and 4 remain viable. For all alternatives, crosswalk improvements and markings are proposed for the intersection of Bryant Street and Georgia Avenue, and streetscape additions are proposed along the entire extension. Figures K-23 to K-26 illustrate each of the alternatives. Preferred alternative plan sheets are also shown in Figures B and AA at the beginning of this section.

# Preferred Alternative

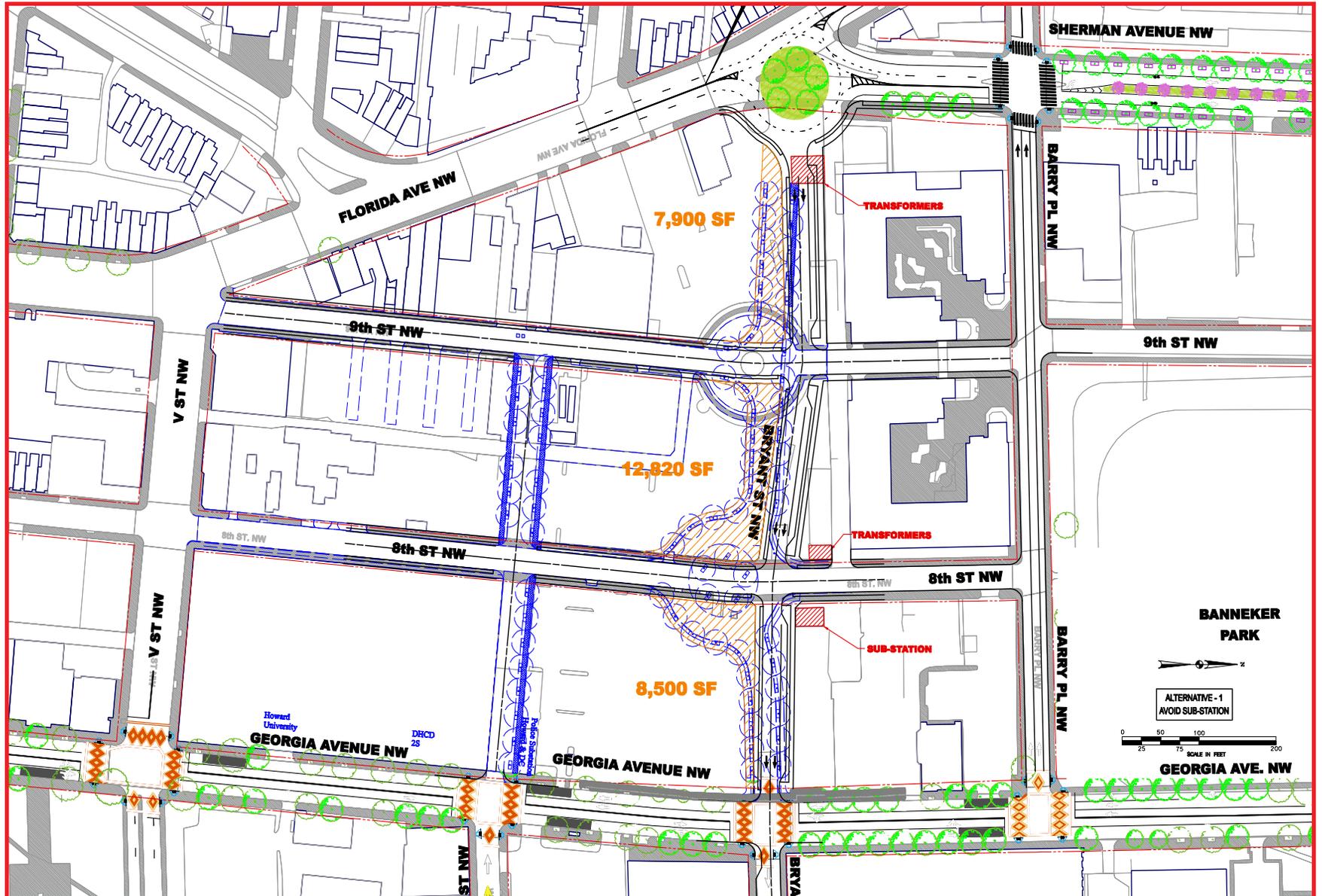


Figure K-23: Alternative 1

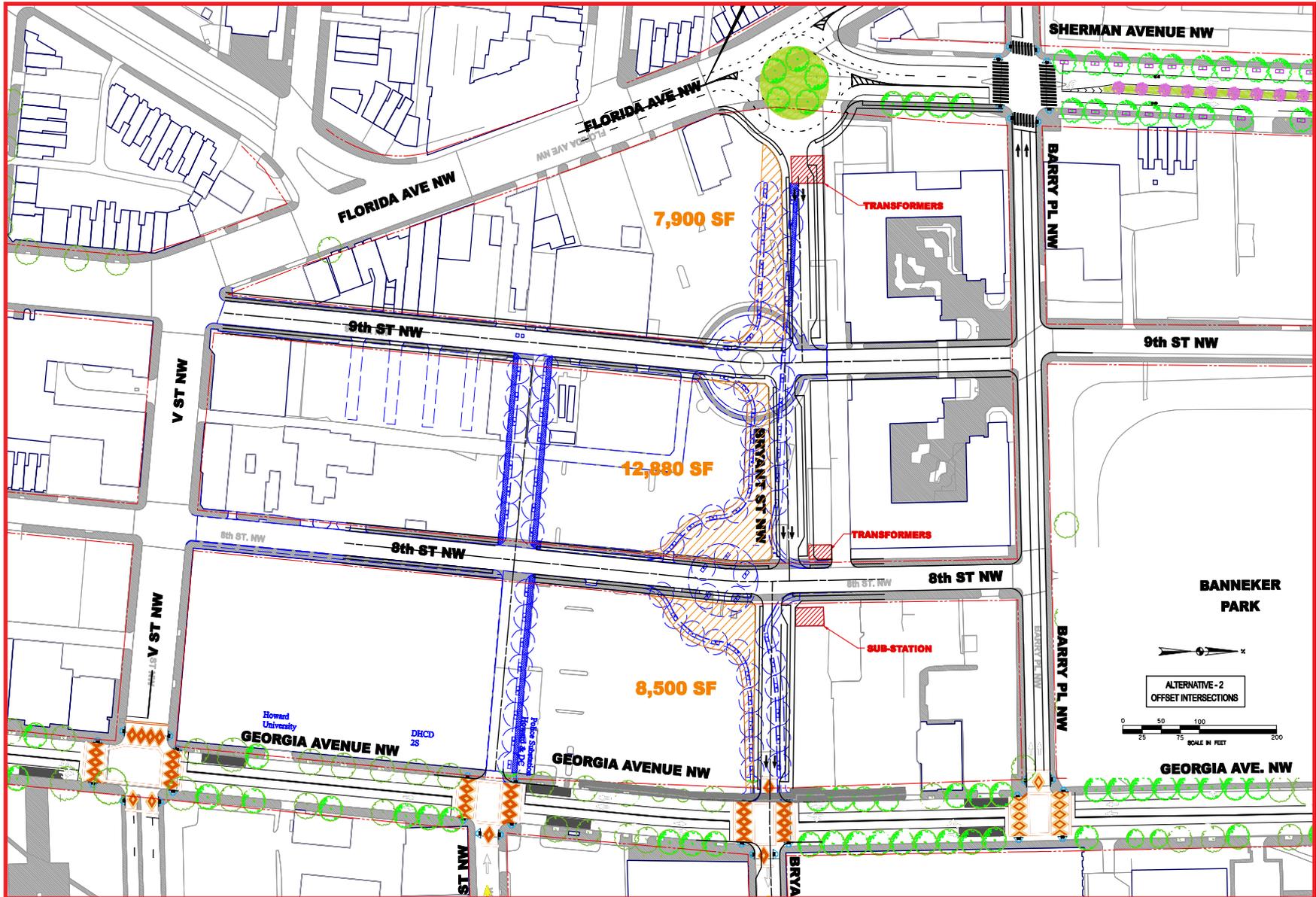


Figure K-24: Alternative 2

# Preferred Alternative

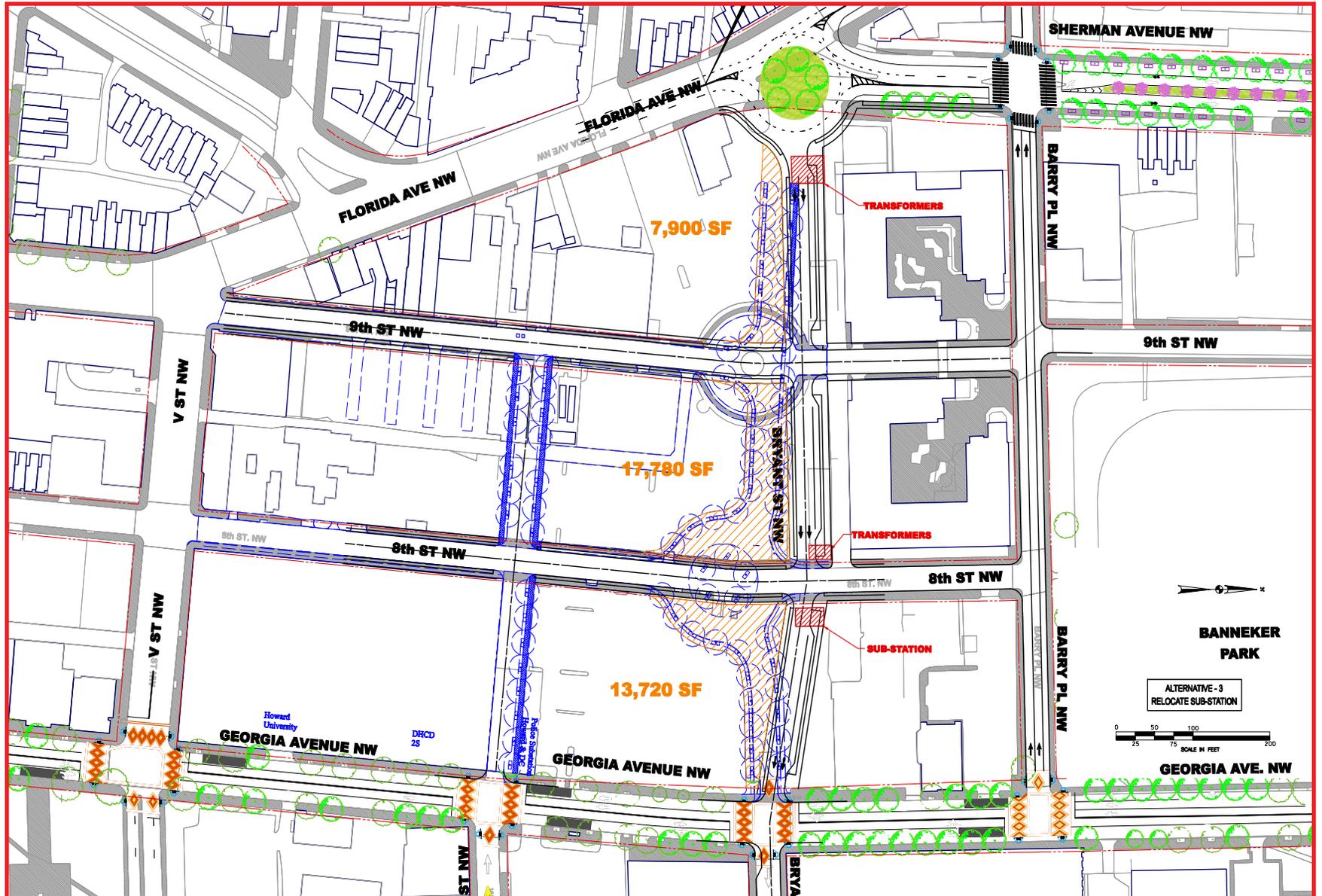


Figure K-25: Alternative 3

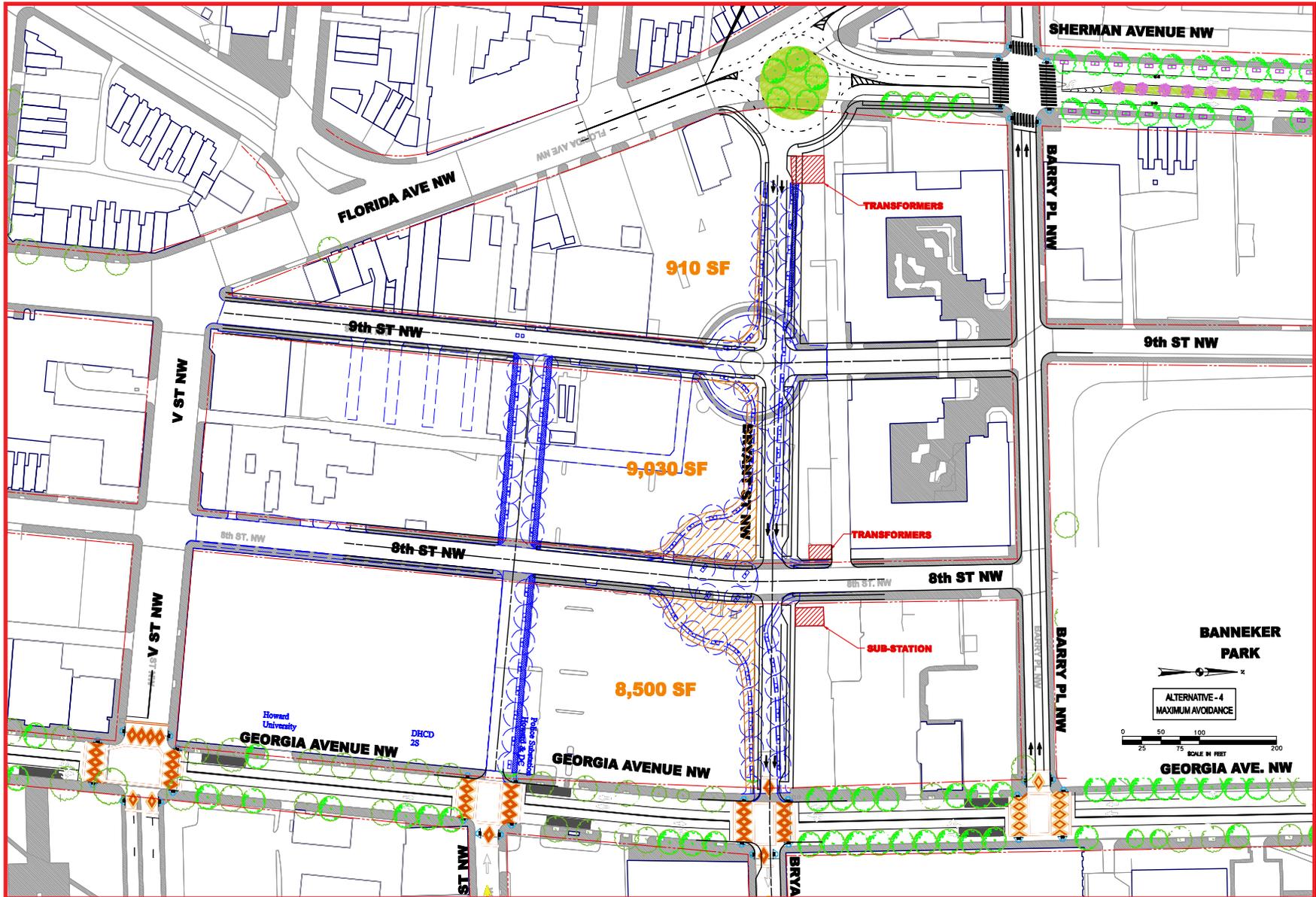


Figure K-26: Alternative 4

# L. Short-Term Recommendations



Figures L-1



L-2 The HAWK Signal System in Operation

Short-term improvements are limited to Georgia Avenue. This first phase engages cost-effective solutions that enhance pedestrian and vehicular safety along the corridor. These improvements do not involve significant construction, which help minimize community impacts. The short-term improvements, which are listed below, are expected to be completed by 2008.

- Milling and resurfacing the roadway with new pavement
- Re-striping travel lanes
- Installing parking lanes and corresponding pavement markings
- Re-striping existing crosswalks using high-visibility pavement markings
- Fixing and resurfacing back alleys
- Cleaning and repairing sidewalks along Georgia Avenue
- Removing pipe railings along sidewalks between Girard Street and Columbia Road
- Installing pedestrian signals with countdown timers at existing signalized intersections
- Optimizing existing traffic signals to allow a better traffic flow
- Increasing parking enforcement along Georgia Avenue
- Involving and coordinating with the Urban Forestry Administration to sustain proper maintenance of trees along the corridor
- Relocating entrance of McDonald's Restaurant from Georgia Avenue to 8th Street
- Implementing the HAWK (High-intensity Activated crossWalk) signal at the intersection of Georgia Avenue and Kenyon Street

## The HAWK Signal System

The High-intensity Activated crossWalk (also known as HAWK) signaling system is a combination of a beacon flasher and a traffic control signaling technique for marked crossings. The beacon signal consists of a standard traffic signal head with red-yellow-red lenses. The unit is normally off until activated by a pedestrian. When a pedestrian wishes to cross the street, he or she presses a button and the signal begins with a flashing yellow indication to warn the approaching drivers. The flashing yellow is then followed by a solid yellow indication, advising the drivers of the requirement to prepare to stop. The signal is

then changed to a solid red indication during the pedestrian interval, when drivers must stop at the crosswalk. The beacon signal then converts to an alternating flashing red, allowing drivers to proceed when safe. When installed at intersections, this application provides a protected pedestrian crossing without signal control for the side street.

Advantages of the HAWK system:

- Drivers are likely to stop for a form of traffic control resembling a traffic signal.
- Minimizes delay for major street traffic and avoids attracting additional vehicular traffic to the side street, which may be residential.

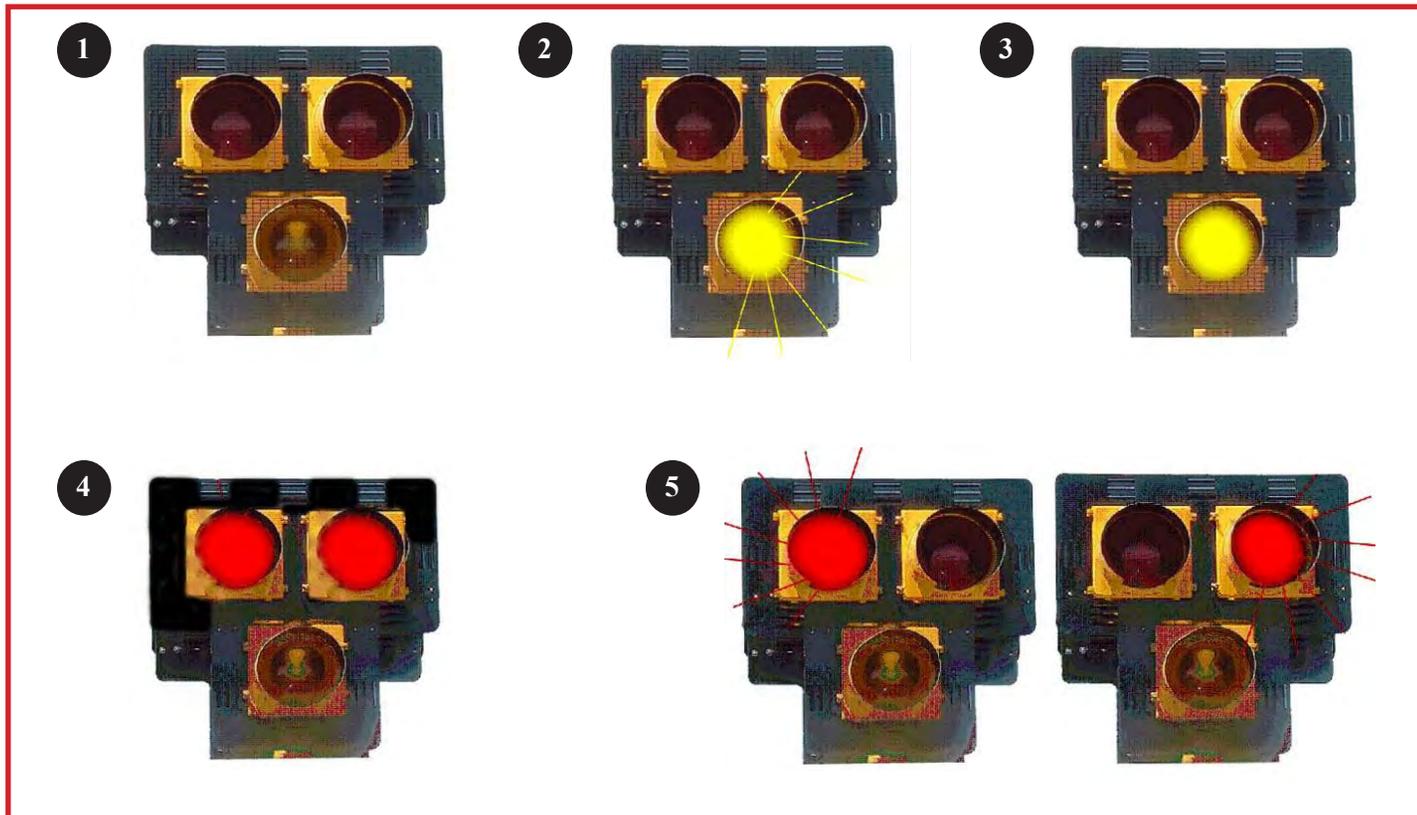


Figure K-3: Example of Sequence for a HAWK Pedestrian Beacon

# M. Long-Term Recommendations



Figure M-1: Lane Configuration of Georgia Avenue North of Howard Place



Figure M-2: Lane Configuration of Georgia Avenue South of Barry Place

The long-term phase of the project involves work on both Georgia and Sherman Avenues. In general, the goal of this phase is to further optimize pedestrian safety and traffic flow while enhancing the aesthetic properties of the corridor. These improvements are expected to be completed by 2010.

## Georgia Avenue

Along Georgia Avenue, parallel parking spaces would be reconfigured using LID treatments, which would improve the sustainability of Georgia Avenue by capturing stormwater runoff more efficiently. In addition, the outer traffic lanes would be shared with bicyclists and would be identified by shared lane markings (sharrows) on the pavement. Bulb outs, would be installed at several key points along the corridor to improve pedestrian safety by shortening the walking distances for pedestrians crossing Georgia Avenue. Bulb outs also have the effect of compelling drivers to reduce their speed due to their perceived narrowing of the roadway.

Lane configurations along Georgia Avenue would be modified to maintain the smooth flow of traffic and transit. These changes would involve the following:

- Between New Hampshire Avenue and Howard Place there would be two 11-foot traffic lanes and an 8-foot parking lane for both northbound and southbound directions.
- Between Howard Place and Barry Place there would be two 11-foot through lanes and an 11-foot right-turn-only lane in the southbound direction. In the northbound direction, there would be two 11-foot through lanes and an 8-foot parking lane.
- Between Barry Place and Florida Avenue there would be a 13-foot outer transit-only lane and an 11-foot mixed-traffic through lane for both southbound and northbound directions.

Other long-term improvements on Georgia Avenue would include the following:

- Installing wider sidewalks to provide larger areas for pedestrians traveling along Georgia Avenue
- Installing proper ADA ramps
- Installing crosswalks with special pavement treatment at key locations
- Installing fenced tree boxes and improved landscaping along Georgia Avenue



Figure M-3: Lane Configuration of Sherman Avenue

- Installing consistent street furniture (e.g., trash receptacles, benches, and bicycle racks) along Georgia Avenue
- Installing open fencing and art work at Banneker Park

### Sherman Avenue

To provide a more residential character and a pedestrian-friendly environment, improvements to Sherman Avenue would involve significant widening of the sidewalks and a complete reconstruction of the roadway. The reconstructed roadway would have two sets of 8-foot parking lanes and 14-foot travel lanes separated by a landscaped 10-foot-wide median. The 14-foot travel lanes would be shared with bicyclists and marked as such. Designated left-turn lanes would occupy the median at key intersections to maintain a smooth flow of traffic. Traffic circles would be constructed at the northern and southern ends of Sherman Avenue. These circles would provide a safer and more efficient traffic flow and help create gateways to Sherman Avenue.

Other long-term improvements on Sherman Avenue would include the following:

- Constructing wider sidewalks with fenced tree boxes
- Installing LID treatments to parking lanes
- Installing pedestrian signals with countdown timers at existing signalized intersections
- Installing consistent street furniture (e.g., trash receptacles, benches, and bicycle racks) along the corridor

# Long-Term Improvements

## Roadway Surfacing - Georgia Avenue

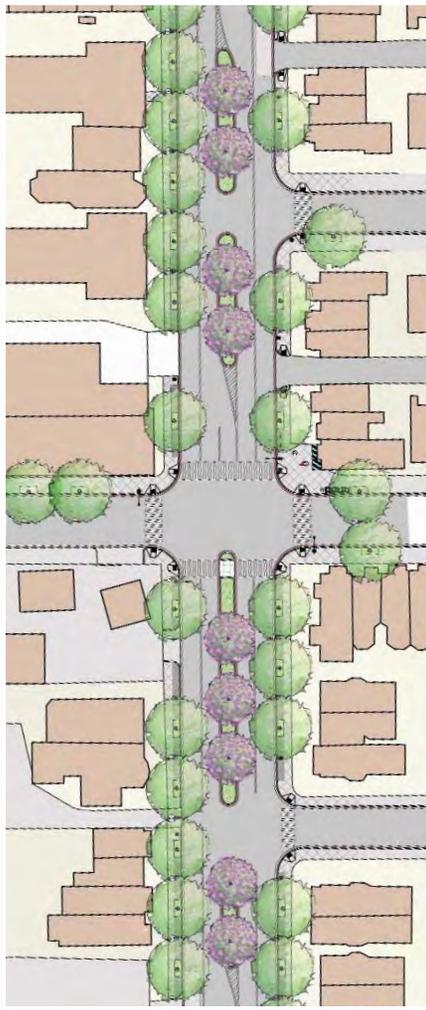


- Special Roadway Surface at Howard Town Center (V St. to Barry Place)**
- Red Colored Asphalt Paving roadway surface on Asphalt Base
  - Standard painted drive lane dividers
  - No on street parking Florida Avenue to Howard Place
- Standard Roadway Surfaces (Other than Howard Town Center)**
- Standard black asphalt
  - Standard white thermoplast painted drive lane and parking lane dividers
- Crosswalks**
- Special Crosswalks: Street print paving;
  - Standard Crosswalk: Thermoplastic ladder
- Dedicated Bus Lane Surfacing**
- Red stamped asphalt paving
- Parking Zone Paving**
- option 1: standard black asphalt
  - option 2: LID zone
- Paving Markers**
- Solar powered and/or hard wired light units at crosswalks.
- Bump Outs**
- To create shorter distance for pedestrian crossing
  - To increase visibility of unsignalized crosswalks

Special stamped asphalt paving around Howard Town Center and in the dedicated bus lanes

Figure M-4: Roadway Surfacing for Georgia Avenue

## Roadway Surfacing - Sherman Avenue



Standard painted drive and parking lanes      Poured in Place Concrete Bus Pad

- Roadway Surfaces**
- Standard black asphalt
  - Standard painted drive lane and parking lane dividers
- Bus Pull-up and Parking Zone Accent Materials**
- Bus pad on street surface poured in place concrete
  - Parking zone street surface standard asphalt

Sherman Avenue Roadway

Figure M-5: Roadway Surfacing for Sherman Avenue

# N. Implementation Plan

## Chronological Steps

### August 2007 to April 2008 (FY08)

Final design for Sherman and Georgia Avenues

### May 2008 to May 2009 (FY08-09)

Construction of Sherman Avenue  
Sidewalk upgrades and replacement from Otis Place to Girard Street  
Redo Banneker Park (May-July)

### May 2009 to November 2009 (FY09-10)

Mill and resurface Georgia Avenue from Otis Place to Barry Place  
Replace sidewalks and build bulb-out at Howard Place

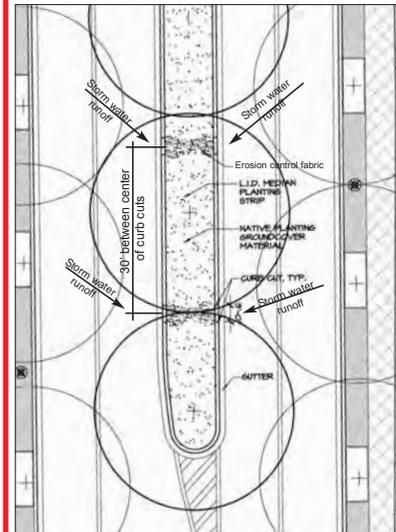
### ~2010

Complete Georgia Avenue construction south to Florida, timed to be done after Howard Town Center is completed, or timed to maximize construction staging areas.

## Alley Repair and Resurfacing

Alleys would be resurfaced between Sherman and Georgia Avenues and between Euclid Street and Otis Place. This would provide businesses and residences with improved mobility and access during construction. It would also ensure that deliveries for local businesses occur off of Georgia Avenue, thereby improving construction and long-term traffic and pedestrian flow.

### Center Median - Sherman Avenue



Center Median with Curb Cut Openings



LID Storm Water Retention Design

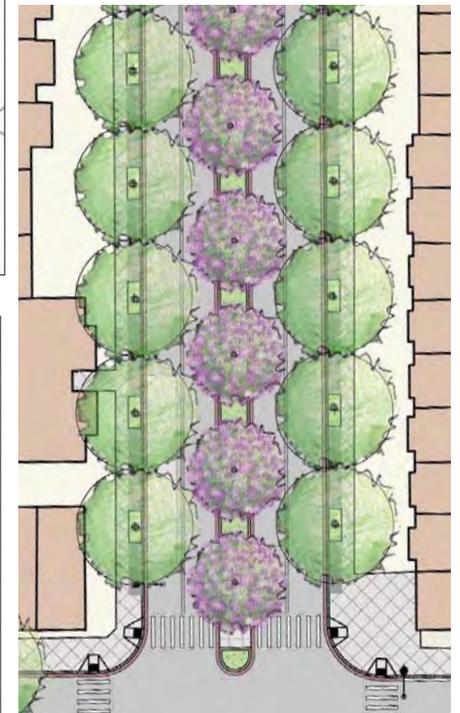
### Boulevard Center Median

LID storm water retention design: runoff from roadways directed into 3'-0" curb cuts in median spaced at 30' o.c.

Raised curb with open curb cuts and drains to capture runoff

Ground cover surface native plant material

Ornamental trees in median



Typical Center Median

Figure N-1: Proposed Center Median for Sherman Avenue

# Implementation Plan

## Site Furnishings - Georgia Avenue



Teardrop Light Fixture



Double Washington Globe



Single Washington Globe



Bench



Trash Receptacle

### Street lights:

Teardrop at intersections  
 Double Washington Globes from Florida to Gresham  
 Single Washington Globes from Gresham to Otis

**Trash receptacles:** Victor Stanley with Howard University or Lower Georgia Avenue emblems

**Standard Benches:** Victor Stanley with Howard University or Lower Georgia Avenue emblem

**Bicycle racks:** U Shape racks, to be located within the curb zone and in bump outs when space permits

**Newspaper Boxes:** stackable multi news boxes to replace individual boxes

### Bus Stop Shelters:

Standard - with Lower Georgia Avenue/Howard University Name  
 Express Bus

**Tree Pits:** Ornamental iron tree pit fencing

**Parking Meters:** Multi-space boxes for on-street parking



Ornamental Treepit Fence



Bike Rack



Multi-space Parking Meter



Bus Shelter



Multi-stack Newspaper Boxes

## Construction of Sherman Avenue

Sherman Avenue would be completely reconstructed and transformed into a pleasant, tree-lined street that would enhance adjacent residences while allowing regular traffic flow.

If construction began from the south (at the intersection with Florida Avenue), Sherman Avenue could be reconstructed by fully closing the street between Florida Avenue (or Barry Place, depending upon more detailed traffic analysis) and Euclid Street. This section contains few residences and curb cuts, and Euclid Street could be used as a traffic detour. This would provide residents north of Euclid Street with a completed section that shows the final design. North of Euclid Street, construction is divided into two geographic sections. Within these sections, the road would be constructed in halves. The first half would include construction of the median.

## Construction of Georgia Avenue

Construction along Georgia Avenue would be more phased than that for Sherman Avenue to minimize disruption to local residents and businesses. Accommodations for pedestrians would be made during reconstruction of sidewalks from Otis Place to Girard Street, and access would be maintained to local businesses during the milling and resurfacing of the roadway. Reconstruction of sidewalks on Lower Georgia Avenue early in the project would make a small-scale but highly valuable improvement to the public realm earlier in the process than if such improvements were made when it is most efficient (i.e., after construction of Howard Town Center). In addition, as improvements for middle Georgia Avenue are currently in design, completing a northern element of the Lower Georgia Avenue project would result in a less interrupted pattern to the improvements. Finally, construction at Banneker Park should be timed so that it does not interfere with festivals.

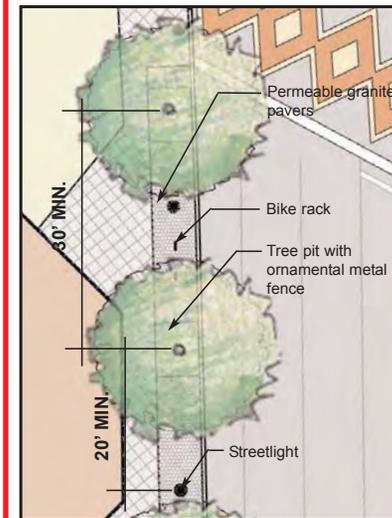
Figure N-2: Street Furniture for Georgia Avenue

## Potential Funding Sources

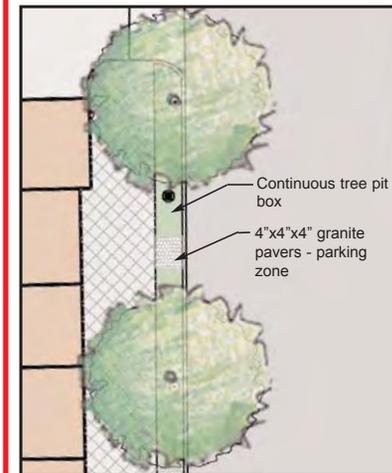
Banneker Park:	Neighborhood Investment Fund DC Council on Arts and Humanities Transportation Enhancements
Sherman Avenue:	Federal Program
Georgia Avenue:	Great Streets Funds
Alleyways:	Great Streets Funds

Great Streets Funds can be used as a local match for federal dollars.

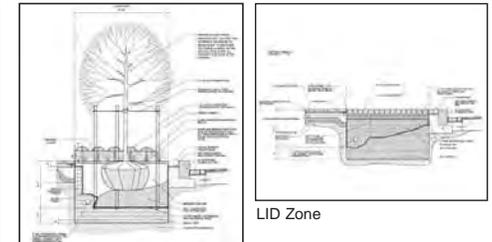
### Street Trees & Planting - Georgia Avenue



Tree Pit Zone and Spacing



Continuous Tree Pit Zone



Tree pit Detail

#### Street tree pit design

- 5'x10' standard tree pit size
- For sidewalks 8' wide, 4.5' tree pits
- 10'x10' tree pit size for sidewalks 20' or wider
- Ornamental fence for tree pit protection
- Low-maintenance ground cover for tree pits
- Continuous tree pits to be located between Barry Place and Euclid Street. Above Kenyon Street, continuous pits where there is room.

#### LID zones

- Permeable surface paving over structural soil to allow for tree growth

#### Ornamental trees & accent plantings

- In planting beds at select corner "mini-park" locations and at select wide sidewalk areas.

#### Tree Species

- Canopy Trees - London Planetree 'Bloodgood,' Red Maple
- Ornamental Trees - 'Okame' Cherry, Golden Raintree

Figure N-3: Street Trees & Plantings for Georgia Avenue

# Punch List

## Punch List of Costs

In the following table, a punch lists of costs associated with the aforementioned short- and long-term costs for the Georgia Avenue and Sherman Avenue corridors. The list outlines the type of recommendation, (either long-term or short-term), the location of the proposed recommendations (along Georgia or Sherman Avenue), a description of the recommendation suggested and the cost associated with this task. All costs are approximate based on analysis performed April 2008.

## LGA Transportation and Streetscape Study Punch List

**Project Name:** Lower Georgia Avenue Transportation and Streetscape Study

**Project Number:**  
23116A  
**Completed By:** **Parsons**  
**Brinckerhoff**

**Date:** May 2008

Type	Location	Description	Cost	Priority	Status	Date Completed
Short Term Rec	Along Georgia Avenue Corridor, Florida Ave to Otis Place	Milling and resurfacing the roadway with new standard black pavement w/ standard painted drive lane and parking lane dividers	\$2,422,686	High	Not complete	
Short Term Rec	Along Georgia Avenue Corridor, Florida Ave to Otis Place	Fix and resurface back alleys (superpave, tack coat and mill)	\$462,555	High	Not complete	
Short Term Rec	At the intersection of Georgia Avenue and Kenyon Street	Implement the HAWK signal at the intersection of Georgia Avenue and Kenyon Street	\$200,000	High	Not complete	
Short Term Rec	Along Georgia Avenue Corridor, Florida Ave to Otis Place	Optimize existing traffic signals to allow a better traffic flow	\$1,067,200	High	Not complete	
Short Term Rec	Along Georgia Avenue Corridor, Florida Ave to Otis Place	Re-strip travel lanes and re-strip existing crosswalks using high-visibility pavement markings and thermoplastic ladder	\$181,380	High	Not complete	
Short Term Rec	Along Georgia Avenue Corridor, Florida Ave to Otis Place	Install pedestrian signals with countdown timers at existing signalized intersections	\$1,200,000	High	Not complete	
Short Term Rec	Along Georgia Avenue, between Girard Street and Columbia Road	Remove pipe railings along sidewalks	\$8,500	High	Not complete	
Short Term Rec	Along Georgia Avenue, Florida Ave to Otis Place	Increase parking enforcement	TBD	High	Not complete	
Short Term Rec	Along Georgia Avenue, Florida Ave to Otis Place	Involve and coordinate with the Urban Forestry Administration to sustain proper maintenance of trees along the corridor	N/A	High	Not complete	
Short Term Rec	Georgia Avenue, McDonald's Restaurant	Relocating entrance of McDonald's Restaurant from Georgia Avenue to 8th Street	\$50,000	High	Not complete	

**Project Name:** Lower Georgia Avenue Transportation and Streetscape Study

**Project Number:** 23116A

**Completed By:** Brinckerhoff

Parsons

**Date:** May 2008

Type	Location	Description	Cost	Priority	Status	Date Completed
Long Term Rec	At Howard Town Center, along Georgia Avenue (V Street to Barry Place)	Install special roadway surface (red colored asphalt paving roadway surface on asphalt base) with standard painted drive lane dividers and no on street parking markings from Florida Ave to Howard Place	\$1,333,925	Low	Not complete	
Long Term Rec	At Howard Town Center, along Georgia Avenue (V Street to Barry Place)	Install crosswalks with special street print paving	\$978,080	Low	Not complete	
Long Term Rec	Along Georgia Avenue, from Florida to Barry Place	Install fenced tree boxes and ground cover	\$35,200	Low	Not complete	
Long Term Rec	Along Georgia Avenue, from Barry to Harvard	Install fenced tree boxes and ground cover	\$72,666	Low	Not complete	
Long Term Rec	Along Georgia Avenue, from Harvard to Kenyon	Install fenced tree boxes and ground cover	\$37,260	Low	Not complete	
Long Term Rec	Along Georgia Avenue, from Kenyon to Otis	Install fenced tree boxes and ground cover	\$79,023	Low	Not complete	
Long Term Rec	Along Georgia Avenue, from Florida to Barry Place	Install benches, trash receptacles, tree pit fence, wayfinding signage, teardrop light, and single washington globes	\$254,380	Low	Not complete	
Long Term Rec	Along Georgia Avenue, from Barry to Harvard	Install benches, trash receptacles, tree pit fences, wayfinding signage, teardrop light, single washington globe, bicycle racks, and double washington globes	\$993,842	Low	Not complete	
Long Term Rec	Along Georgia Avenue, from Harvard to Kenyon	Install benches, trash receptacles, tree pit fence, wayfinding signage, teardrop light, single washington globe, and bicycle racks	\$725,650	Low	Not complete	
Long Term Rec	Along Georgia Avenue, from Kenyon to Otis	Install benches, trash receptacles, tree pit fence, wayfinding signage, teardrop light, single washington globe, and bicycle racks	\$1,195,195	Low	Not complete	
Long Term Rec	Along Georgia Avenue, from Florida to Barry Place	Install ADA ramps	\$15,500	Low	Not complete	
Long Term Rec	Along Georgia Avenue, from Barry to Harvard	Install ADA ramps	\$25,500	Low	Not complete	
Long Term Rec	Along Georgia Avenue, from Harvard to Kenyon	Install ADA ramps	\$15,500	Low	Not complete	
Long Term Rec	Along Georgia Avenue, from Kenyon to Otis	Install ADA ramps	\$21,000	Low	Not complete	
Long Term Rec	Along Sherman Avenue, Barry Place to New Hampshire Avenue	Install LID treatments to parking lanes (PIP concrete paving, granite curb and brick paving, treepit, granite cobbler over LID, concrete curb and gutter and stormwater retention median)	\$3,272,475	Low	Not complete	
Long Term Rec	Along Sherman Avenue, Barry Place to New Hampshire Avenue	Install consistent street furniture (benches, trash receptacles, tree pit fence, wayfinding signage, teardrop light, single washington globes)	\$2,675,188	Low	Not complete	
Long Term Rec	Along Sherman Avenue, Barry Place to New Hampshire Avenue	Install trees and ground cover	\$170,370	Low	Not complete	
Long Term Rec	Along Sherman Avenue, Barry Place to New Hampshire Avenue	Install pedestrian signals with countdown timers at existing signalized intersections	\$2,424,000	Low	Not complete	
Long Term Rec	Along Sherman Avenue, Barry Place to New Hampshire Avenue	Replace and repair copings, fences and steps	\$200,000	Low	Not complete	
Long Term Rec	Along Sherman Avenue, Barry Place to New Hampshire Avenue	Install proper ADA ramps	\$51,000	Low	Not complete	
Long Term Rec	Along Sherman Avenue, Barry Place to New Hampshire Avenue	Install traffic circles at New Hampshire/Park and Florida/Sherman	\$2,332,936	Low	Not complete	
Long Term Rec	Along Sherman Avenue, Barry Place to New Hampshire Avenue	Install wider sidewalks, medians, travel and parking lanes (10 foot wide median, 14 foot travel lanes, two sets of 8-foot parking lanes)	\$2,714,078	Low	Not complete	
Long Term Rec	Along Georgia Avenue, from Florida to Barry Place	Reconfigure parallel parking spaces using LID treatments (PIP concrete paving, granite curb and brick gutter, precast concrete pavers, treepit, and granite cobble over LID)	\$2,086,942	Low	Not complete	
Long Term Rec	Along Georgia Avenue, from Barry to Harvard	Reconfigure parallel parking spaces using LID treatments (PIP concrete paving, granite curb and brick gutter, precast concrete pavers, treepit, granite cobble over LID and retaining wall)	\$1,778,403	Low	Not complete	
Long Term Rec	Along Georgia Avenue, from Harvard to Kenyon	Reconfigure parallel parking spaces using LID treatments (PIP concrete paving, granite curb and brick gutter, treepit, and granite cobble over LID)	\$853,768	Low	Not complete	

# O. Acknowledgements



Figure O-2: Residents and team members alike work together to create a more suitable Lower Georgia Avenue study area

## Agency Team Members

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