The Committee of 100
on the Federal City

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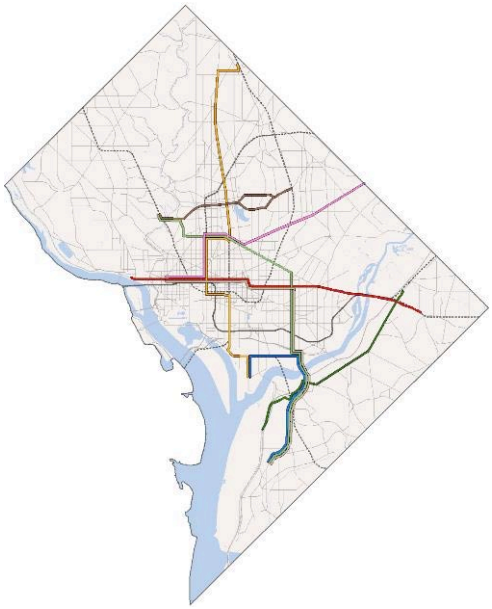
BUILDING A WORLD-CLASS STREETCAR SYSTEM FOR A WORLD-CLASS CITY

System Recommendations and Route Assessment



A Report to the Mayor and Council of the District of Columbia

Prepared by the
Streetcar Working Group of the Subcommittee on Transportation
Committee of 100 on the Federal City

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January 2011

Also available on our web site:
<http://www.committeeof100.net>

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EXECUTIVE SUMMARY and RECOMMENDATIONS

In early 2010, four members of The Committee of 100 traveled the 37-mile proposed streetcar system and conducted a first-hand route assessment; testified on three occasions before the DC Council; met with other streetcar advocates, city officials and property owners; and examined wireless streetcar technologies around the world. On June 14, 2010, we distributed to the DC Council our analysis and recommendations entitled *Streetcar Planning Requirements*.

This report provides a summary of current challenges and official actions to date; an assessment of the proposed streetcar routes to link the city's neighborhoods; and seven recommendations summarized below:

Seven Priorities to Advance Streetcars for DC

#1: *Show Us the Money:*
Develop a streetcar business, financial & governance plan;
and an equipment & facilities master plan.

#2: *Strengthen Community Character Through Appropriate Economic Development:*
Develop a land use plan to strengthen the neighborhoods streetcars will serve.

#3: *Move Out of the Past:*
Establish a baseline assessment of streetcar technology worldwide
and move rapidly towards a wireless system.

#4: *Buy for a Wireless Future:*
Acquire only new streetcars that can eventually be converted to wireless technology.

#5: *Obey the Law:*
Comply with NEPA and all other environmental and preservation laws.

#6: Banish the Devil from the Details:
Rethink some routes; develop a scaled street plan for each phase.

#7: Don't Just Do It; Do It RIGHT:
Engage the public in substantive and sustained collaboration.
Craft a comprehensive Streetcar Enabling Act to ensure a world-class system for a world-class city.

CHALLENGES: The new Mayor and Council face several immediate challenges as they launch a world-class streetcar system for our city:

- Complete by 2012 the H St./Benning Rd. segment with a viable connection to Union Station within the existing budget;
- Rethink the proposed routes in Anacostia through an open and collaborative planning process with community residents and businesses before any additional construction; Develop a realistic plan in consultation with affected businesses and residents to finance construction and operation of the 37-mile system;
- Adopt a governance structure that includes a meaningful role for citizen advisers in developing the system;

- Implement the Transportation Infrastructure Amendment Act of 2010 by establishing a credible baseline against which to measure the life-cycle costs and benefits of wireless streetcar technology every three years as called for in the legislation;
- Re-examine the DDOT task orders issued to the streetcar consultants under the past city administration to ensure that they will produce the results desired by the new administration; and
- Comply with environmental law by initiating a system-wide EIS.

BACKGROUND:

In **April 2010** DDOT issued its *DC Transit Future System Plan* that recommended funding and financing options: 25% federal funding; 25% DC funding; 25% "value capture funding" from a special property assessment within ¼ mile of the streetcar line; and 25% "user fee funding" from fare-box revenues plus commercial and residential parking fess from areas near the streetcar line (page 4-52).

In **May 2010**, the DC Council approved $47 million in FY 2011 funding for the first segment of a proposed 37-mile streetcar system to connect neighborhoods and spur business and residential investment along the proposed routes with the condition that DDOT submit a detailed plan to include, among other elements, financing and governance, analysis of alternatives for Phase I maintenance facilities and connections with Metro, and examination of wireless streetcar technologies.

In **October 2010**, DDOT submitted the *DC Streetcar System Plan: H St./Benning Rd. and Future Segments and Extensions.*[1] The Plan fails to provide information the city needs in several respects:

- **The District is installing streetcars on the ground before anyone has a clear grasp of how the city will finance the system.** DDOT's most recent proposal for capital funding relies on two principal sources: 1) federal construction funds that have yet to be awarded; and 2) after 2014, funds redirected from the original Metrorail debt service to streetcars. But is it realistic to think that Metro will not require another large loan will to repair the aging system, and that the District will bear no burden for additional Metro debt service? Absent from DDOT's October 2010 plan is any discussion of financial participation by the business community and property owners through tax increment financing, special assessments or taxes on increased private property values, all addressed conceptually in the 2009 Brookings Institution streetcar financing study and discussed as an option in the April Plan. Why was private financing discussed in the April 2010 DDOT Streetcar Plan, but absent from the October 2010 Plan?

  The H St./Benning Rd. corridor, with its long history of disinvestment, has now experienced years of costly delay in promised economic development due to road resurfacing, streetcar track and overhead wire installation and streetscape improvements. The end is not yet in sight. Businesses are suffering and urgently seeking city tax relief to keep operating. Foreclosures on some properties appear to be imminent. It is imperative that the city complete work quickly, place a moratorium on foreclosures until the road work is completed, and provide some restitution to merchants who have stayed and invested in the area and should not be penalized for their patience and faith in the future.

[1] The October 2010 *DC Streetcar System Plan: H St./Benning Rd. and Future Segments and Extensions* is available online at: http://ddot.dc.gov/DC/DDOT/On+Your+Street/Mass+Transit+in+DC/DC+Streetcar/System+Plan+October+2010?7045044cf6acb210VgnVCM1000002905c90aRCRD_itemsPerView=10&renderPage=1&vgnextrefresh=1

- **DDOT's review of wireless technologies is neither accurate nor complete.** Absent from the discussion is any analysis of projected life cycle costs of other systems or the experience to date in cities that have wireless, or partially wireless, systems. Frequently-made-but-as-yet-unsubstantiated statements that a wireless system would cost three times as much as the currently planned system have distorted public discussion of wireless technology. DDOT's review further sets back discussion of alternative technologies for DC with several statements about technology that are misleading. We discuss these misstatements in Appendix B: *Critique of DDOT's Wireless Technology Assessment*.

- **DDOT proposes a business-as-usual approach to citizen engagement rather than meaningful collaboration on public policy issues affecting the entire system**. "Open houses" and e-mail notification of project progress are limited tools of engagement, and neither will foster sustained dialogue about fundamental questions of system development.

In **November 2010**, DDOT began issuing a series of eight task orders to HDR Engineering, Inc., one of the selected streetcar consultants, to procure vehicles, conduct environmental review only in Anacostia, and develop a program management plan. Other task orders include finance and governance, operations and maintenance, communications, design and ongoing program management and peer review.

In **December 2010**, the DC Council enacted the **Transportation Infrastructure Amendment Act of 2010**.[2] While the Act is a step in the right direction regarding wireless technology, it falls short of a comprehensive Streetcar Enabling Act that would state the vision and purpose for the system, and lay out the requirements for system planning and system-wide environmental review.

Also in **December 2010**, the Federal Transit Administration awarded the District a grant for streetcar planning and for a study of streetcar propulsion alternatives; and DDOT announced that it is pursuing a wireless streetcar prototype. **These are positive steps to implement the temporary legislation and to achieve *a well planned, world-class streetcar system for DC***.

DISCUSSION:

#1: *Show Us the Money:*
Develop a streetcar business, financial & governance plan; and an equipment & facilities master plan.

The city is implementing Phase I without a clear idea of how the system will be financed, governed or maintained. DDOT has not held public discussions with business leaders and landowners on H St. or in Anacostia about what they will be expected to pay over time to subsidize the system. As an immediate priority, the city should work with the streetcar consultants *and the public* to:

- *Conduct a professional assessment of the capital, operating and maintenance requirements of the system and assess all potential funding sources to finance those requirements* including a realistic role for competitive federal funds, DC bonding authority for capital projects, private investment and return, fare box revenue, and special business and other property assessments. The Mayor and Council should

[2] The Act authorizes the mayor to install aerial wires solely for the purpose of powering transportation infrastructure projects, to designate wire-free zones, to require the mayor to submit to the Council a plan for each phase of the streetcar transit system subsequent to the H Street/Benning Road streetcar transit line, to require a periodic report on the technology and feasibility of converting to non-overhead wire propulsion for streetcar; and to amend the Department of Transportation Establishment Act of 2002 to clarify that the District Department of Transportation has authority to plan, coordinate, regulate and operate the DC streetcar program.

carefully evaluate the *assumptions* underlying DDOT's financing projections including reliance on re-programmed funds from WAMATA debt service; distribution of costs (local tax/bonding funds, federal funds and private funds) to complete and operate the system; and merchants' and landowners' ability to participate in covering debt service and long-term operations and maintenance, particularly along less-affluent corridors of the system where the benefits of the system are most needed.

- *Provide detailed information on anticipated revenue from private sources, and hold public conversations with businesses and residents who will be expected to pay.*

- *Assess alternative governance structures in light of the experience with Metro and the Circulator* and streetcar governance in other jurisdictions.

- *Develop a system-wide master plan and cost projections for streetcar equipment and service contracts, land acquisition, and maintenance and storage facilities.* The city has not determined locations for equipment storage and maintenance except for Phase I along H St./Benning Rd. where the properties have not yet been assembled. Yet, vacant land for future storage and maintenance facilities is rapidly disappearing for other uses. Further, the size and neighborhood impact of these ancillary facilities could be considerable. The city should:
    - *Begin early discussions with private owners whose property may be affected by the location of maintenance and storage facilities;*
    - *Inventory and set aside publicly owned properties that can house these ancillary facilities; and*
    - *Assess the costs of condemning property on H St. in terms of time, money and good will; and examine alternatives to condemnation.*

#2: Strengthen Community Character Through Appropriate Economic Development: Develop a land use plan to strengthen the neighborhoods streetcars will serve.

The Comprehensive Plan Generalized Policy Map that classifies the development potential for every part of the city should be the guiding document in land use planning for the streetcar corridors. Several corridors along streetcar routes are in great need of investor confidence: Georgia Ave., R.I. Ave., H St., Minnesota Ave., as well as areas in Anacostia. One of the compelling justifications for investing in a streetcar system is that fixed, permanent improvements increase the confidence of property owners, developers and lenders. At the same time, most streetcar corridors will also serve well-established residential neighborhoods, many of which are in historic districts or adjacent to federal lands and buildings.

- *Communities adjacent to streetcar corridors should not be rezoned to achieve inappropriate increased density or threatened with large-scale development.* In selective cases, consistent with the Land Use Element of the Comprehensive Plan, rezoning may be warranted; however, economic development should be consistent with land use requirements in the adopted Plan.

- *Prohibit trading zoning incentives and bonuses for private capital/operating investment in the system.* Unless the Mayor and Council adhere to the Council-adopted Comprehensive Plan, the door will be open for backroom deals and developer-dominated decisions on land use. As streetcars increase property values and business vitality, benefits will flow back to the city in the form of increased property and income taxes.

#3: *Move Out of the Past:*
Establish a baseline assessment of streetcar technology worldwide and move rapidly towards a wireless system.

(See Appendix A: *A Word on Wireless* and
Appendix B: *Critique of DDOT's Wireless Technology Assessment*)

The Committee of 100 has opposed overturning a federal law that banned overhead streetcar wires in DC since 1889, supporting instead a limited and temporary exception for wires along H Street/Benning Road to fulfill expectations of merchants and residents and to honor city commitments that a streetcar will operate by 2012. The Transportation Infrastructure Act of 2010 requires a technology assessment every three years. Now the challenge is to establish a well-researched, independent and credible baseline study of wireless technologies against which future developments can be measured.

DDOT's description of alternative technologies included in the October 2010 *Plan* is brief and incomplete, leaving the reader with the erroneous conclusion that wireless technology is still untested, experimental and should be dismissed from further consideration at this time.

- *DDOT should contract with an independent expert (without recent ties to DDOT and independent of the current streetcar consultants) to formally assess the full capital and life-cycle costs of existing and emerging technologies worldwide and report on the findings to the Council and residents.* The assessment should objectively evaluate non-overhead wire systems in light of the climate, operating conditions and the requirements for view protection in DC; critique "open source" and proprietary technology with analysis of their pros and cons; lay out a clear strategy for competition among a variety of vendors and actively solicit their interest in bidding on components of the DC streetcar system; and examine system costs of various technologies including first-time and life-cycle costs of each feasible system. In adopting a course for the future, Council should give greater proportional weight to those technologies that are capable of operating without wires than it has done to date.

- *DDOT should open discussions on a joint technology assessment with neighboring jurisdictions in Virginia and Maryland* that are also planning streetcar systems and have not yet specified requirements for the systems they will acquire. Such a joint study could save both future costs and time in addressing basic technological questions and could lay the foundation for a future regional streetcar system.

#4: *Buy for a Wireless Future:*
Acquire only new streetcars that can eventually be converted to wireless technology.

(See Appendix A: *A Word on Wireless*)

It is our understanding that DDOT currently plans to buy more streetcars like the three initial ones from the Czech Republic that were designed before wireless technology was more widely available and in service. These cars cannot be adapted to new battery/capacitor or other non-overhead wire technologies. The April 10, 2009, *Battery Drive Feasibility Study* prepared by LTK Engineering addressed the issue of the changes required to modify the United Streetcar prototype design to accommodate sufficient batteries to operate for approximately one mile. The report concluded that it was not practical to adapt these older cars because it would require structural redesign of the vehicles to support the weight of the batteries.

- *DDOT should not acquire any streetcars now or in the future that cannot be adapted to run on a wireless system.* Instead, the city should investigate selling the current cars and acquiring new ones such as the handsome and modern streetcars manufactured by CAF pictured below that are now in service in Seville, Spain and that can operate either with overhead wires or without overhead wires as indicated by the sign on the side of each car-- "Tranvia Sin Catenaria" – Tramway Without a Catenary.

Figure 1: CAF Catenary-free streetcar (Photo Courtesy of Trainelec)

#5: *Obey the Law:*
Comply with NEPA and all other environmental and preservation laws.

Environmental and preservation laws, most notably the National Environmental Policy Act (NEPA) and the National Historic Preservation Act (NHPA), require DC to develop a full Environmental Impact Statement (EIS) for the streetcar system. Efficiently conducted EIS's for large-scale public works have proven nationwide to be a positive planning measure to identify problems before they occur and to ensure front-end strategies for mitigation. Currently, DDOT plans to conduct only *segmented environmental review, long discredited in the context of other public works projects such as highways*. The city should:

- *Initiate an EIS to identify all likely system-wide impacts including positive benefits for public transportation; and potential unanticipated impacts* related to parking of trucks and service vehicles as well as cars, bus routes and bus loading, overhead wires, sidewalk widths necessary to accommodate shelters, medians, electrical power generation required in relation to gasoline/diesel fuel combustion, reduced tree canopy, fire access, effects on traffic flow of automobiles and commercial vehicles if the streetcar breaks down, and effects on pedestrians and cyclists including potential conflicts between bike wheels and tracks. The analysis should examine potential impacts of construction on adjacent businesses and how the city can mitigate the kind of negative impacts that the merchants and residents along the H St./Benning Rd. corridor have experienced.

- *Map the entire streetcar system including, but not limited to, the following mapping elements:* streetcar routes, facilities projected in the *Comprehensive Plan*, historic districts, economic development districts, L'Enfant City boundaries and all other information related to economic, environmental and historic preservation considerations both now and for the foreseeable future. Relate all aspects of the streetcar system including location of maintenance and other streetcar facilities to the Council-adopted *Comprehensive Plan for the National Capital*, including the Federal Elements of the Comp Plan. Identify all environmental and historic preservation laws that pertain to these areas and detail how the city will comply with both study and mitigation requirements. Provide a timeline to accomplish these reviews and a well-articulated plan of public involvement well in advance of announcing contracts for construction on any segment.

#6: *Banish the Devil from the Details:*
Rethink some routes; develop a scaled street plan for each phase.

Overall, the 37-miles of proposed routes make sense and should boost investor confidence in many areas of the city that need new centers of economic life. However, we suggest further study and refinements along some routes, especially Anacostia, Capitol Hill and Takoma. The connection of the H St./Benning Rd. segment to Union Station remains a particularly vexing and

potentially costly issue if the city undertakes condemnation of Potomac Development's property and/or if Amtrak's many concerns cannot be addressed.

- *For the entire system, show how the streetcar routes and plans for adjacent economic and residential development are consistent with the Council-adopted Comprehensive Plan for the National Capital goals for economic development, neighborhood conservation, historic preservation and other values expressed in the Plan.* Show how streetcars will function as part of each street, especially where those streets are quite narrow, where businesses do not have rear access to their properties for deliveries (as is the case in Anacostia), and where inclines are significant. Examine routes for areas where dedicated streetcar lanes might be possible and desirable to avoid congestion.

- *Give priority to streetcar routes that will provide immediate relief where existing mass transit is inadequate and neighborhoods are underserved, where large-scale development has been approved, and where bus service fails to meet citizen demand.* Rethink some proposed segments including all the routes in Anacostia, the route along 8th St., SE and NE on Capitol Hill, and the connection between Georgia Ave. and the Takoma Park Metro Station. (See *DC Streetcar Route Assessment Report* below.) One suggestion for future mapping is to plot distances and likely pedestrian paths between streetcar stop(s) and Metro stations, Union Station, etc. to help coordinate sidewalk and other streetscape improvements.

#7: Don't Just Do It -- Do It RIGHT:
Engage the public in substantive and sustained collaboration.
Enact a comprehensive Streetcar Enabling Act to ensure a world-class system for a world-class city.

To achieve a world-class streetcar system will require many professional skills and talents as well as the wisdom and perspectives of neighborhood residents, civic groups and business interests.

- *Establish a formal advisory group to engage citizens in a new, collaborative context-sensitive approach* to planning the system. The Council can establish a DC Streetcar Planning Advisory Board to provide continuous review of policy and system-wide decisions. DDOT open houses with random comments on display boards are not enough. Sustained engagement is required. Personal rancor and polarization of positions is not serving the city well. We call on the Mayor and Council to set a framework for consensus as we implement this promising new transportation system.

- *Enact a comprehensive Streetcar Enabling Act to ensure a world-class system for a world-class city.* In December 2010, the Council enacted the Transportation Infrastructure Act that deals almost exclusively with issues related to overhead wires. Streetcars deserve a better foundation than this limited bill provides. A comprehensive Streetcar Enabling Act can incorporate the current Act provisions regarding wireless technology. The Act should also:
    - State a clear vision and purpose for the system and its role in the city's transportation network,
    - Establish a governance and citizen advisory framework,
    - Ensure that a realistic financial plan is produced and regularly updated, and
    - Commit the city to obeying all environmental and preservation laws for all aspects of the entire system.

  While some would argue that DDOT has the statutory authority and responsibility to implement streetcars without these provisions, we believe that a comprehensive Streetcar Enabling Act would do much to reassure the public that the system will be exemplary in every respect.

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DC STREETCAR ROUTE ASSESSMENT REPORT

INTRODUCTION AND METHODOLOGY

In 2009, the DC Department of Transportation (DDOT) unveiled proposed routes for a new 37-mile streetcar system to connect neighborhoods within the city and to stimulate economic development, particularly along priority corridors.

In December 2009, the Transportation Subcommittee of the Committee of 100 decided to review the only element of the streetcar system for which there was documentation at that time -- the proposed routes -- and to look at each street with an eye to the effects of overhead wires on the viewsheds along those streets. Four members of the Committee of 100 – Meg Maguire, Dorn McGrath, Dick Wolf, Monte Edwards, as well as Alec Stewart, George Washington University graduate school research assistant, urban planner and geographer – drove and photographed the proposed routes on January 14th, January 28th and February 25th, 2010. The goal of the field trips was a) to develop a better understanding of existing conditions along each proposed streetcar route and b) to assess the likelihood that a streetcar line would stimulate economic development based on a variety of planning maps, improve transportation by relieving capacity constraints and interconnecting underserved neighborhoods, information about proposed development, and first-hand observation. This report is a limited analysis of the proposed routes with suggestions for those that appear to need additional study.

To guide our observations, we used "criteria for success" adapted from Reconnecting America's *Street Smart: Streetcars and Cities in the Twenty-First Century*. As the authors of this book note, the success of a streetcar line is highly dependent on the character of the neighborhood through which the route passes. Generally speaking, the higher the population density, the greater mix of uses, and the greater degree to which underserved areas are served by transit, the more successful the transit line. Our criteria also included service to areas not served by Metro, expanded service in the downtown area where Metro service is expected to reach or exceed capacity within the decade, and interconnections with Metro stations that will facilitate transferring between Metro lines. Through a windshield survey and our own observations and experience, we made notes of the following:

- **Land Use**: What is the nature of current land use? Are streets suitable for pedestrians? Is there a mixture of uses present? Are street widths adequate to locate a streetcar?
- **Site & Building Design**: What is the nature of the streetscape and building design? Are pedestrian amenities like trees, lighting, and benches present? Are buildings oriented towards the street to serve pedestrians, or are buildings oriented toward off-street parking lots? In some cases we made note of the street widths but do not have this information for all streets.
- **Parking & Car Dependency**: What is the nature of parking? Are autos parked on the street or in private or public lots or garages? Would a streetcar reduce automobile dependency?
- **Metro Connectivity**: Is there pedestrian connectivity to Metrorail stations? Would a streetcar line reduce Metrorail overcrowding?
- **Additional Transit Capacity**: Will a streetcar provide service to an area not served by Metrorail?
- **Overhead Wires**: What would be the effect of overhead wires on the segment?

The study team also accepted the following propositions, based on the 2005 *District of Columbia Transit Improvements Alternatives Analysis* as well as experience reported from other cities:

- DC's transit system needs to expand through a variety of modes including buses and streetcars to accommodate rapidly growing demand.
- Streetcars represent a permanent transit investment, signaling to developers, residents and investors that they can count on stable public transportation in the future.
- Like buses or the Metro, streetcars can connect neighborhoods and make it easier to get from one part of the city to another. (Note: While Metro and the Circulator have implemented a number of improvements recommended in the 2005 report, we are not able to assess their impact.)
- Streetcars are attractive to some riders who will not use buses.

We have organized the report by proposed streetcar lines, noting Phases 1, 2, and 3 from DDOT's Proposed Streetcar System Plan. While we make observations about each segment in all three phases, we have devoted the greatest attention to H Street/Benning Road and routes across the Anacostia River in Wards 7 & 8 because these routes will be the first to operate.

This assessment focuses on the routes. We have detailed additional concerns and planning recommendations in the Executive Summary and Recommendations above, and in *Streetcar Planning Requirements*, distributed to members of the DC Council in June 2010.

ROUTE DIAGRAMS

Historic and Economic Development Districts Affected by Streetcars

The following maps illustrate the relationship between the proposed streetcar network and the numerous historic and economic districts within the city. Each designated area has implications for future streetcar construction. For example, routes within historic districts, or those under study for historic designation, should be particularly sensitive to the context of existing buildings and street design. In the individual route segment discussions below, we reference these maps.

Further, the maps underscore the legal and practical need for a *full system environmental review, not segmented review, at the outset* to ensure that complex system issues are addressed early in the process. Some key factors include:

1889 Ban on Overhead Wires

In 1889 Congress enacted legislation barring the construction of overhead wires within Georgetown and L'Enfant's central core. The outlines of these areas are delineated in purple on each of the maps. The National Capital Planning Commission (NCPC), in carrying out its duties to protect the federal interest in the nation's capital, has informed District representatives that it will defend the congressional act prohibiting wires on the L'Enfant Plan streets. Both federal law and the listing of the L'Enfant Plan on the National Register of Historic Places reinforce a ban on wires and the various supporting structures that would impose on streets and avenues.

Historic Districts

The proposed streetcar system passes through a total of 18 historic districts, which are protected under the 1978 District of Columbia Historic Landmark and Historic District Protection Act (DCHPA). The DCHPA imposes certain obligations on the District related to construction projects that may impact historic sites.[3] Before authorizing the expenditure of funds for design or construction or seeking the permit, license, or approval for a District of Columbia undertaking, the Deputy Mayor, head of the subordinate agency, or head of the independent agency with direct jurisdiction over the undertaking shall take into account the effect of that undertaking on any property listed or eligible for listing in the District of Columbia Inventory of Historic Sites and shall consult with and afford the State Historic Preservation Officer [SHPO] a reasonable opportunity to comment on the undertaking.[4]

The District's regulations implementing the DCHPA further describe that the SHPO, among other things, advises and assists federal and District agencies in carrying out their respective historic preservation responsibilities and cooperates with such agencies to ensure that historic properties are considered at all levels of development and planning.

Pursuant to the requirements of Section 9b, to the extent that any portions of the streetcar tracks currently being constructed by DDOT might impact any property listed or eligible for listing in the

[3] The DCHPA is intended to, among other things: safeguard the District's historic, aesthetic, and cultural heritage; retain and enhance properties in historic districts which contribute to the character of the historic district; and assure that alterations of existing structures and new construction are compatible with the character of the historic district. See DCHPA Sec. 2; D.C. Code §6-1101.

[4] See DCHPA Sec. 9b

District of Columbia Inventory of Historic Sites, DDOT must consult with and afford the SHPO an opportunity to comment on the project.

Old Georgetown Act

The Old Georgetown Act, enacted by Congress is 1950,[5] defined the boundaries of Georgetown, and officially protected the area as a historic district. The Old Georgetown Act also gave the Commission of Fine Arts the authority to appoint an advisory committee, the Old Georgetown Board, to conduct design reviews of semipublic and private structures within Georgetown's boundaries. The Board is comprised of three architects who serve without compensation for three-year terms. Their recommendations for concept and permit applications are compiled into the Old Georgetown Appendix and forwarded to the Commission of Fine Arts for final approval.

The Shipstead-Luce Act

The Shipstead-Luce Act (Public Law 71-231 and Public Law 76-248), enacted in 1930, gave the Commission of Fine Arts authority to review the designs of construction projects within certain areas of the National Capital. Specifically, the Shipstead-Luce Act applies to construction which fronts or abuts: the grounds of the Capitol; the grounds of the White House; the portion of Pennsylvania Avenue extending from the Capitol to the White House; Rock Creek Park; the National Zoo; Rock Creek and Potomac Parkways; the Mall Park System; Southwest Waterfront and Fort McNair.

Central Employment Area

The Central Employment Area (CEA) is the core area of the District where the greatest concentration of employment in the city and the region is encouraged.

Business Improvement Districts

Business Improvement Districts (BIDs) are self-taxing areas of the District that provide programs and services that supplement and enhance those provided by the DC government. The first BID was established in 1997, and seven others have been established since then. If ongoing efforts to create an Anacostia BID are successful, this city will be home to nine BIDs in total. Typical services provided by BIDs include beautification, maintenance, public safety, business promotion, economic development, and others.

Enterprise Zones

The District of Columbia Enterprise Zone (EZ) program was established in 1997 to stimulate economic growth and jobs development. Enterprise zones cover roughly half of the District's developable land, and they are divided into two tiers. Census tracts in the first tier have poverty rates in excess of 20 percent, while t he second tier has poverty rates between 10 and 20 percent. Businesses that operate within first tier census tracts are eligible for a variety of tax exemptions and credits, while those within the second tier are eligible for a reduced number of exemptions.

[5] (Public Law 81-808)

Neighborhood Investment Fund Areas

The Neighborhood Investment Fund (NIF) is "an annual, non-lapsing fund to finance economic development and neighborhood revitalization" in various District neighborhoods.[6] Of the 12 NIF areas in the district, 10 are traversed by the proposed streetcar system.

Economic Development Zones

Economic Development Zones (EDZs) are disadvantaged areas designated by the District government that are eligible for economic assistance in stimulating business expansion, employment, and homeownership. Areas within an EDZ are also exempt from some restrictions on land development.

[6] See the Neighborhood Investment Fund website for more details.
http://dcbiz.dc.gov/dmped/cwp/view,a,1366,q,604691,dmpedNav,|33026||33028|.asp

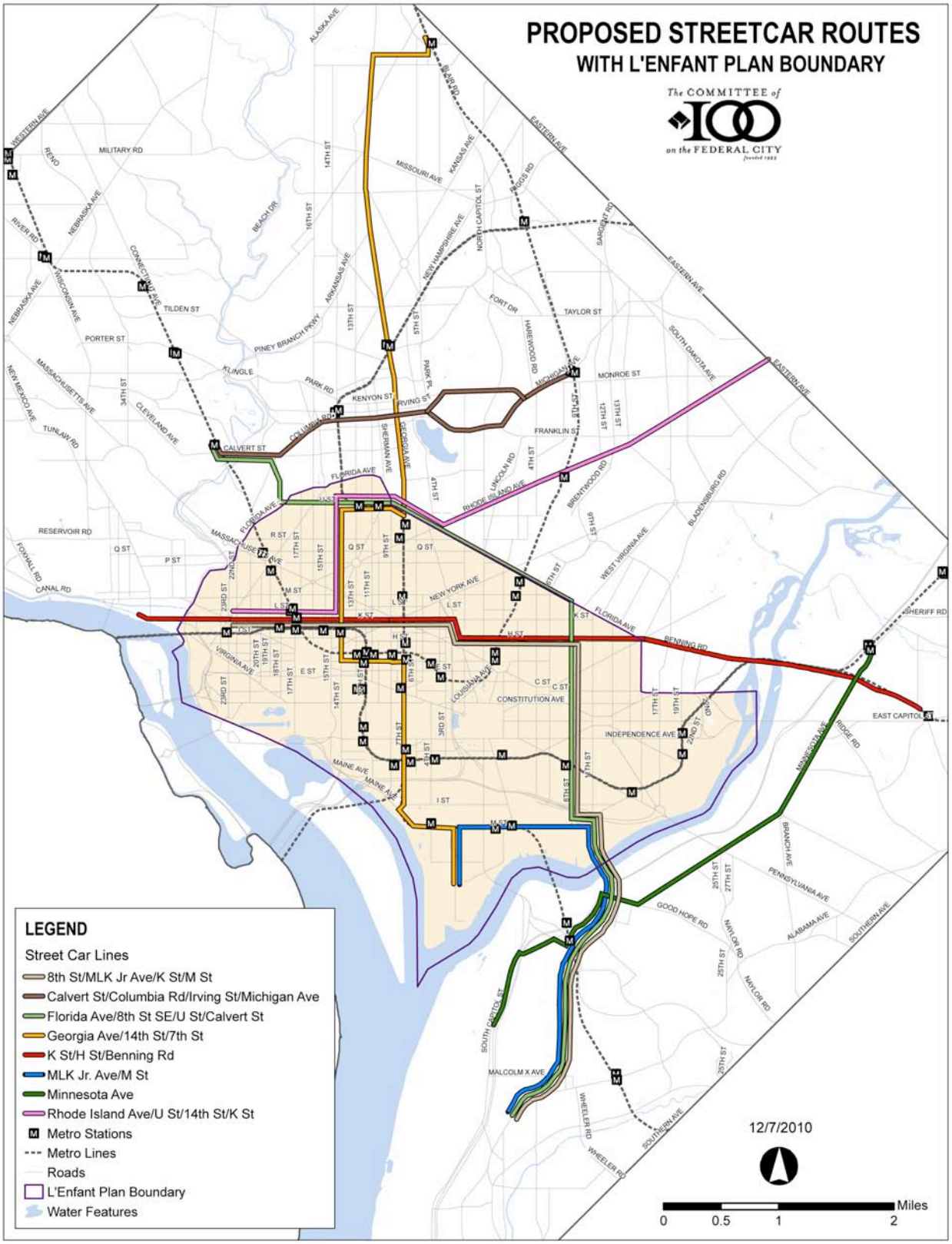

Figure 2: Proposed Streetcar Routes with L'Enfant Plan Boundary

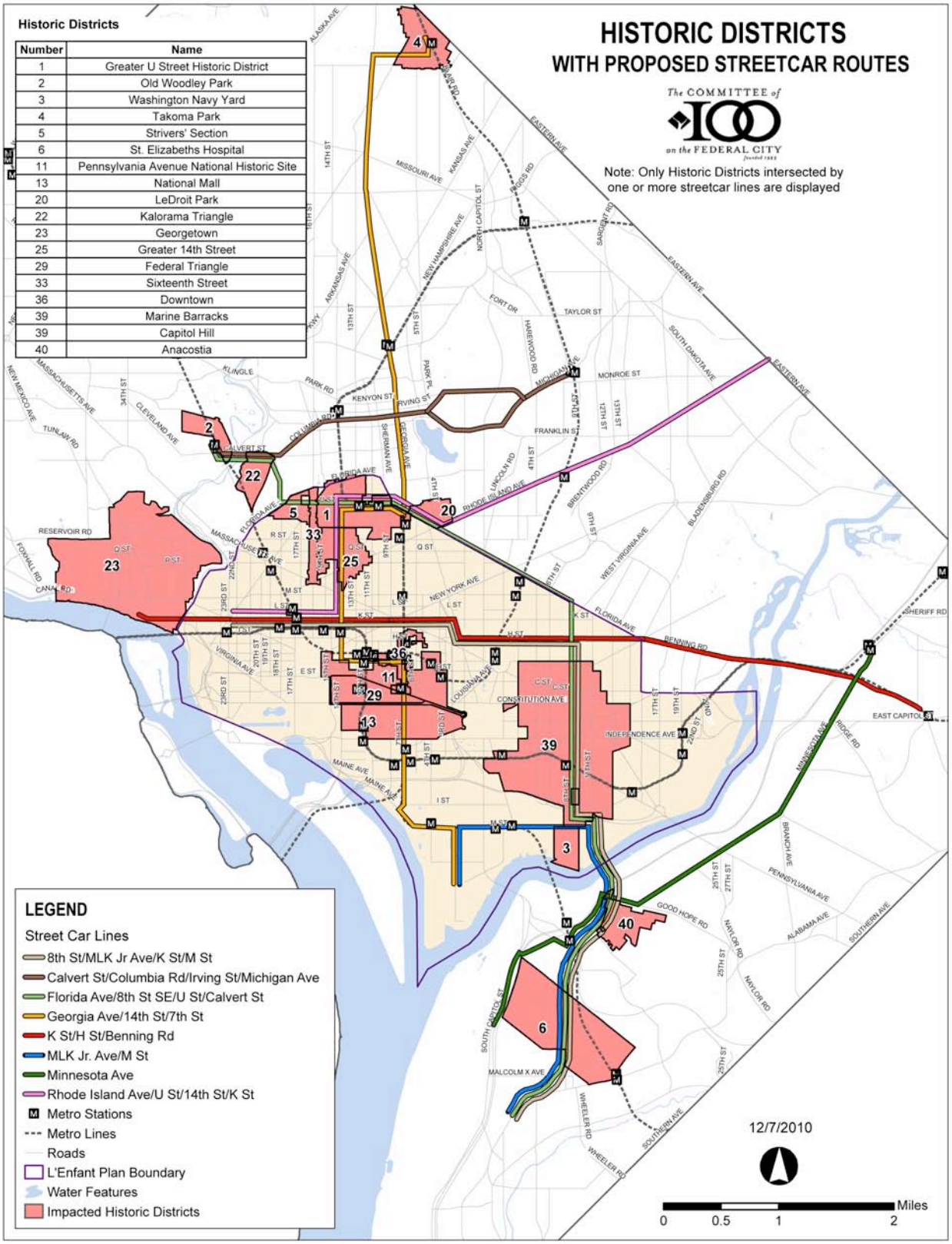

Figure 3: Historic Districts with Proposed Streetcar Routes

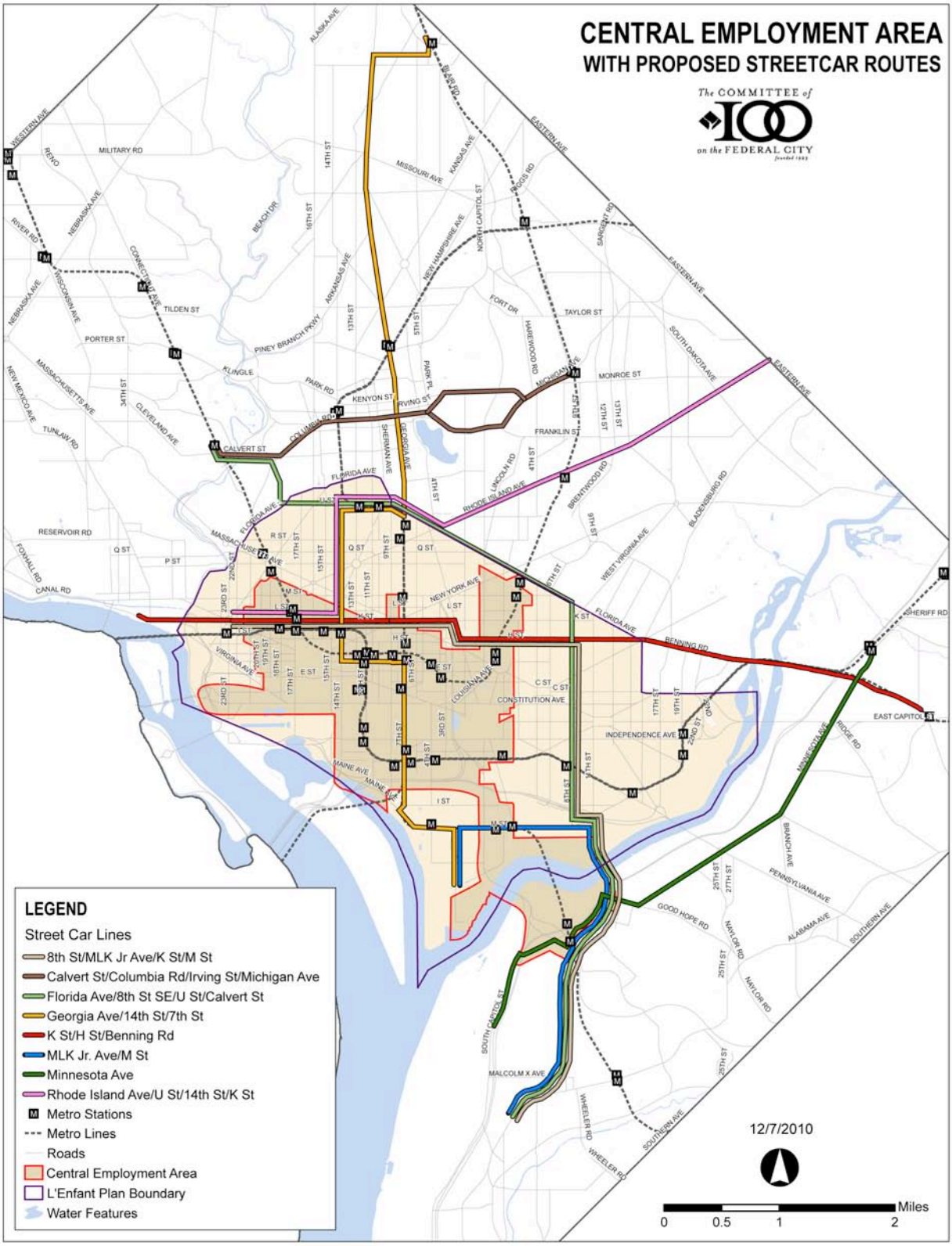

Figure 4: Central Employment Area with Proposed Streetcar Routes

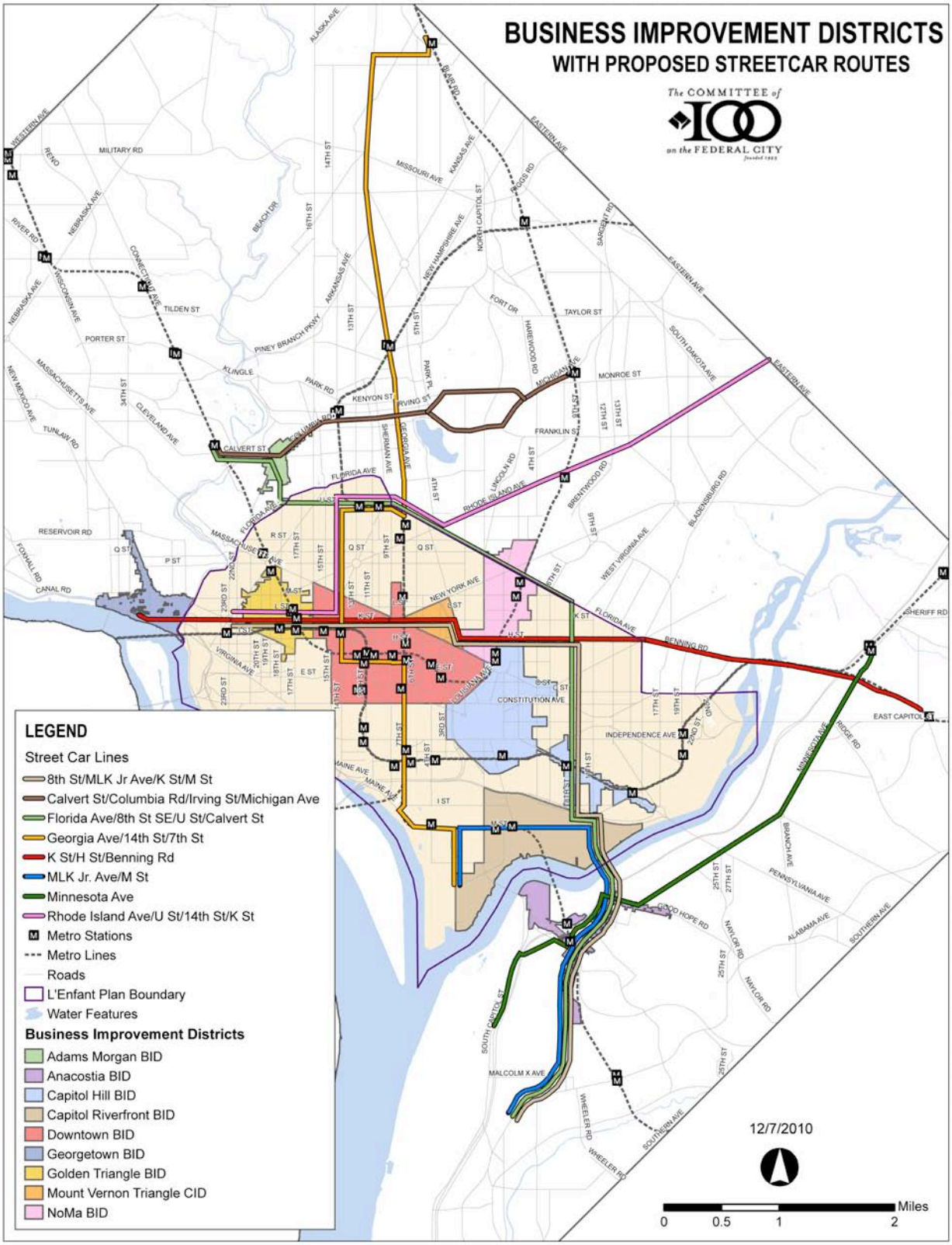

Figure 5: Business Improvement Districts with Proposed Streetcar Routes

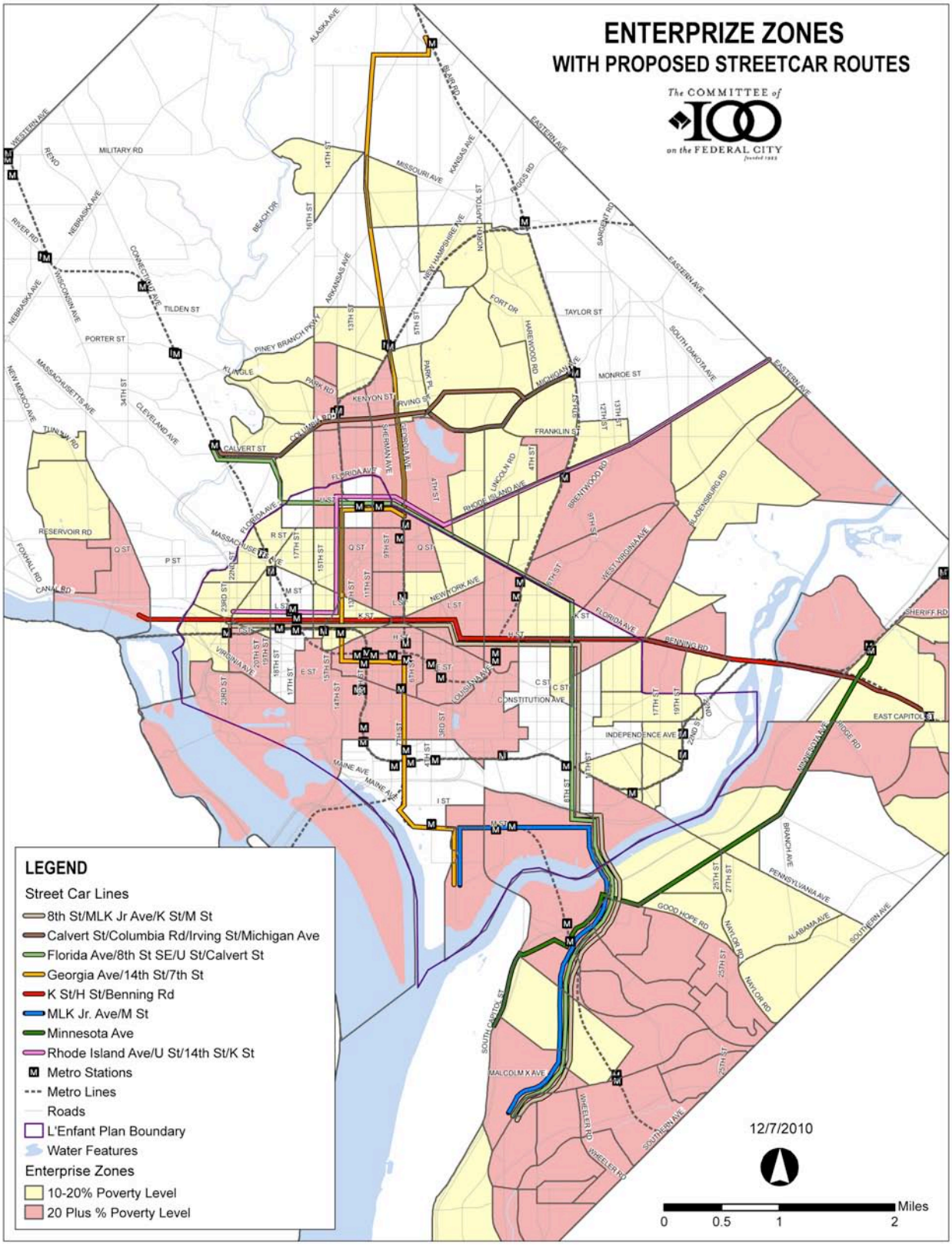

Figure 6: Enterprise Zones with Proposed Streetcar Routes

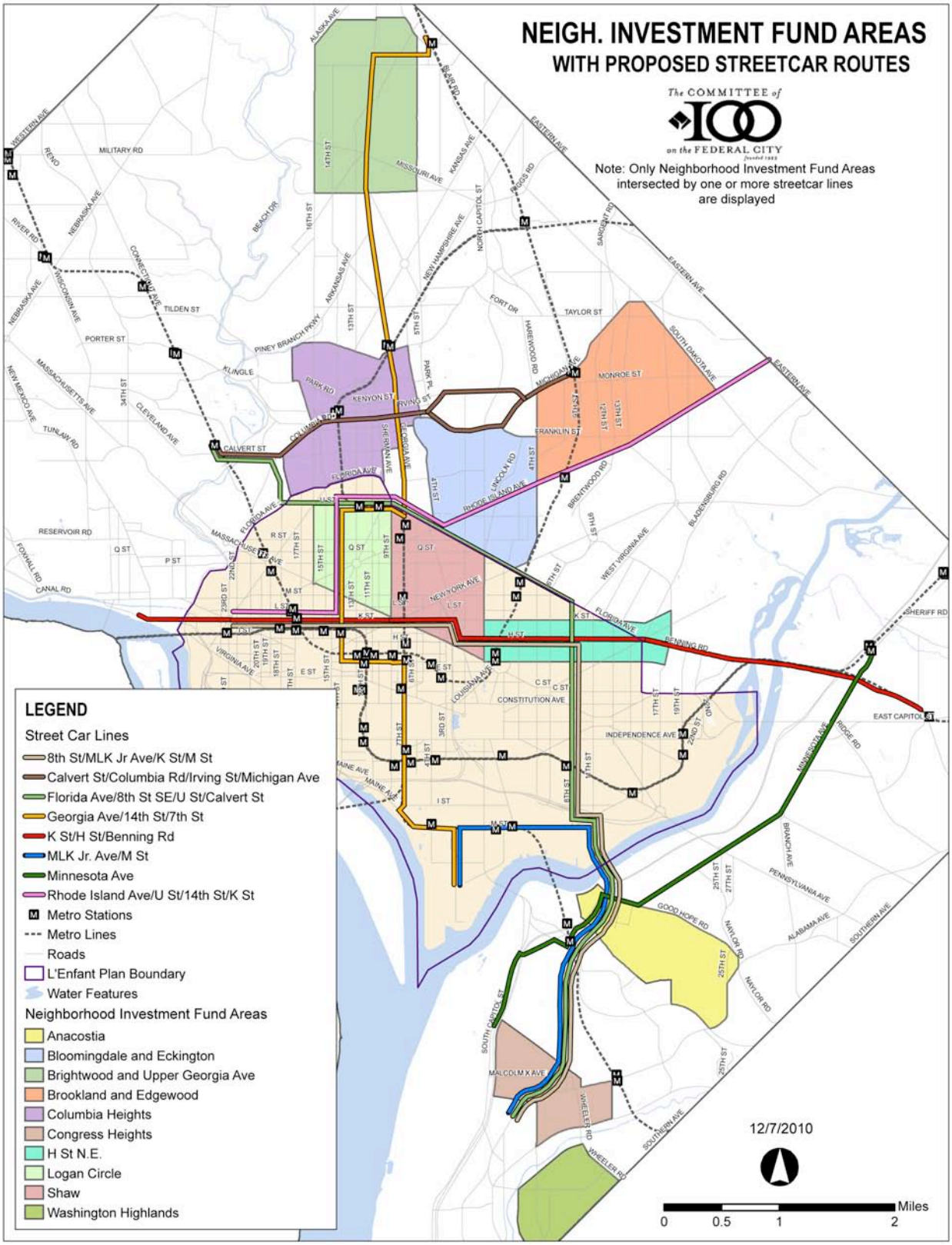

Figure 7: Neighborhood Investment Fund Areas with Proposed Streetcar Routes

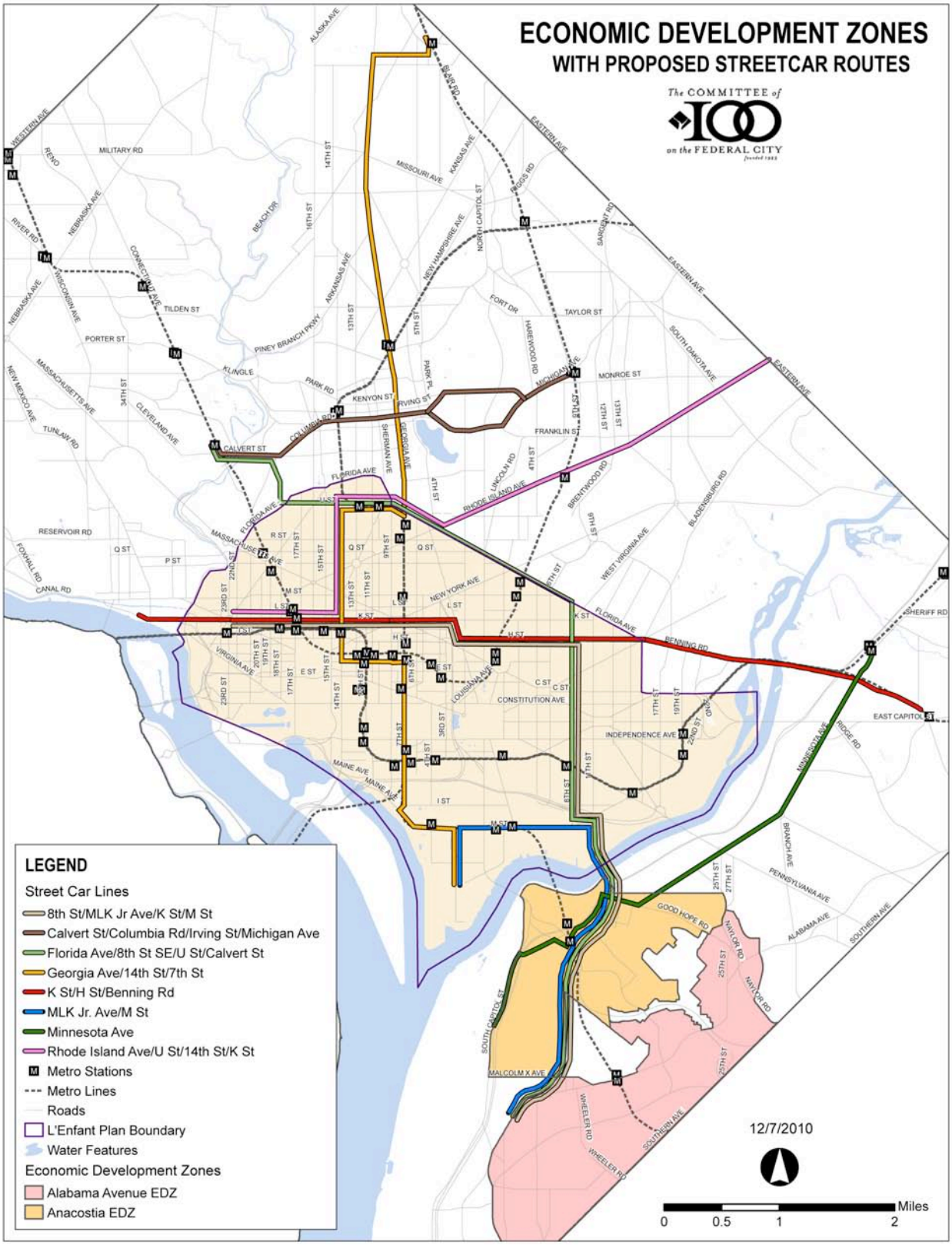

Figure 8: Economic Development Zones with Proposed Streetcar Routes

ROUTE SUMMARY AND CONCLUSIONS

As you read the route assessments, it may be useful to keep both the maps and the following matrix in mind:

Route Names:	Effects of overhead wires on viewsheds?	Federal laws to consider?	Historic designations?	Economic development districts?
I: H St./Benning Rd./K St. Corridor	Overhead wires on K St. detract from corridor's appearance	- 1889 Overhead Wire Ban - Old Georgetown Act - Shipstead-Luce Act	- Georgetown Historic District	- Downtown DC BID - Georgetown BID - Golden Triangle BID - Mt. Vernon Triangle CID - NoMa BID - Central Employment Area - H Street Neighborhood Investment Fund Area (NIF) - Shaw NIF - Enterprise Zone
II: MLK Jr. Ave./M St. SE Corridor	Undeveloped tree canopy will fail to mask overhead wires	- 1889 Overhead Wire Ban	- Anacostia Historic District - Navy Yard Historic District - Capitol Hill Historic District	- Anacostia BID - Capitol Riverfront BID - Central Employment Area - Enterprise Zone - Anacostia NIF - Anacostia Economic Development Zone (EDZ)
III: 8th St./MLK Jr., Ave./K St./H St. Corridor	Overhead wires in historic districts will diminish their historic/aesthetic significance	- 1889 Overhead Wire Ban - Shipstead-Luce Act	- Navy Yard Historic District - Capitol Hill Historic District	- Central Employment Area - Enterprise Zone - Anacostia BID - Capitol Riverfront BID - Capitol Hill BID - Barracks Row Main Street - Anacostia NIF - Congress Heights NIF - Anacostia EDZ
IV: Georgia Ave./14th St./7th St. Corridor	Overhead wires detrimental where route crosses National Mall and in L'Enfant City/ Historic Districts	- 1889 Overhead Wire Ban - Shipstead-Luce Act	- Federal Triangle Historic District - Downtown Historic District - Greater 14th St. Historic District - U Street Historic District	- Central Employment Area - Enterprise Zone - Capitol Riverfront BID - Capitol Hill BID - Downtown DC BID - Columbia Heights NIF - Congress Heights NIF - Logan Circle NIF - Shaw NIF
V: Minnesota Ave./Good Hope Rd. Corridor	Overhead wires on narrow streets interfere with trees, contribute to visual clutter in an area deserving the best design elements both at street level and above		- Anacostia Historic District	- Anacostia BID

Route Names:	Effects of overhead wires on viewsheds?	Federal laws to consider?	Historic designations?	Economic development districts?
VI: Florida Ave./8th St./U St./Calvert St. Corridor	Historic viewsheds in Anacostia, Capitol Hill, U St., & Woodley Park must be preserved	- 1889 Overhead Wire Ban - Shipstead-Luce Act	- 16th Street Historic District - Anacostia Historic District - Capitol Hill Historic District - Gallaudet College Historic District - Greater U Street Historic District - Kalorama Triangle Historic District - LeDroit Park Historic District - Strivers' Section Historic District - Navy Yard Historic District - Woodley Park Historic District	- Central Employment Area - Enterprise Zone - Adams Morgan Partnership - Capitol Hill BID - Capitol Riverfront BID - NoMa BID - Barracks Row Main Street - Anacostia NIF - Bloomington and Eckington NIF - H Street NIF - Logan Circle NIF - Shaw NIF - Anacostia EDZ
VII: Rhode Island Ave./U St./14th St./K St. Corridor	Overhead wires along Rhode Island Ave. would have negative impacts on initial impressions of the City	- 1889 Overhead Wire Ban - Old Georgetown Act	- Georgetown Historic District - Greater 14th St. Historic District - Greater U Street Historic District - LeDroit Park Historic District	- Bloomington and Eckington NIF - Brookland and Edgewood NIF - Central Employment Area - Downtown DC BID - Georgetown BID - Golden Triangle BID - Enterprise Zone - Logan Circle NIF - Shaw NIF
VIII: Calvert St./Columbia Rd./Irving St./Michigan Ave. Corridor	Overhead wires diminish historically significant views in Woodley Park, Kalorama Triangle, & McMillan Park Reservoir Historic Districts		- Kalorama Triangle Historic District - Old Woodley Park	- Adams Morgan Partnership - Bloomington and Eckington NIF - Brookland and Edgewood NIF - Columbia Heights NIF - Enterprise Zones

Route # I: H St./Benning Rd./K St. Corridor

North Capitol, H St./Benning Rd. to Oklahoma Ave.

Of all the routes in our survey, this is probably the highest priority. H St./Benning Rd. is ripe for permanent capital investment in public transit. A streetcar line could play a significant role in stimulating business development and residential redevelopment along the entire corridor. However, DC Council should take steps to mitigate the effects of gentrification to protect low-income people from inflated land values.

While overhead wires would diminish the quality of the new and exciting streetscape planned for the area, DC Council has voted to proceed with this segment to include wires. However, the Council has determined to consider removing these wires when alternative wireless technologies become available.

K St. Corridor

While well served by Metrorail, Metrobus and the Circulator, a streetcar line on the K St. Busway could supplement other transit in this busy part of the city. However, overhead wires will detract from the boulevard's appearance up to the underpass into Georgetown as noted above, where review by the Commission of Fine Arts would take effect.

Route # II: MLK Jr. Ave./ M St. SE Corridor

Streetcars could significantly improve public transportation options to the growing population of workers and residents of SE Washington, connect neighborhoods within Anacostia and spur economic investment in the area. However*, additional route planning in Anacostia is critical and should be a DDOT priority well in advance of construction*.

Route # III: 8th St./MLK Jr., Ave./K St./H St. Corridor

The route alignment follows streets that cut through several historic districts where overhead wires would diminish the historic and aesthetic significance of those spaces. When completed, a portion of this streetcar route would connect Anacostia and Capitol Hill's residential and commercial neighborhoods to entertainment and employment centers in downtown Washington and would improve connectivity between the city's neighborhoods.

However, we question the need for a streetcar along 8th St. from M S., SE to H St./Benning Rd. and Florida Ave.. This area is already commercially successful, has an established residential character, and is served amply by N/S buses. We urge the city to explore another N/S connection across Capitol Hill East, perhaps connecting Reservation 13 with Benning Rd.

Route # IV: Georgia Ave./14th St./7th St. Corridor

Nearly 10 miles in length, this route is the longest in the proposed streetcar system. Reaching from southwest Washington to the Takoma Metro Station, it connects outlying residential neighborhoods to the Chinatown entertainment district, the downtown office district, and the emergent redevelopment along 14th St.

Were they to be installed, overhead wires would be detrimental where the route crosses the National Mall along 7th St., in the downtown areas where they would contribute visual clutter to a well-maintained streetscape and, in general, to the expansive and clear vistas along the entire route.

Route # V: Minnesota Ave./Good Hope Rd. Corridor

Economic redevelopment along commercial sections and additional public transportation investments are long overdue in Anacostia and Minnesota Ave. could benefit from both. However, street width is narrow and would not easily accommodate 2-way streetcars with passenger stops unless current on-street parking was removed. DDOT should study paired streets for streetcars along all narrow streets in the city now included in the DDOT streetcar plan.

Overhead wires on these narrow streets for two-way tracks would almost certainly interfere with trees and would contribute to visual clutter in an area that requires the highest quality design elements both at street level and above.

Route # VI: Florida Ave./8th St./U St./Calvert St. Corridor

At approximately 9 miles in length, this streetcar route would connect Anacostia to the commercial districts in Capitol Hill and along H St., U St., Adams Morgan, and Woodley Park. This line will provide a direct connection between areas of the city that can only be reached currently by transferring at least once on the Metrorail system. This streetcar route will link several activity centers together along one line, and may encourage evening and weekend use in this congested area.

Given the route's path through numerous historic districts including those in Anacostia, Capitol Hill, U St., and Woodley Park, extra care must be taken to ensure that historic viewsheds in commercial districts are preserved.

Route # VII: Rhode Island Ave./U St./14th St./K St. Corridor

Streetcars would significantly upgrade public transit service for communities along Rhode Island Ave. approaching Mount Rainier, Maryland, providing a connection to both the Rhode Island Ave./ Brentwood Metro station and the K St. Corridor. Improved transit access could result in a boom in investment along Rhode Island Ave., benefiting a part of Washington that is economically depressed.

Route # VIII: Calvert St./Columbia Rd./Irving St./Michigan Ave. Corridor

This route would more effectively link together Woodley Park, Columbia Heights, and Catholic University by providing a shortcut between two stations on the Metro's Red Line that are separated by nine Metro stops but are only three and a half miles apart. Passing through Woodley Park, Kalorama Triangle, and McMillan Park Reservoir Historic Districts, the route's overhead wires threaten to diminish views of historic significance within these neighborhoods.

NOTE: Because there is no detailed timeline for planning or construction of the system, we have applied DDOT terms to show relative priority: Phase 1, Phase 2. We have also added: Early Construction, Later Construction to indicate segments that are moving ahead immediately and those that will occur later.

DETAILED ROUTE SEGMENT ANALYSIS

Route # I: H St./Benning Rd./K St. Corridor

Phase 1 begins with the H St. and Benning Rd. segments. This route, the site of the riots of 1968, has had a long and unhappy history of failed attempts at redevelopment. The City, in consultation with the firm of Torti Gallas Architects, has developed an exciting Main Street redevelopment plan, complete with its own design overlay for the area.

H Street/Benning Rd. is to be the first section of the streetcar system. After many months of construction, work continues on the proposed streetscape improvements along the corridor. Streetlight poles will be used to carry the overhead wires for streetcars. The line is scheduled to begin service in 2012.

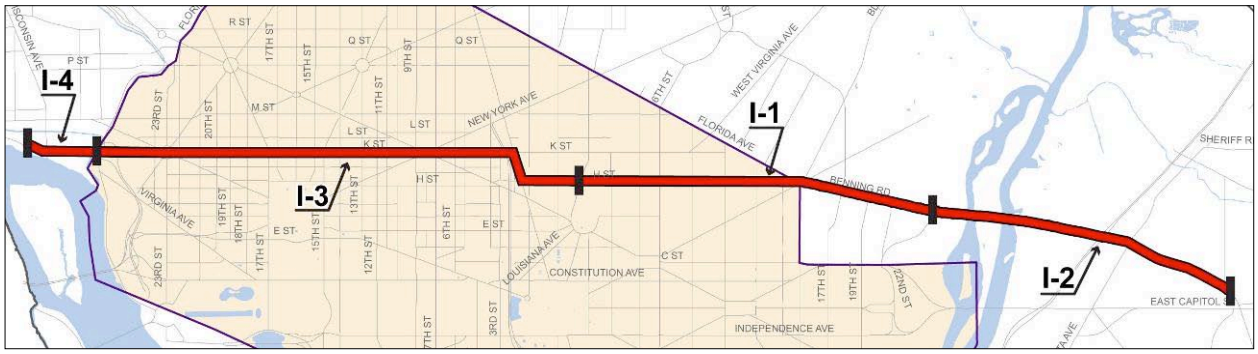

Figure 9: Streetcar Route #I is divided into four segments, which are defined in greater detail below.

 # I -1 Study Segment: H St. – Proposed Union Station connection along H St./Benning Rd. to Oklahoma Ave.

Phase 1– earliest construction

Union Station Connection

The link with Union Station is still very much in question and access to the location of the maintenance facility under the Bridge just off North Capitol St. on city-owned land is unresolved. Amtrak and Potomac Development, owner of the Railway Express building, have raised serious issues about a potential streetcar easement that would cut through the H St. "Hopscotch Bridge" to enter the tunnel under Union Station. Further, it is unclear how the streetcar will accomplish a turn-back or turn around at 3rd St. if the Union Station link is not possible.

Figure 10: Recently installed rails at H and 2nd Street NE

Land Use

In the 200 block of H St., the Dreyfus development, an approved PUD with 302 residential units, retail and office space, and parking, will complete the "H St. Gateway," the envisioned grand entrance to the H St. corridor[7]. The

[7] ZC Case No. 05-37

development would span the width of the block, replacing an existing surface parking lot with a multi-story structure.

From the railroad bridge at H and 3rd Sts. to the intersection at 8th, a mix of 2- and 3-story buildings front the street. Although vacant lots predominate between 3rd and 4th Streets, the fine grain of individual historic row buildings between 4th and 6th suggests that the neighborhood could eventually be highly walkable as businesses move in and provide a diversity of uses. Between 6th and 7th, large office blocks on both sides of the street lack active first floor uses and are not pedestrian-oriented. Old and new buildings appear again between 7th and 8th Sts. Current zoning for this entire segment permits a mixture of uses, including retail, office and housing[8]. Where historic row buildings exist, they are to be preserved. However, many of the buildings are unoccupied, exhibiting "For Lease" signs. The buildings themselves, however, are generally of good quality, appear to have good redevelopment potential, and may well be eligible for historic designation.

In the 600 block, the approved "H St. Condominiums" project will occupy the entire block, replacing two five-story and one one-story office buildings. The new development project will add 240 residential units as well as significant office and ground floor retail space to the block, more than doubling the gross floor area of the existing buildings[9]. Three levels of below-grade parking will be open for a fee to the public after business hours.

Between 8th and 10th streets, the two blocks on the south side of the corridor are currently a strip mall of one-story retail separated from the street by a one-aisle double-loaded parking lot. A mix of stores faces H St., and a large apartment complex resides behind the mall. Plans currently are to redevelop the strip mall in two phases as the "H St. Connection," an 8-story mixed-use building with between 346 and 423 residential units on the upper levels, 52,000 sf of retail at ground floor, and 3 levels of underground parking with 340 residential spaces and 65 retail spaces. The development will serve as an inter-modal transportation hub, with bicycle parking (25 residential and 50 public, plus lockers and showers), a DDOT bike-sharing facility, a car-sharing facility, and a proposed streetcar stop. The Zoning Commission will consider a PUD for this development in Fall 2010. The two blocks on the north side remain a mixture of 2- and 3-story row buildings.

Between 10th and 15th Sts. is a mixture of 2- and 3-story historic row buildings and larger mid-twentieth century retail stores. The 12th to 13th St. block contains an AutoZone store and a parking lot on the south side of the street, while a more pedestrian-friendly pattern of street-fronting businesses continues to the north. Between 13th and 15th Sts. several restaurants, bars and nightclubs occupy a number of the row buildings, while the Atlas Theater complex houses an arts center as well and a performance venue. All land uses face the street. As in the 3rd to 10th Sts. segment, the area between 10th and 15th Sts. is also zoned as mixed uses, providing for varying intensities of retail,

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[8] The zoning along the 3rd to 10th St. segment is a mixture of **C-2-A**, **C-2-B**, and **C-2-C** designations, all of which fall within the H St. Northeast Commercial Overlay District (**HS**).
HS/C-2-A allows "matter-of-right low-density development, including office employment centers, shopping centers, medium-bulk mixed use centers, and housing to a maximum lot occupancy of 60% for residential use." The maximum allowable height is 50 feet, however an additional five feet may be allowable under the HS designation.
HS/C-2-B allows "matter-of-right medium density development, including office, retail, housing, and mixed uses to a maximum lot occupancy of 80% for residential use." The maximum allowable height is 65 feet, however an additional five feet may be allowable under the HS designation.
HS/C-2-C allows "matter-of-right higher density development, including office, retail, housing, and mixed uses to a maximum lot occupancy of 80% for residential use." The maximum allowable height is 90 feet, however an additional five feet may be allowable under the HS designation.
Sources: *Summary of Zoning Districts* http://dcoz.dc.gov/info/districts.shtm; *District of Columbia Zoning Map* http://atlas.dcoz.dc.gov/DCZoningMap/default.aspx?resetsession=true; *Summary of Overlay Districts* http://dcoz.dc.gov/info/overlay.shtm

[9] BZA No.17521 Final Order August 2, 2007.

office and housing[10]. The quality of the building stock is more variable in this segment, with some buildings worthy of preservation that has occurred (like the Atlas Theater) and others begging for redevelopment (like the AutoZone).

At the northeast corner of the 'starburst' intersection at Maryland Ave., H St., Florida Ave., Bladensburg Rd., and Benning Rd. the character of the streetscape changes significantly. Along H St., pedestrian-oriented row buildings characterize the land use pattern. Along Benning Rd., however, land uses are mainly detached, single-use, and auto-oriented, with significant setbacks from the street. Emphasizing this shift are the two large, single-use apartment complexes and the under-utilized shopping mall (the former Hechinger Mall) at the 'starburst' intersection.

Despite the prevalence of single land uses (residential row houses or commercial), zoning along Benning Rd. is mixed use—supportive of greater future pedestrian activity[11]. As buildings are demolished and replaced over time, the character of this segment should change to support a denser mixture of commercial and residential uses.

Figure 11: Fine-grained mixed uses along Benning Rd. NE across from Springarn High School will support future pedestrian activity along the corridor

Also of note is the school complex at 26th Street and Benning Rd., which consists of Young Elementary School, Browne Junior High School, Spingarn High School, and Phelps High School. Combined with the new on-site athletic fields, nearby Langston Golf Course, and numerous dense housing complexes one block north of Benning Rd., this center could potentially attract significant streetcar ridership.

Historic and Economic Designations

H St. to the intersection with Florida Ave. is within the L'Enfant Plan (see Figure 2). Congress will have to decide whether to accept or reject the City's legislation to permit wires on H St. on a temporary basis. The H St. corridor has been surveyed and is under study for eligibility and designation as an historic district (see Figure 3).

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[10] The zoning along the 10th to 15th St. segment is a mixture of **C-2-A** and **C-3-A** designations, both of which fall within the H Street Overlay District (**HS**).
HS/C-3-A allows "matter-of-right medium density development, with a density incentive for residential development within a general pattern of mixed-use development to a maximum lot occupancy of 75% for residential use." The maximum allowable height is 65 feet, however an additional five feet may be allowable under the HS designation.
Sources: *Summary of Zoning Districts* http://dcoz.dc.gov/info/districts.shtm; *District of Columbia Zoning Map* http://atlas.dcoz.dc.gov/DCZoningMap/default.aspx?resetsession=true; *Summary of Overlay Districts* http://dcoz.dc.gov/info/overlay.shtm

[11] The zoning along the 15th St. to Oklahoma Ave. segment is a mixture of **C-2-A**, **C-2-B**, **C-3-A**, and **R-5-B** designations.
R-5-B allows "matter-of-right moderate development of general residential uses, including single-family dwellings, flats, and apartment buildings, to a maximum lot occupancy of 60%." The maximum allowable height is 50 feet.

While part of this segment is within the Central Employment Area, much of it is within an Enterprise Zone, with 10 percent or more of the population below the poverty level, or a Neighborhood Investment Fund Area (see Figures 4, 6, and 7, respectively).

Site & Building Design

Aside from the 600 block and the strip mall between 8th and 10th Sts., both scheduled for redevelopment, buildings are typically oriented toward the street. Sidewalks are 15 feet wide, providing adequate space for pedestrian circulation. Although there are few pedestrian amenities, new exposed aggregate sidewalks and streetlights have been installed in portions of this segment. The streetscape has numerous holes in its tree canopy; however, there are plans to plant new trees along the entire corridor.[12] Presumably, these new trees will eventually have canopy height sufficient to accommodate overhead wires.

Between 8th and 10th Sts., the southern side of the street lacks businesses that open directly onto the street. A fence and a parking lot limit pedestrian access to the businesses in the strip mall. However, the approved development projects in the 200, 600, and 800-900 blocks would correct existing deficiencies, significantly enhancing the pedestrian environment.

From 10th to 15th St. there are several vacant lots and a number of buildings that do not face the street, but the majority of the buildings open onto the sidewalk. In general, the streetscape in this section lacks pedestrian amenities and trees that may be added.

The character of the 15th St. to Oklahoma Ave. segment is a mixture of row houses that fronts onto the street combined with malls, strip malls, and apartment complexes with large setbacks. Despite the evidently high levels of density along this segment, Benning Rd. does not provide a pleasant walking experience for pedestrians. Traffic moves at generally high speeds and a low level of street activity contributes to feelings of isolation. Although some mature trees are present, the wide street prevents a coherent tree canopy from developing.

Parking and Car Dependency

Due to ongoing streetcar-related road construction, it was difficult to assess to what degree street parking will be available in the future. The road configuration is designed to provide street parking between planned bulb-outs at intersections. Off-street parking is available in two small pocket parking lots between 3rd and 4th Sts. Surface parking is currently available on the south side of the street between 6th and 7th. The H St. Condominiums project will replace this surface parking, but will provide three levels of below-grade parking open for a fee to the public after business hours.

From 10th to 15th Sts. parking is available along most of this segment, while the AutoZone provides a significant number of street-level parking spaces. With the development of the H St. Connection at this location parking will be provided for the residents, plus 65 parking spaces for retail customer that will replace the existing 73 spaces in the current surface parking lot.

Along Benning Rd., both the high speed of traffic and greater abundance of off-street parking, reduce the need for street parking along Benning Rd.

Metro Connectivity/Additional Transit Capacity

There is no Metrorail access along the H St. corridor, but various east/west and north/south bus lines serve the area, and many people can walk to the Red Line (Union Station). The bus lines that

[12] Page 7-4 of the 2005 *H Street NE Corridor Transportation & Streetscape Study* indicates that London Plane trees and Willow Oaks will be planted at regular intervals along H Street and at intersections.

run north and south along 8th Street intersect the H St. corridor at two of the busiest bus stops in the city. Streetcar service would enhance the profile of public transportation along the corridor and improve service.

Overhead Wires

The lack of an established tree canopy along the H Street corridor, combined with the broad width of the street will leave overhead wires exposed. Even when new trees are planted along the roadway, their height and leaf canopy configuration will have to be limited as they mature in order to avoid wires.

 # I -2 Study Segment: Benning Rd. – Oklahoma Ave. to East Capitol St.

Phase 1 – next construction after 8th St./Benning Rd.

Land Use

On the east side of the Benning Bridge, land uses are mixed. Between the bridge and Kenilworth Ave. overpass, above ground rail and Metrorail tracks separate any buildings from street access. In the same blocks, the uses to the south include a gas station, a liquor store and a nightclub, with several surface parking lots occupying otherwise vacant property. Zoning for the southern side of the street provides for a mixture of uses, while the properties to the north are zoned for light industrial use[13].

After crossing Kenilworth overpass, land uses are mainly auto-oriented and single-use. At the Minnesota Ave. intersection are several retail strip shopping centers. Traveling southeast on Benning Rd., a mixture of single-family houses and large commercial buildings with off-street parking lots and large setbacks characterize the streetscape. Fort Mahan Park fronts a large portion of the north side of the corridor between 40th and 42nd Sts., but there is no pedestrian access to it from the street. After 42nd St., multifamily row housing and apartment complexes line both sides of the street, but are setback significantly from the sidewalk. Near the Benning Rd. and E. Capitol St. intersection, several fast food restaurants with drive-through windows, strip retail stores and an Exxon gas station line the street. All buildings are separated from the street by large parking lots, except for the Shrimp Boat restaurant on the northeast corner of Benning Road and E. Capitol St. The zoning one block north and south of the E. Capitol St. intersection provides for mixed-use zoning.

Historic and Economic Designations

This segment is outside of the L'Enfant Plan, and is therefore free of any legal restrictions on overhead wires (see Figure 2). Similarly, it does not pass through any historic districts (see Figure 3).

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[13] The zoning along the Oklahoma Ave. to East Capitol St. segment is a mixture of **C-2-A**, **C-3-A**, **C-M-1**, **M**, **R-2** and **R-5-A** designations.
C-M-1 allows "development of low bulk commercial and light manufacturing uses," with a maximum height of three stories or 40 feet.
M-1 allows general industrial uses with a maximum height of 90 feet. New residential uses are prohibited. **R-2** and **R-5-A** allow "matter-of-right development of single-family residential uses for detached and semi-detached structures" and a maximum height of three stories, or 40 feet.
Sources: *Summary of Zoning Districts* http://dcoz.dc.gov/info/districts.shtm; *District of Columbia Zoning Map* http://atlas.dcoz.dc.gov/DCZoningMap/default.aspx?resetsession=true; *Summary of Overlay Districts* http://dcoz.dc.gov/info/overlay.shtm

All developed portions of this segment fall within Enterprise Zones, many of which have poverty levels of 20 percent or higher (see Figure 6). The block between Bladensburg Rd. and 17th St. is within a Neighborhood Investment Fund area (see Figure 7).

Site & Building Design

Unadorned single-use strip retail space and large apartment complexes characterize the building design along the Oklahoma Ave. to the E. Capitol St. segment. Buildings are generally not oriented toward the street, and when they are, they are set back considerably. These factors combine to make for an unpleasant pedestrian experience. Street trees, however, are in abundance.

At the E. Capitol St. intersection, it is unclear where a streetcar turnaround/turn-back would be sited. The same applies at the end of the proposed streetcar line.

Parking and Car Dependency

Due to the high speed of traffic and greater abundance of off-street parking, street parking is not available along Benning Rd.

Metro Connectivity/Additional Transit Capacity

Orange and Blue Line Metrorail access is available at both ends of this segment (Minnesota Ave. Station and Benning Rd. Station). Streetcar service would likely provide more direct routes for riders who are making trips across the Anacostia River to H St. and Union Station.

The City intends to finance the capital costs of this segment of the streetcar system with Federal funds and conduct an EIS for this segment. (Note: FTA did not approve the 2010 grant application for that purpose and, as of this writing, it is not clear how this segment will be funded.)

Figure 12: Benning Road Metro Station Entrance

Overhead Wires

The lack of an established tree canopy along the western portion of this segment will leave overhead wires exposed. However, on the portion between Minnesota Ave. and E. Capitol St., a more mature tree canopy may mask some of the wires but will require tree pruning with "crotches" to accommodate the overhead wires.

#I – 3 Study Segment: New Jersey Ave./K St. – H St. to Rock Creek Parkway Bridge

Phase 1 – Later Construction

Land Use

Spanning the length of downtown, K St. is one of the District's most important commercial corridors. Lined with high-quality commercial office buildings that house offices for the legal profession and lobbyists, it has been intensively developed within the last 30 years. Nearly all buildings are built to the maximum heights allowed by current zoning regulations, reflecting the

area's high land values[14]. Many feature ground-floor retail space, which is occupied by an assortment of restaurants, financial institutions, and retail stores that serve a local clientele, mostly on weekdays. Despite the high level of pedestrian traffic during weekdays, a lack of housing near K St. limits street activity at night and on weekends. Major areas of pedestrian activity exist around the Metro stops at Farragut Square and the intersection with Connecticut Ave.

Historic and Economic Designations

Situated in the historic core of Washington, this segment is within the L'Enfant Plan. However, due to the almost complete redevelopment of the area's building stock, no historic districts have been established in the area (see Figure 3).

Three business improvement districts oversee streetscape maintenance and place-making activities along this segment, presenting unique partnership opportunities as its planning progresses (see Figure 5).[15] Most of this corridor is also within Downtown's Central Employment Area (see Figure 4).

Reflecting the diversity of the downtown population, all portions of this segment are within Enterprise Zones with poverty levels of 10 percent or higher. Between New Jersey Ave. and Mt. Vernon Square, the proposed streetcar route passes through the Shaw Neighborhood Investment Fund area (see Figure 7).

Site & Building Design

The building stock along the K St. corridor is of a comparatively recent vintage, reflecting the intensive efforts to maximize building heights (and thus office square footage) through redevelopment and rehabilitation of historic structures. The resulting effect is that buildings on both sides of the street are generally of the same age, same height, similar massing, and similar architectural styles. Other than International Square and several newer buildings, most of the architecture is undistinguished.

Figure 13: K Street at 20th Street, looking west

[14] The zoning between New Jersey Avenue and the Rock Creek Parkway Bridge is a mixture of **C-3-C, C-2-C, C-4**, and **R-5-E**. Between New Jersey Avenue and 12th Street, the Downtown Development Overlay District (**DD**) is in effect.
C-2-C allows "matter-of-right higher density development, including office, retail, housing, and mixed uses to a maximum lot occupancy of 80% for residential use, a maximum FAR of 6.0 for residential and 2.0 FAR for other permitted uses, and a maximum height of 90 feet."
C-3-C allows "matter-of-right development for major business and employment centers of medium/high density development, including office, retail, housing, and mixed uses to a maximum lot occupancy of 100%." Maximum height is 90 feet.
C-4 allows "office, retail, housing and mixed uses to a maximum lot occupancy of 100%...[and] a maximum height of 110 feet and 130 on 110-foot adjoining streets."
R-5-E allows "matter-of-right high density development of general residential uses, including single-family dwellings, flats, and apartment buildings, to a maximum lot occupancy of 75%" and a maximum height of 90 feet.
Sources: *Summary of Zoning Districts* http://dcoz.dc.gov/info/districts.shtm; *District of Columbia Zoning Map* http://atlas.dcoz.dc.gov/DCZoningMap/default.aspx?resetsession=true; *Summary of Overlay Districts* http://dcoz.dc.gov/info/overlay.shtm

[15] These are the Downtown DC Business Improvement District, the Golden Triangle Business Improvement District, and the Mount Vernon Triangle Community Improvement District.

The street right-of-way is a broad Parisian-style boulevard, with two lanes of through traffic running down the middle of the street in each direction. Wide medians separate the center lanes from service lanes with local parking on each side of the street. Sidewalks are wide, allowing a high volume of pedestrians to circulate comfortably. Buildings generally feature ground-level retail space that opens onto the wide sidewalk, thus supporting an engaging pedestrian environment. Views of the sky down this long corridor are currently free of utility or other wires, creating a sense of spaciousness.

Parking and Car Dependency

While street parking is available along K St.'s service lanes, it is limited relative to the density of the area. Numerous garages provide expensive parking for downtown employees and patrons. Auto traffic is heavy on this route, and there are often long cross-town backups during rush hour.

Metro Connectivity/Additional Transit Capacity

Most of the downtown K St. corridor has excellent Metrorail access. The street is anchored on the eastern end by the Red, Green and Yellow Lines at the Gallery Place/Chinatown Station and also is served by the Red, Orange and Blue Lines at Metro Center Station (two blocks south of K Street). Blue and Orange Line service is also available at McPherson Square and Farragut West Stations (between 14th and 17th Sts), while the Red Line can be accessed at Farragut North Station. One block south of Washington Circle the segment's western end, the Blue and Orange Lines can again be accessed at Foggy Bottom-GWU Station. Between 6th and 26th Sts., Metro stations are typically less than four blocks away. Although Metro stations are easily accessible within the neighborhood, a busway or streetcar route along K St. would alleviate some of the congestion in the downtown portion of the Metrorail system. Furthermore, enhanced transportation services would better link the bustling Georgetown, Downtown, and Chinatown neighborhoods.

Overhead Wires

K St. runs through the heart of the old Federal City and intersects with streets that lead to the White House and the Mall. The wide K St. right-of-way combined with an undeveloped tree canopy would leave overhead wires exposed and quite visible, clearly in conflict with the desire to preserve viewsheds downtown. The old DC streetcar system did not run wires in this part of the city.

#I – 4 Study Segment: K St. – Rock Creek Parkway Bridge to Wisconsin Ave.

Phase 1 - Later Construction

Land Use

Between the Rock Creek Parkway Bridge and Wisconsin Ave., K St. drops beneath the Whitehurst Freeway viaduct. Land uses fronting the street are a mixture of converted warehouses, a new movie complex, restaurants, and residential to the north; and the Georgetown waterfront development to the south.[16] Although the sidewalks fronting the street are narrow, a relatively high volume of

[16] The zoning between the Rock Creek Parkway Bridge and Wisconsin Avenue is a mixture of **W-1** and **W-2**. The entire Georgetown neighborhood is governed by the Georgetown HD overlay zone.
W-1 allows "matter-of-right low density residential, commercial, and certain light industrial development in waterfront areas to a maximum lot occupancy of 80% for residential use…and a maximum height of 45 feet"
W-2 allows "matter-of-right medium density residential, commercial, and certain light industrial development in waterfront areas to a maximum lot occupancy of 75% for residential use…and a maximum height of 60 feet."
Sources: *Summary of Zoning Districts* http://dcoz.dc.gov/info/districts.shtm; *District of Columbia Zoning Map* http://atlas.dcoz.dc.gov/DCZoningMap/default.aspx?resetsession=true; *Summary of Overlay Districts* http://dcoz.dc.gov/info/overlay.shtm

pedestrian traffic moves between M St. and the Georgetown waterfront, though the routes do not appear to have been carefully designed.

Historic and Economic Designations

Although this segment lies outside of the L'Enfant Plan area, viewsheds within it are protected by the governing regulations of the Georgetown Historic District (see Figure 3). Further, the Georgetown Business Improvement District adds another layer of oversight in streetscape planning and management (see Figure 5).

The western-most tail of this segment is within an Enterprise Zone but the eastern part is not (see Figure 6).

Site & Building Design

The freeway above K St. casts a shadow over the streetscape, both literally and figuratively. The steel freeway supports obstruct visibility on both sides of the street, creating a tunnel-like feeling. Street trees are not present; however, significant setbacks to the south have been landscaped with shrubs and trees, which, combined with the limited light that falls on portions of the roadway during the morning, softens the streetscape.

Figure 14: The Whitehurst Freeway looms above K Street

The area is generally not pedestrian-friendly: the hulking structures to the north loom over the road and freeway without significant street frontage, while the 'office park' development to the south is physically removed from the streetscape.

Parking and Car Dependency

While there is limited street parking on this segment of K St., pocket parking lots and nearby garages provide parking opportunities for relatively steep fees. A number of these lots may be redeveloped over time.

Metro Connectivity/Additional Transit Capacity

As no Metrorail stations exist in close proximity to Georgetown or to this segment, enhanced bus service from Metro and universities, plus Circulator service, has increased the number of ways in which residents of this part of Georgetown can reach downtown.

Overhead Wires

Given the existing freeway overpass, the installation of overhead wires would have a minimal visual impact on the already poor aesthetics of the street. However, if the elevated freeway were to be removed, as many have proposed, the wires would be very visible and detrimental near the waterfront.

From a policy point of view, the US Commission of Fine Arts would weigh in heavily on overhead wires in Georgetown since this area is within their jurisdiction.

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Route # I: Summary and Conclusions on H St./Benning Rd./K St. Corridor

North Capitol, H Sts./Benning Rd.to Oklahoma Ave.

Of all the routes in our survey, this is probably the highest priority. H St./Benning Rd. is ripe for permanent capital investment in public transit. A streetcar line could play a significant role in stimulating business development and residential redevelopment along the entire corridor. However, the DC Council should take steps to mitigate the effects of gentrification to protect low-income residents from inflated land values.

While overhead wires would diminish the quality of the new and exciting streetscape planned for the area, the DC Council has determined to proceed with this segment to include wires. However, the Council has determined to consider removing these wires when alternative non-overhead wire technologies become available.

K Street Corridor

While well-served by Metrorail, Metrobus and the Circulator, a streetcar line on the K St. Busway could relieve transit overcrowding in this busy part of the city. However, overhead wires will detract from the boulevard's appearance up to the underpass into Georgetown as noted above, where review by the Commission of Fine Arts would take effect.

Route # II. Martin Luther King Jr. Ave./M St., SE Corridor

Phases 1 and 3

NOTE TO READER REGARDING ALL ANACOSTIA SEGMENTS:

Figure 15: MLK Avenue at Good Hope Road

The lines in Anacostia run from Benning Rd. southward along Minnesota Ave., Good Hope Rd. (GHR), thence westward to Martin Luther King Jr. (MLK Jr.) Ave. and south again along Martin Luther King Jr. (MLK Jr.) Ave. to Howard Rd. The line from Benning Rd. follows Minnesota Ave. all the way to Good Hope Rd., thence turning right along GHR, perhaps to a junction with the other streetcar line crossing the 11th St. bridge somewhere between Minnesota Ave. and MLK Jr. Ave. and thence turning left to follow MLK Jr. Avenue to Howard Rd., where it turns right to a stop across the street from the east end of the Anacostia Metro Station and thence left along Firth Stirling Ave. to end at the maintenance yard/turnaround. This is all that is apparent from the maps published by DDOT, although the prospect of another junction of the line eastward from the new 11th St. bridge is unclear.

Overhead wires would crowd much of the now-open sky of GHR, wherever the line turns the corner at Minnesota Ave., following GHR; much of the area above the supposed junction of the 11th St. line with the Minnesota Ave. line; much of the now-clear vista above the intersection of GHR/MLK Jr. Ave.; and also in the now-clear vista above MLK Jr. Ave. and Howard Rd.

To the best of our knowledge based on conversations with several community leaders, Anacostia is not well informed about how the streetcar system will work in their community, why the routes are configured as shown, and how the presence of streetcars will positively affect economic development in the area. There is a clear need for the DDOT to answer questions about the proposed lines and expected ridership; and to study alternative routes including street pairings, line junctions, effects on business and residential property of the streetcar on the narrow streets of Minnesota Ave. (40' curb-to-curb), GHR, and MLK Jr. Ave.. What would be the effects on curb parking, business deliveries, and commuter traffic on all of these important streets? What will be the impact on GHR that, from its intersection with MLK Ave., is a major automobile commuter route in and out of the District? What will be the effects of the new 11th St. Bridge proposal on the community except for the razing of the carefully considered gasoline station at the junction of 13th St.t and GHR?

Anacostia needs the benefit of a full-scale public hearing to address the proposed streetcar impact on the community as soon as possible. All of the unknowns presented in this summary should be resolved favorably for the community before any construction is undertaken. All parties interested in the future of Anacostia, including the Anacostia Coordinating Council, should be invited, well in advance, to participate in the public hearing.

II – 1 Study Segment: Firth Sterling Ave./Howard Rd. – Bolling Air Force Base to MLK Jr. Ave.

Phase 1

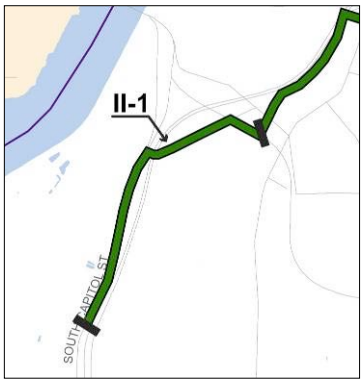

Figure 16a: Streetcar Route #II initially incorporates Segment II-1from the Minnesota Ave. line.

Land Use

The primary land uses along Howard Rd. between Martin Luther King Jr. Ave. and Firth Sterling Ave. are the Anacostia Metro station, a church, and Savoy Elementary School/Thurgood Marshall Academy. Firth Sterling Ave. is dominated by the I-295 expressway interchange and the now-abandoned CSX right-of-way. Zoning along this segment is not supportive of pedestrians and mixed-use development[17].

Historic and Economic Designations

This segment lies outside of L'Enfant Plan for the center city and skirts the southern edge of the Central Employment Area (see Figure 4). In addition, it does not lie within any historic or business improvement districts (see Figures 3 and 5, respectively).

The proposed streetcar route passes through three Enterprise Zones, two of which have poverty rates in excess of 20 percent (see Figure 6). It also passes through the Anacostia Economic Development Zone (see Figure 8).

Site & Building Design

The Howard Rd. and Firth Sterling Ave. rights-of-way support two lanes of auto traffic, which travels at high speeds in each direction. All buildings are set back significantly from the street, leaving pedestrians exposed, with few places of refuge. Few mature street trees exist along this segment. No turnaround for the Anacostia streetcar line had yet been designated.

Parking and Car Dependency

Minimal street parking is available along this segment; however, the parking lots at the church and Anacostia Metro stations provide limited off-street parking for some. Despite a hostile pedestrian environment, the Anacostia Metro Station at Howard Rd. and Shannon Place attracts significant numbers of pedestrians, providing an alternative to auto travel. Streetcar service will not likely have a significant impact on Metrorail ridership along this segment.

Metro Connectivity/Additional Transit Capacity

Access to Metrorail's Green Line (Anacostia Station) is adjacent to the proposed streetcar line on Howard Rd. at Sherman Place. The Metrorail connects this segment to downtown and northern Washington. Streetcar service will likely have a mixed effect on Metrorail ridership, and local passengers may opt to take the streetcar for short trips across the Anacostia River on the 11th St. Bridge to Capitol Hill and other parts of SE Washington while passengers wishing to go to downtown and beyond will still take Metrorail. Local residents also may take the streetcar instead of the bus to the Anacostia Metro Station.

Overhead Wires

An undeveloped tree canopy along Martin Luther King Jr. Ave. will leave overhead wires exposed.

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[17] The zoning between Martin Luther King Jr. Avenue and Bolling Air Force Base is a mixture of **R-5-A** and **C-M-1**.

II – 2 Study Segment: MLK Jr. Ave. – Howard Rd. to Good Hope Rd.

Phase 1 - Early Construction

Land Use

Martin Luther King Jr. Ave. is Anacostia's primary retail and commercial artery, lined with a mixture of historic 1- and 2-story commercial buildings, detached houses converted to non-residential uses, and vacant lots. A majority of the buildings have entrances that open directly onto the street, but only a few feature ground-level retail businesses and a significant number are vacant. Despite the relatively coherent built form along this segment, a lack of attractive pedestrian destinations reduces the street's overall vitality. On the west side of the street between V and W Sts. lies the old Curtis Brothers Furniture site (now a professional office buildings), while a former auto dealership occupies the land between W and Chicago Sts. Newer commercial buildings front the east side of the street. Zoning for this segment is supportive of mixed-use[18].

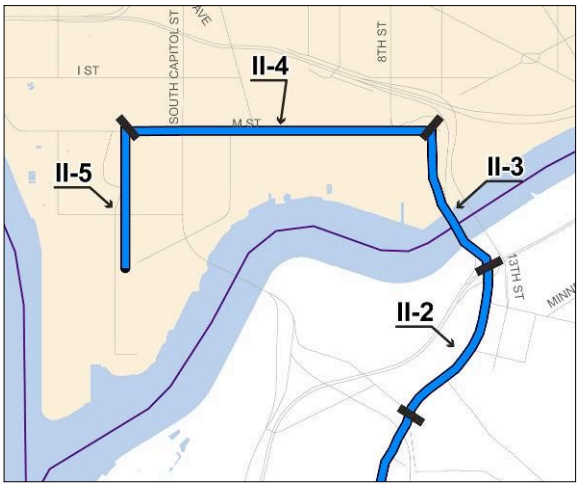

Figure 16b: Route # II is divided into five segments, which are defined in greater detail below.

Historic and Economic Designations

Cutting through Anacostia's downtown, this segment is within both the Anacostia Historic District between V St. and Good Hope Rd., and the Anacostia Business Improvement District (see Figures 3 and 5, respectively).

The entire segment is within Enterprise Zones with poverty rates of 20 percent or greater, as well inside the Anacostia Neighborhood Investment Fund Area between Morris Rd. and Good Hope Rd., and inside the Anacostia Economic Development Zone (see Figures 6 through 8, respectively).

Site & Building Design

The Martin Luther King Jr. Ave. right-of-way supports one lane of auto traffic and curbside parking in each direction. Buildings typically open directly onto the street with the exception of the Curtis Brothers site and several vacant lots that make them inhospitable to pedestrian activity. Some mature street trees exist along this segment, though empty tree boxes are noticeable. The sidewalks along this segment are 10 feet wide.

Parking and Car Dependency

Un-metered street parking is available along most portions of this segment, with additional parking available in a few pocket parking lots. A streetcar may decrease the rate of automobile usage, but might interfere with present street parking and business deliveries.

[18] The zoning between the Minnesota Avenue and Martin Luther King Jr. Avenue is a mixture of **C-2-A** and **C-3-A**.

Metro Connectivity/Additional Transit Capacity

The Green Line (Anacostia Metrorail Station) is proximate to the proposed streetcar line on Howard Rd. at Shannon Place.

Overhead Wires

An undeveloped tree canopy along Martin Luther King Jr. Ave. will leave overhead wires exposed. Between V and W Sts. and adjoining the Big Chair, is a new tree canopy, installed after many years of community demands, that poses potential interference with wires.

 # II – 3 Study Segment: 11th St. Bridge/M St. SE – Good Hope Road to 8th St.

Phase 1 - Later Construction

Land Use

Martin Luther King Jr. Ave. continues one block to the northeast of Good Hope Rd. but functions primarily as a one-way southbound off ramp for I-295. Two buildings front the northwest side of the street and appear to be of low-intensity commercial use.[19] On the northern side of the bridge, M St. SE between 11th and 8th is similarly unsuitable for pedestrians. A brick wall marks the Navy Yard's northern boundary while two low-lying buildings with low-intensity commercial uses are on the northern side of the street.[20]

Historic and Economic Designations

Lying completely within the L'Enfant's Plan, overhead wires are currently prohibited along this segment (see Figure 2). M St. is the southern edge of the Capitol Hill Historic District and the northern edge of the Washington Navy Yard Historic District between 10th and 7th Sts. SE (see Figure 3). The Capitol Riverfront Business Improvement District also governs the segment (see Figure 5).

The entire segment is within an Enterprise Zone with a poverty rate of 20 percent or higher (see Figure 6).

Site & Building Design

A rebuilt 11th St. bridge will include rails and be engineered to withstand the weight of streetcar and automobile traffic. Sidewalks along the existing bridge are poor, and a reconstructed bridge should include well-lit sidewalks that are wide enough to comfortably accommodate pedestrian traffic. On both sides of the bridge, the existing buildings front the street and provide the potential for an active pedestrian environment. However, gaps between buildings break up the frontage, creating a generally uninviting pedestrian experience. The triangular park between Potomac Ave. and M St. SE offers pedestrians a small refuge from the six lanes of traffic along M St.

Parking and Car Dependency

Some street parking is available on M St. between 10th and 9th Sts. Two street-level parking lots offer off-street parking. A streetcar line will make it easier to travel between Anacostia and the Navy Yard by public transit.

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[19] Zoning this segment is **C-M-1**, with a Planned Unit Development on the northeast corner of Good Hope Rd. and MLK Jr. Ave.

[20] Zoning for this segment is a mixture of **C-M-2** on the south side of the street, **C-M-1** on the north side between 11th and 9th, and **C-3-A** between 9th and 8th.

Metro Connectivity/Additional Transit Capacity

This segment is over one-half mile from the nearest Metro station. Although several bus lines currently run along this segment, streetcar service would improve connectivity between the Navy Yard and Anacostia.

Overhead Wires

Overhead wires would be exposed on the 11th St. Bridge and along M St. SE north of the Anacostia River.

II – 4 Study Segment: M St. SE/SW – 8th St. SE to 1st St. SW

Phase 1 – Later Construction

Land Use

M Street between 8th and 4th Sts. SE borders the brick wall that separates the Navy Yard from the street. A large surface parking lot on the northern side of the street provides parking for nearby businesses, Van Ness Elementary School and the Washington Nationals baseball fans between 7th and 5th Sts. The elementary school sits at the northeast corner of 5th and M Sts., while a cluster of new office and apartment buildings is present on both sides of the 4th St. intersection.[21]

Between 4th St. and New Jersey Ave., a former warehouse and adult entertainment district has been redeveloped into a corridor of new office and apartment buildings. These structures are built to the highest permissible heights and open onto wide, well-landscaped sidewalks. An occasional surface parking lot that serves the surrounding businesses and Nationals Stadium breaks up more or less continuous building frontage along the street.[22]

West of New Jersey Ave., redevelopment efforts are ongoing. In its first phase of construction, Monument Realty's Half St. project will include 50,000 square feet of new retail space, numerous restaurants, a 196-room boutique hotel, and 340 residential units. The centerpiece of the development is a mixed-use complex fronting both sides of the Half Street approach to Nationals Stadium.[23] These uses will likely generate large volumes of pedestrian traffic in the evening and during special events.

The redevelopment zone ends abruptly at South Capitol St., and the land uses shift to residential and low-intensity commercial uses west of the corridor.[24] Land uses include a 7-Eleven at the northwest corner of South Capitol and M St., the sides of row houses, and a fire station at Half St. SW.

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[21] Zoning between 8th and 4th Streets is **ES/C-3-A**, **R-5-B**, and **SEFC/CR**.
CR allows "matter-of-right residential, commercial, recreational and light industrial development…(with) a maximum height of 90 feet for all buildings and structures and 45 feet for public recreation and community centers."
The **Eighth Street Southeast Neighborhood Commercial Overlay District (ES)** "encourage(s) and allow(s) new business and office development in close proximity to the Navy Yard."
The **SE Federal Center Overlay District (SEFC)** "encourages high-density residential development with a pedestrian-oriented streetscape…(as well as) a variety of support and visitor-related uses, such as ground level retail, service, entertainment, cultural, and hotel or inn uses near the Navy Yard Metrorail Station."
Sources: *Summary of Zoning Districts* http://dcoz.dc.gov/info/districts.shtm; *District of Columbia Zoning Map* http://atlas.dcoz.dc.gov/DCZoningMap/default.aspx?resetsession=true; *Summary of Overlay Districts* http://dcoz.dc.gov/info/overlay.shtm

[22] Zoning between 4th St. and New Jersey Ave. is **CG/C-3-C**. The maximum allowable height in this zoning district is 90 feet.

[23] Zoning between New Jersey Ave. and South Capitol Boulevard is **SEFC/CR**, **CG/C-3-C**, and **CG/CR**

[24] Zoning between South Capitol and 1st Sts. SW is **CG/C-3-C, C-3-C**, and **R-4**.
R-4 "permits matter-of-right development of single-family residential uses…churches and public schools," with a maximum height of 3 stories, or 40 feet.

Historic and Economic Designations

This segment lies within the L'Enfant Plan for central Washington, and passes through the Capitol Hill Historic District and the Washington Navy Yard Historic District between 8th St. and 7th St.SE, and 8th St. SE and Isaac Hull Ave., respectively (see Figure 3). It is also under the jurisdiction of the Capitol Riverfront Business Improvement District between 8th St. and South Capitol St. (see Figure 5), and it passes through the Central Employment Area between 2nd St., SE and S Capitol St. (see Figure 4). The entire segment is encompassed by Enterprise Zones with 20 percent or higher rates of poverty (see Figure 6).

Site & Building Design

Given its industrial legacy, much of the M St. corridor has long been devoid of pedestrian amenities. Buildings face inward or toward parking lots rather than towards the street. This situation has been changing over the past two decades with the construction of mixed-use office buildings between 4th and South Capitol Sts. The newer buildings open directly onto the sidewalk, and often include ground-level retail features that activate the streetscape. The US Department of Transportation building features a large landscaped buffer along the street and pedestrian benches along a wide sidewalk; however, there is no entrance on the M St. side of the building, so foot traffic is reduced. Other areas within this segment have narrower sidewalks, and older buildings that do not engage with adjacent sidewalks.

Parking and Car Dependency

Although there is no street parking along this segment of M St., numerous street-level parking lots exist on parcels awaiting redevelopment. Some of the new mixed-use buildings include below-grade parking facilities like the US Department of Transportation Building. Together, existing lots accommodate a significant number of cars, thus reflecting a high rate of automobile usage in the area. However, as the area is built out, an increasing proportion of trips will likely occur on public transit.

Metro Connectivity/Additional Transit Capacity

Green Line Metrorail access is available at New Jersey Ave. and Half St. (Navy Yard Station). Numerous bus routes also serve the area. Streetcar service would enhance public transit service between the Nationals Stadium and Anacostia.

Overhead Wires

Given the recent planting of trees and wide width of M St., overhead wires would be quite visible, if they were permitted.

Sources: *Summary of Zoning Districts* http://dcoz.dc.gov/info/districts.shtm; *District of Columbia Zoning Map* http://atlas.dcoz.dc.gov/DCZoningMap/default.aspx?resetsession=true; *Summary of Overlay Districts* http://dcoz.dc.gov/info/overlay.shtm

 # II -5 Study Segment: First St. SW – M St. SW to R St. SW

Phase 1 – Later Construction

Land Use

First St. SW between M and R Sts. is lined primarily with residential buildings including historic row houses, duplexes, and apartment buildings.[25] At Q St. SW, the uses shift to warehousing and light manufacturing.

Historic and Economic Designations

This segment is within the L'Enfant Plan but is not inside the Central Employment Area (see Figures 3 and 4, respectively). Its final block between Q and R Sts. SW lies within the Capitol Riverfront Business Improvement District (see Figure 6).

The segment is within an enterprise zone with a 20 percent or greater rate of poverty (see Figure 6).

Site & Building Design

This segment is a narrow two-lane street, shaded by a mature canopy of trees. Grassy planting strips separate the sidewalk from the street and front lawns separate residential buildings from the sidewalks. Most buildings open directly onto the street, promoting pedestrian activity.

Parking and Car Dependency

Permitted and two-hour parking spaces constitute the bulk of available parking in the neighborhood. With the exception of two parking courts in front of apartment buildings, most residential units do not have parking spaces on the property. Residents of the neighborhood thus depend on street parking, and a streetcar line would likely displace some or all of the existing parking capacity along 1st St.. However, adjacent streets may be able to absorb some of the demand, and an increase in public transit access may offset the negative impact of lost parking spaces.

Metro Connectivity/Additional Transit Capacity

Access to Metrorail's Green Line (Navy Yard and Waterfront-SEU Stations) is good along this segment. Streetcar service to Anacostia may divert some traffic from the Metrorail system.

Overhead Wires

The narrow street width and mature tree canopy would at least partially obscure overhead wires along this street. The need to prune the trees to accommodate the overhead wires would modify the canopy.

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Route # II: Summary and Conclusions on MLK Jr. Ave./ M St. SE Corridor

Streetcars could significantly improve public transportation options to the growing population of workers and residents of SE Washington, connect neighborhoods within Anacostia and spur economic investment in the area. However*, additional route planning in Anacostia is critical and should be a DDOT priority well in advance of construction*.

[25] Zoning along this segment is **R-4** and **CG/CR**.

Route # III: 8th St./Martin Luther King Jr. Ave./K St./H St. Corridor

Phase 1

(See *NOTE TO READER REGARDING ALL ANACOSTIA SEGMENTS at the beginning of* ***Route # II*** *above.)*

 # III – 1 Study Segment: MLK Jr. Ave. SE – Savannah St. SE to Howard Rd. SE

Phase 1 – Later Construction

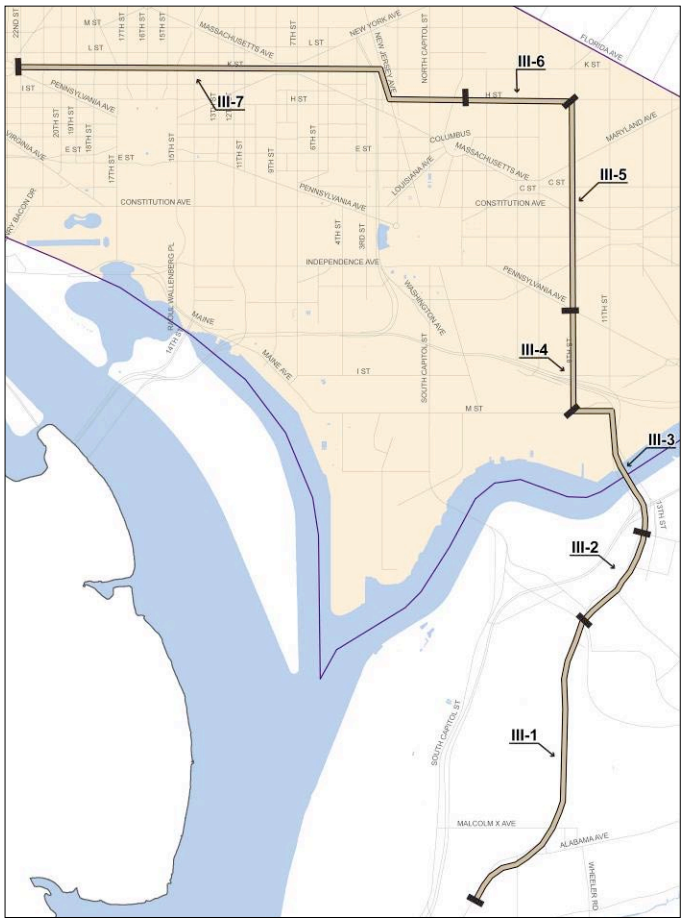

Figure 17: Route # III is divided into seven segments, which are defined in greater detail below.

Land Use

Martin Luther King Jr. Ave., SE is an important commercial and residential corridor between the Anacostia Historic District and the residential areas to the southwest. The primary land uses along this segment include apartment buildings, single-family houses, institutional buildings and small commercial establishments.[26] Some houses are below the street grade. For two blocks northeast of the segment's origin at Savannah St., the National Children's Center, detached single-family houses, row houses and a few churches line the street. With the exception of the Children's center, which is set back from the street, all buildings face and open onto sidewalks shaded by a mature tree canopy. Between Alabama Ave. and Milwaukee Place, small businesses, restaurants, and small grocery stores occupy many row houses and other 1- to 2-story buildings.

North of Milwaukee Place is the St. Elizabeth's Hospital complex. Northeast of the hospital complex, apartment buildings, single family houses, churches and the Excel Academy Public Charter School front the street.

On the Hospital site, a stone wall and a metal fence define hard boundaries along the west and east sides of the street, creating a half-mile-long pedestrian channel with no buildings fronting the corridor. This stretch, although well landscaped, lacks uses that generate or are conducive to pedestrian activity. The Department of Homeland Security (DHS) will occupy much of the site with a high security, gated complex that will separate those inside from the community. DHS should work closely with other federal and local agencies during planning and design to ensure convenient

[26] Zoning along this segment is a mixture of **R-2**, **R-4**, **R-5-A**, and **W-3**.
W-3 allows "matter-of-right high density residential, commercial, and certain light industrial development in waterfront areas to a maximum lot occupancy of 75% for residential use," and a maximum height of 90 feet.
Sources: *Summary of Zoning Districts* http://dcoz.dc.gov/info/districts.shtm; *District of Columbia Zoning Map* http://atlas.dcoz.dc.gov/DCZoningMap/default.aspx?resetsession=true; *Summary of Overlay Districts* http://dcoz.dc.gov/info/overlay.shtm

access for those commuting by streetcar or other public transit, a goal consistent with the Transportation Element of the Comprehensive Plan's policies to create new and innovative transit services to meet unmet transit needs, and development of inter-modal transit centers that provide greater transit access and improved interconnectivity for federal commuters.

Historic and Economic Designations

Outside of L'Enfant's central city and the Central Employment Area, this segment passes through the St. Elizabeth's Hospital Historic District between Milwaukee Place SE and Dunbar Rd. SE (see Figure 3). The Anacostia Business Improvement District encompasses the segment between Redwood St. SE and Howard Rd. (see Figure 5).

North and south of the St. Elizabeth's Hospital complex, the segment lies within Enterprise Zones with rates of poverty over 20 percent (see Figure 6). Between Alabama Ave. SE and LeBaum St. SE, the segment is within Congress Heights Neighborhood Investment Fund Area (see Figure 7). The route also passes through the Alabama Ave. Economic Development Zone between Savannah Rd. SE and Malcolm X Ave. SE and through the Anacostia Economic Development Zone between Malcolm X Ave. SE and Howard Rd. SE (see Figure 8).

Site & Building Design

A mature tree canopy and grassy planting strips that separate the street from the sidewalk are consistent features along this segment of Martin Luther King Jr. Ave. These amenities, combined with buildings that open directly onto the sidewalk, create a pleasant pedestrian environment.

Parking and Car Dependency

Street parking is available along most of the southern portions of this segment but is prohibited north of Milwaukee Place. A handful of surface parking lots provide parking capacity for businesses and churches along the street. A handful of gas stations are also located along the street. Although many local residents depend on this street as an automobile route, a bus lines appears to be well used, indicating a local willingness to use public transit. Streetcar service may attract more public transit customers.

Metro Connectivity/Additional Transit Capacity

Metrorail's Green Line (Anacostia Station) serves the northern end of this segment; however, a significant majority of structures along it are over a ½-mile walk from the nearest Metrorail station. Streetcar service would facilitate public access to the St. Elizabeth's complex as well as to businesses lining the corridor.

Overhead Wires

Although this segment is relatively narrow compared to others, overhead wires will be visible for most of its length, except in a few places where they may be obscured by trees.

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NOTE: The following study segments overlap with those described in **Route # II.** *They are to be completed as part of the Martin Luther King Jr. Ave./M St., SE Corridor.*

 # III – 2 Study Segment: MLK Jr. Ave. – Howard Rd. to Good Hope Rd.

Phase 1 – Earliest Construction

 # III – 3 Study Segment: 11th St. Bridge/M St. SE – Good Hope Rd. to 8th St.

Phase 1 – Later Construction

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 # III – 4 Study Segment: 8th St. SE – Navy Yard to Eastern Market Metro Station

Phase 1 – Later Construction

Land Use

North of Navy Yard, the Barracks Row section of 8th Street, SE hosts an eclectic and upscale historic retail district anchored by the Marine Barracks on the southern end and the Eastern Market Metro station to the north. After a number of years under construction for streetscape and road surface improvements, this part of 8th St. now hosts a mixture of neighborhood restaurants and retail businesses with upscale bars and restaurants providing a mix of services for people throughout the city as well as local residents.[27] This diversity of uses fosters a vibrant pedestrian thoroughfare.

Historic and Economic Designations

This segment is in the L'Enfant Plan, is entirely within the Capitol Hill Historic District (see Figure 3). It also cuts through the Capitol Riverfront Business Improvement District between M St. and Virginia Ave., and the Capitol Hill Business Improvement District between I St. and the Eastern Market Metro Station (see Figure 5).

Barracks Row is a National Main Street Program, with strong collaboration among merchants and property owners along the business section of the street.

Site & Building Design

As part of a recent program of streetscape improvements, 8th St. has been narrowed and the sidewalks widened, facilitating comfortable pedestrian movement. Streetlamps line the street, and DDOT has installed bike racks. A healthy and nearly mature tree canopy shades the street, providing pedestrians with a pleasant and safe walking experience.

Parking and Car Dependency

Metered parking spaces are available along 8th St., but high demand limits the number of available spots at any given time.

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[27] The zoning along this segment is **CHC/C-2-A** and **ES/C-3-A.**
An **ES** designation encourages "new business and office development in close proximity to the Navy Yard…as well as neighborhood-serving retail and service businesses." Also limits building heights to respect the historic scale of buildings.
CHC (Capitol Hill Commercial Overlay) encourages the "provision of functional, efficient, and attractive commercial areas" while remaining sensitive to the historic nature of the district.
Sources: *Summary of Zoning Districts* http://dcoz.dc.gov/info/districts.shtm; *District of Columbia Zoning Map* http://atlas.dcoz.dc.gov/DCZoningMap/default.aspx?resetsession=true; *Summary of Overlay Districts* http://dcoz.dc.gov/info/overlay.shtm

Metro Connectivity/Additional Transit Capacity

Metrorail's Blue and Orange Lines (Eastern Market Station) can be accessed at the northern end of this segment. For those traveling in a north-south direction, numerous buses connect H St./Benning Rd. with Barracks Row. Riders who wish to travel toward H St. will likely utilize the proposed streetcar line. Traveling towards Anacostia, the streetcar would provide direct access between Barracks Row and east of the River. However, the proposed streetcar line is unlikely to reduce congestion on Metrorail as there is little overlap between their respective service areas.

Overhead Wires

Overhead wires would have a detrimental impact on the aesthetic improvements already made to the area's building stock and streetscape, in particular, the maturing tree canopy.

 # III – 5 Study Segment: 8th St. SE – Eastern Market Metro Station to H St. NE

Phase 1 – Later Construction

Land Use

North of the Eastern Market Metro Station (Blue and Orange Lines), land uses along the proposed 8th St. route primarily consist of detached single-family residences and row houses. Retail businesses are clustered at major intersections along Maryland Ave. and H St. The consistent residential character and landscaping contribute to making this an attractive pedestrian street.[28]

Historic and Economic Designations

This segment is within the L'Enfant Plan, and between the Eastern Market Metro Station (Blue and Orange Lines), and F St. NE, it is within the Capitol Hill Historic District (see Figure 3). Additionally, it passes through the Capitol Hill Business Improvement District between the Metro station and Independence Ave. (see Figure 5).

Between Massachusetts Ave. NE and H St. NE, route passes through two Enterprise Zones with poverty rates between 10 and 20 percent (see Figure 6). The H St. NE Neighborhood Investment Fund area extends two blocks south to F St. NE (see Figure 7).

Site & Building Design

The detached single-family and row houses at the southern end of this segment are characteristically larger than the more modest homes at its northern end. With a uniformly mature tree canopy, the entire 8th St. corridor between the Eastern Market Metro Station (Blue and Orange Lines) and H St. provides a shaded and pleasant pedestrian experience. All houses are situated near, and open onto, the sidewalk, fostering an intimate pedestrian experience.

Parking and Car Dependency

Un-metered parking spaces are available along 8th St. for local residents, but parking spaces are difficult to find in some areas. Most of the alleys are quite narrow and not suitable for parking; few houses have garages. Alternative parking options are limited, and many young families have more than one car.

[28] The zoning along this segment is **R-4**, with **C-2-A** at Maryland Ave., H St., and Florida Ave..

Metro Connectivity/Additional Transit Capacity

Aside from Blue and Orange Line connectivity (Eastern Market Station) at the southern end of this corridor, there is no Metrorail access in immediate proximity to this segment. However, bus service between the Metro and H St. is fairly frequent.

Overhead Wires

The relatively narrow right-of-way along 8th St. combined with a mature canopy of street trees could interfere significantly with overhead wires.

NOTE: The following study segments overlap with those described in ***Route # I****. They are to be completed as part of the H St./Benning Rd./K St. Corridor.*

 # III – 6 Study Segment: Proposed Union Station connection to H St.

Phase 1 – Earliest Construction

 # III – 7 Study Segment: K St. NW – New Jersey Ave. to Rock Creek Parkway Bridge

Phase 1 – Later Construction

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Route # III: Summary and Conclusions on 8th St./MLK Jr., Ave./K St./H St. Corridor

The route alignment follows streets that cut through several historic districts where overhead wires would diminish the historic and aesthetic significance of those spaces.

When completed, a portion of this streetcar route would connect Anacostia and Capitol Hill's residential and commercial neighborhoods to entertainment and employment centers in downtown Washington and would improve connectivity between the city's neighborhoods.

However, we question the need for a streetcar along 8th St. from M St., SE to H St./Benning Rd. and Florida Ave. This area is already commercially successful, has an established residential character, and is served amply by N/S buses. We urge the city to explore another N/S connection across Capitol Hill, perhaps connecting Reservation 13 with Benning Rd.

Route # IV: Georgia Ave./14th St./7th St. Corridor

Phases 1, 2 and 3

NOTE: The following study segment overlaps with that described in Route # II. It is to be completed as part of the Martin Luther King Jr. Ave./M St., SE Corridor.

 # IV – 1 Study Segment: 1st St. SW – M St. SW to R St. SW

Phase 1 – Later Construction

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 # IV – 2 Study Segment: M St. SW/Maine Ave. SW/7th St. SW – 1st S. SW to I-395

Phase 3

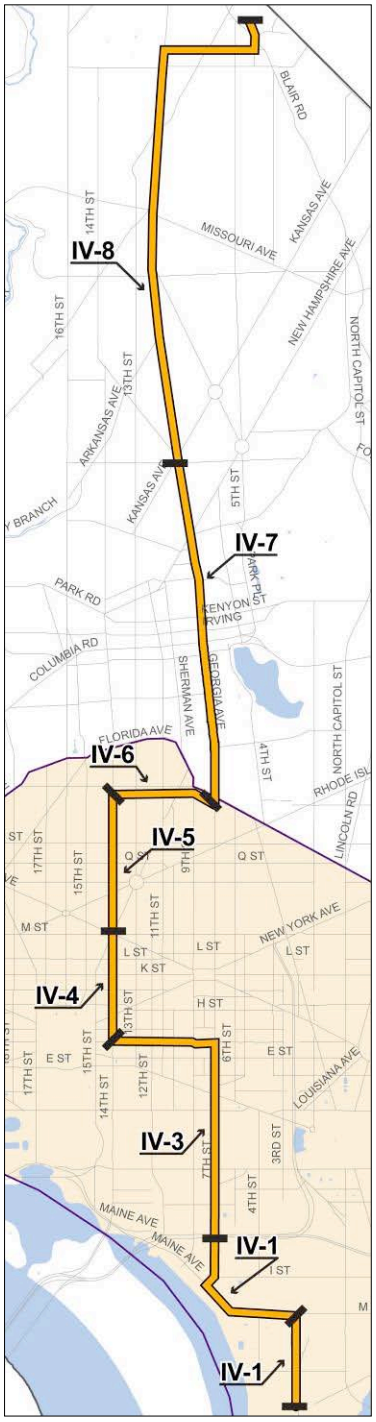

Figure 18: Route # IV is divided into eight segments, which are defined in greater detail below.

Land Use

Apartment complexes, office buildings and parks are the most common land uses along this segment.[29] They are primarily single-use structures that turn their backs onto the street, a reflection of modernist planning prevalent during the mid-twentieth century. Townhouses in the Tiber Island development between 3rd and 6th Sts. are an exception to this pattern, with back entrances facing the street. The new pedestrian-oriented office development at the Waterfront-SEU Metrorail station also engages with the corridor, featuring a Safeway supermarket that opens directly onto a plaza and sidewalk. M St. has few surface parking lots, but north of the Arena Stage on Maine Ave. and on 7th St., they are more common. Approaching I-395 on 7th St., Jefferson Jr. High School is a major institution that will likely generate a significant number of streetcar trips.

Historic and Economic Designations

This segment is within the L'Enfant Plan, but is outside the Central Employment Area as well as historic or business improvement districts (see Figures 3 through 5), perhaps because it was completely redeveloped in the 1950s.

Enterprise Zones, Neighborhood Investment Fund Areas, and Economic Development Zones are similarly absent from this segment (see Figures 6 through 8).

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[29] Zoning is a mixture of **R-5-A**, **R-5-B**, **R-5-D**, **R-3**, **R-4**, **C-3-C**, and **W-1**.
R-5-D allows "matter-of-right medium/high density development of general residential uses" with a maximum height of 90 feet.
R-3 allows "matter-of-right development of single-family residential uses (including detached, semi-detached, and row dwellings), churches and public schools".
Sources: *Summary of Zoning Districts* http://dcoz.dc.gov/info/districts.shtm; *District of Columbia Zoning Map* http://atlas.dcoz.dc.gov/DCZoningMap/default.aspx?resetsession=true; *Summary of Overlay Districts* http://dcoz.dc.gov/info/overlay.shtm

Site & Building Design

Land uses along this segment are generally disengaged from the street, with many buildings facing inward towards interior courtyards and plazas. This unique configuration can be traced back to the urban renewal program of the 1950s, which was responsible for the demolition of nearly all buildings and streets in the southwest quadrant of Washington. In its place, a number of Modernist style apartment and office complexes were built, nearly all of which remain today. M St., Maine Ave., and 7th St. are broad divided 6-lane roads, reflecting the priority given to automobiles in the neighborhood's redesign.

The streetscape is generally well shaded by a mature canopy of trees, but a lack of attractive buildings along the corridor makes for a comparatively unpleasant pedestrian environment. There are very few stores or services in the neighborhood, and one must walk considerable distances to reach those that do exist.

Parking and Car Dependency

Parking is plentiful along this segment; most apartment buildings have private parking lots, and visitor parking is available in numerous surface parking lots. While no street parking exists along M St., there are parallel parking spaces on 7th St. Given the land use pattern in this neighborhood, it is easier to travel by car than by public transportation. That said, redevelopment projects similar to those at 4th and M Sts. could induce greater public transportation use by providing high-quality pedestrian space around upgraded public transportation amenities.

Metro Connectivity/Additional Transit Capacity

This segment is well served by Metrorail stations. Nearly all buildings are within a one-half mile walk of either the Green Line (Waterfront-SEU Station) on the southwest end, or the Blue, Green, Orange, and Yellow Lines (L'Enfant Plaza) to the northern end. Streetcar service would conveniently link the neighborhood to downtown, especially places north of K St. along 14th St.

Overhead Wires

Overhead wires would be visually apparent along this segment.

 # IV – 3 Study Segment: 7th St./F St. NW – I-395 to 14th St. NW

Phase 3

Land Use

Federal office buildings dominate the southern end of this segment while its northern end passes through a varied landscape of historic and modern office buildings downtown.[30] In between, the National Mall acts as a major recreation space and tourist attraction. Between E and D Sts. SW, the modern Expressionist-style Housing and Urban Development building occupies an entire block, and its austere public plaza separating the building from the street symbolizes the disengaged nature of the federal office complexes in the neighborhood. Most buildings are set back from the street with only a few entrances onto the sidewalk, limiting pedestrian circulation and providing few amenities

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[30] Zoning is a mixture of **C-3-C**, and **DD/C-4**.
The **Downtown Development Overlay District (DD)** "contains provisions for the retail core, arts district, Chinatown, residential and mixed-use development, historic preservation, combined lot development, transferrable development rights (TDR), office use and streetscape design."
Source: *Summary of Zoning Districts* http://dcoz.dc.gov/info/districts.shtm; *District of Columbia Zoning Map* http://atlas.dcoz.dc.gov/DCZoningMap/default.aspx?resetsession=true; *Summary of Overlay Districts* http://dcoz.dc.gov/info/overlay.shtm

for beverages and food. The Hirshhorn Museum and the National Air and Space Museum at Independence Ave. and the National Gallery of Art and National Archives at Constitution Ave. attract significant numbers of people. Although a large number of people use the space by day, activity falls off at night due to the lack of residents and commercial development including restaurants and bars.

The National Mall north of the L'Enfant Plaza neighborhood is among Washington's most important spaces. Heavily used by tourists and local residents alike, it will function as a major destination for streetcar patrons. Plans for upgrading the Mall include kiosks and cafes should also take into account and plan for future streetcar stops along the route.

Along 7th St. north of Pennsylvania Ave., a mix of historic retail, office buildings and hotels are the dominant land uses. Large numbers of people visiting the museums at Gallery Place/Chinatown and sports events at the Verizon Center (formerly the MCI Center) also walk south on 7th St. to patronize the numerous bars and restaurants in the area. Nearly all buildings offer a mixture of retail/restaurant and office uses.

Moving west on F St. towards 14th St., retail establishments account for a lower percentage of ground-level uses, and office buildings become more prevalent. These businesses serve a more local clientele with stores like Zara, Banana Republic, and Borders Books providing a visible presence along the street.

Figure 19: Looking east on F Street

Historic and Economic Designations

This segment falls within L'Enfant's central city as well as the Central Employment Area (see Figure 4). Heading north, the route cuts through the National Mall, Federal Triangle, and Downtown Historic Districts (see Figure 3). The Mall is under the jurisdiction of the US Commission on Fine Arts (Shipstead-Luce Act), as well as the National Capitol Planning Commission and the National Park Service. Additionally, it passes through the Downtown DC Business Improvement District north of Constitution Ave. (see Figure 5).

Downtown Washington north of Independence Ave. is overlaid with Enterprise Zones that have poverty rates in excess of 20 percent (see Figure 6).

Site & Building Design

The design of the streetscape varies dramatically along this segment. In the blocks near L'Enfant Plaza, large buildings are physically removed from the street by landscaped buffers and large, exposed plazas. Trees line the street, but are dwarfed in scale by the buildings, and they fail to provide a shady pedestrian environment.

In the downtown area north of the Mall, rehabilitated historic office buildings feature numerous entrances that open directly onto the sidewalk. Trees are relatively small, and while they provide a welcome counterpoint to the continuous building wall along the street they do not provide a substantial tree canopy.

Parking and Car Dependency

The relatively high density of development along this segment and lack of parking encourages the use of public transit. Metered parking spaces exist along 7th and F Sts., and parking garages accommodate a limited number of vehicles at high parking rates.

Metro Connectivity/Additional Transit Capacity

Metro service along this segment is excellent, with the Yellow, Green, Blue and Orange Lines accessible on its southern end (L'Enfant Plaza Station), Green and Yellow Line entries at the Navy Memorial (Archives-Navy Memorial/Penn Quarter Station), and the Red, Green and Orange Lines accessible at Metro Center (Metro Center Station). All Metrorail lines serve this segment. In spite of this, streetcar service is likely to be well-patronized by large numbers of visitors to the area who wish to make shorter trips within downtown.

Overhead Wires

Given the prominent downtown location of this segment, overhead wires would have significant adverse impacts on several key viewsheds. Chief among these are the National Mall and the retail and entertainment district along 7th St. *Any future streetcar line should be subject to an absolute prohibition against overhead wires in these iconic locations.*

 # IV – 4 Study Segment: 14th St. NW – F St. to Thomas Circle

Phase 1 – Later Construction

Land Use

Between F St. and New York Ave., development along 14th St. consists of a mix of modern and historic office and bank buildings. A variety of retail establishments line the street; some chain retail stores exist, but most are small businesses that serve the large volume of tourism and business-related pedestrian traffic. North toward New York Ave., office buildings also feature ground-level establishments, though they are more set back from the sidewalk. Most buildings lining 14th St. are built to the height limit prescribed by DC zoning codes.[31]

Historic and Economic Designations

The L'Enfant Plan boundary, Central Employment Area, and the Downtown DC Business Improvement District completely encompass this segment (see Figures 4 and 5). It does not, however, pass through any historic districts (see Figure 3).

The entirety of this segment is within Enterprise Zones (see Figure 7).

Site & Building Design

The character of the streetscape along this segment is supportive of pedestrian activity. Wide sidewalks of uniform width allow pedestrians to move freely, while the lushly landscaped tree planter boxes south of K Street create an aesthetically pleasing walking environment. Between I and K Sts. Franklin Park features benches and shade and offers a place of respite for pedestrians. Numerous hotels are in the immediate park vicinity, including the Hamilton Hotel on the park, and the Residence Inn on Thomas Circle. Building openings are oriented to the street, and the street is well lit at night by street lamps and ambient light from the surrounding buildings.

[31] The zoning between F Street and Thomas Circle is **C-4** (Downtown Core). The Downtown Development Overlay District (**DD**) is in effect between F Street and New York Avenue.

Parking and Car Dependency

While there is no street parking along most of this segment of 14th St., metered parking is available during non-commute hours north of K St. and nearby garages provide additional parking capacity for a fee. Bicycling conditions along the segment are designated as "poor" by DDOT, though a bike-sharing kiosk is located at the corner of 14th and H Sts.[32]

Metro Connectivity/Additional Transit Capacity

Metrorail's Blue and Orange Lines (McPherson Square Station) can be accessed one block to the west of 14th St.. Given its proximity, Franklin Square Park would likely function as a transfer point for Metro riders who wish to continue their journey by streetcar.

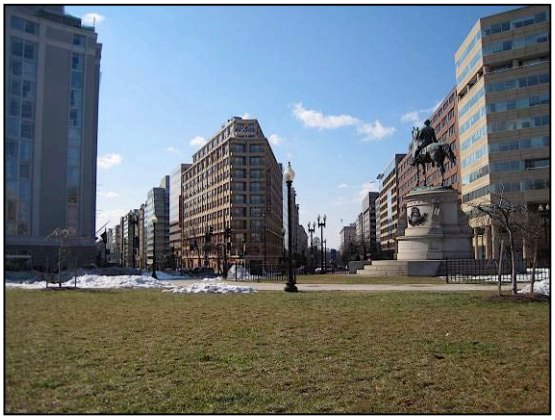

Figure 20: Open vistas at Thomas Circle would be obscured by overhead wires

Overhead Wires

Overhead wires would be visually prominent along this segment. Given the historic character of many downtown office buildings, overhead wires would be visually inconsistent with the character of the neighborhood. Moreover, the routing of streetcar tracks through Thomas Circle would require installation of a web of stay wires to enable the overhead wires to curve around the Circle that would threaten important monumental views of the circle itself along with those of the surrounding churches.

 # IV – 5 Study Segment: 14th St. NW – Thomas Circle to U St.

Phase 1 – Later Construction

Land Use

The two blocks immediately north of Thomas Circle function as a zone of transition between downtown and the 14th St. Arts District with churches and hotels giving way to a retail district.[33] Recent investment in the formerly dilapidated building stock of the area has fueled a renaissance between N St. and U St., with an eclectic collection of independent stores and restaurants having developed over the past decade. At P St., the Studio Theater is an important cultural resource that draws people to the area during evenings. To the north is the Source Theater, and a few blocks south, the Playbill Café. The nearby Whole Foods signals the ongoing demographic shift as affluent professionals move into the numerous new apartment buildings in the area. Despite this, 14th St.

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[32] *District of Columbia Bicycle Map*. March 2009. http://ddot.washingtondc.gov/ddot/cwp/view,a,1245,q,629849,ddotNav,%7C32399%7C.asp

[33] The zoning along 14th Street is **SP-2** between Thomas Circle and N St., **ARTS/C-3-A** between N St. and Wallach Place, and is **ARTS/CR** between Wallach Place and U St.. The corridor is also subject to the Greater 14th St. HD Overlay District.

SP-2 allows "matter-of-right medium/high density development including all kinds of residential uses, and limited offices for non-profit organizations, trade associations and professionals if approved as a special exception by the Board of Zoning Adjustment. Maximum lot occupancy of 80% for residential use except a hotel, 20% for public recreation and community centers and 40% with special exception approved from the BZA." Maximum allowable building height is 90 feet.

CR allows "matter-of-right residential, commercial, recreational and light industrial development to a maximum lot occupancy of 75% for residential use, 20% for public recreation and community center use (up to 40% with Board of Zoning Adjustment approval…[and] a maximum height of 90 feet for all buildings and structures and 45 feet for public recreation and community centers."

Sources: *Summary of Zoning Districts* http://dcoz.dc.gov/info/districts.shtm; *District of Columbia Zoning Map* http://atlas.dcoz.dc.gov/DCZoningMap/default.aspx?resetsession=true; *Summary of Overlay Districts* http://dcoz.dc.gov/info/overlay.shtm

continues to host a diverse mix of pedestrians drawn to an array of uses ranging from a Bang and Olufsen store to several homeless shelters between Q and R Sts. Towards U St., there is a slight increase in the concentration of restaurants; however, several pocket parking lots are interspersed amongst buildings that are in varied states of repair.

Historic and Economic Designations

This segment is within L'Enfant's center city and it passes through the Greater 14th St. Historic District south of S St., and the Greater U St. Historic District north of S St. (see Figure 3).

Enterprise Zones can be found on both sides of this segment, with poverty rates over 20 percent in occurrence to the east of 14th St. NW (see Figure 6). The Logan Circle Neighborhood Investment Fund Area envelops the entire segment (see Figure 7).

Site & Building Design

The streetscape along this segment is supportive of pedestrian activity, with wide sidewalks and a diverse and, in some places, vibrant mixture of retail establishments. Mature street trees line the street, giving shade to pedestrians, and cobra head street lamps provide nighttime illumination. Most buildings lining the street are older and between two and three stories tall.

Figure 21: Looking north on 14th Street

Parking and Car Dependency

Parking lanes with metered parking spaces line 14th St. in both directions, while bike lanes provide dedicated road space for cyclists.

Metro Connectivity/Additional Transit Capacity

The 14th St. streetcar corridor is anchored at its northern end by the Green and Yellow Lines of the Metrorail system (U St./African-American Civil War Memorial/Cardozo Station), and numerous bus lines run along the street. Metro access is good towards the U St. intersection, but a streetcar line would enhance overall public transit service along the corridor.

Overhead Wires

Numerous historic, but un-renovated buildings along the 14th St. corridor provide enormous potential for redevelopment. While investments in existing building stock and a redesign of the streetscape would significantly improve the aesthetics of the street, overhead wires will add an undesirable visual element to this street.

IV – 6 Study Segment: U St. NW – 14th St. to Georgia Ave.

Phase 1 – Later Construction

Land Use

The U St. corridor between 14th St. and Georgia Ave. is one of the most recently gentrified neighborhoods in the District. The street is lined with restaurants, bars, clubs, and boutiques between 14th and 11th Sts. that attract significant pedestrian traffic during the afternoon and evenings. Between 11th and Georgia Ave., older service businesses that serve a local clientele predominate. The variety of businesses is supplemented by cultural attractions like the Lincoln Theater, the African American Civil War Memorial and a flea market at 9th St., while DC government office buildings at 14th and 9th Sts. are significant neighborhood employment centers. To the north is the renovated Tivoli complex, including the GALA Hispanic Theater. Cultural tourism signs along a historically significant pedestrian route contribute to the vibrancy of the street. The zoning along the street permits the mixture of uses evident in the existing building pattern.[34]

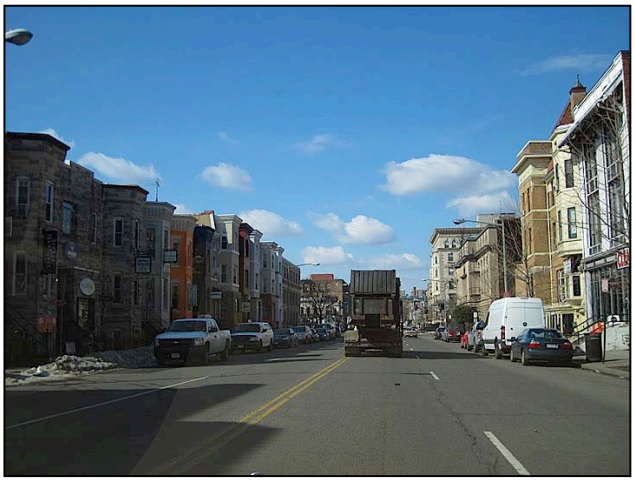

Figure 22: Looking west on U Street

Historic and Economic Designations

Within the L'Enfant Plan, this segment is also completely within the Greater U St. Historic District (see Figure 3).

Between 11th St. NW and Georgia Ave. NW, the segment cuts through an Enterprise Zone with a poverty rate over 20 percent, while it skirts the northern edge of the Logan Circle and Shaw Neighborhood Investment Fund areas (see Figure 5 and 6 on pages 14 and 15).

Site & Building Design

The small lots lining this segment house small, historic buildings that were built to a pedestrian scale. The businesses that inhabit them attract considerable pedestrian traffic that is accommodated by the street's wide sidewalks. The street is planted with mature street trees; however, pedestrian benches are few, except for those at the bus shelter at 14th St.

Parking and Car Dependency

This segment features a parking lane with metered parking spaces for cars for most of its length.

Metro Connectivity/Additional Transit Capacity

This street segment is well served by the Green and Yellow Lines (U St./African American Civil War Memorial/Cardozo Station). Streetcars would provide enhanced service to stops along the 14th St. corridor.

Overhead Wires

The presence of many renovated historic buildings along the U St. corridor creates a visually pleasing aesthetic that overhead wires would disrupt.

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[34] The zoning along U Street is **ARTS/CR**, **ARTS/C-2-A**, and **ARTS/C-2-B**.

IV – 7 Study Segment: Georgia Ave. NW – Florida Avenue to Kansas Ave.

Phase I-Later Construction

Land Use

This 4-mile-long streetcar segment would extend north through a predominantly residential portion of the District. For much of its length, the parcels fronting the corridor are zoned commercial, while the neighborhoods on either side are residential.[35] Designated as US Highway 29, many of the land uses are auto-oriented, including used car lots, auto repair shops, and gas stations. Despite this, most buildings open directly onto the street and are primarily small, independent businesses conducive to pedestrian circulation. Howard University commands a significant presence between Florida Ave. and Gresham Place, and its park-like landscaping provides walking paths and shade. Surrounding the Georgia Avenue-Petworth Metrorail station, restaurants and bars complement the predominantly service-oriented businesses that line the street.

Figure 23: Looking north on Georgia Avenue

Historic and Economic Designations

Situated north of Florida Ave., one of the L'Enfant Plan boundaries, this segment is not protected by the federal ban on overhead wires (see Figure 2). It also lies outside of the Central Employment Area and any business improvement districts (see Figures 4 and 5).

For most of its length, this segment is bordered by Enterprise Zones with poverty rates in excess of 20 percent (see Figure 6). Between Calvert St. NW and Kansas Ave. NW, the segment is within the Columbia Heights Neighborhood Investment Fund Area (see Figure 7).

Site & Building Design

The small historic buildings on small lots were built to a pedestrian scale. The businesses that inhabit them attract modest pedestrian traffic, but the high speed of auto traffic negatively impacts the pedestrian experience. Although most buildings are between 2 and 3 stories high, recently constructed residential apartments near the Metrorail station have added vertical density to the area. The street is generally planted with mature street trees, yet significant gaps exist where buildings are set back from the street or "pocket" parking lots exist. The shopping center at Morton St. is an example of a place where the street canopy could be filled in.

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[35] The zoning along Georgia Ave. is **C-2-A** immediately north of Howard University, **GA/C-2-A** between Kenyon and Park Rds., **GA/C-3-A** between Park and Shepherd St., and **GA/C-2-A** between Shepherd and Kansas Ave.
GA (Georgia Ave.) overlay "encourages additional residential uses and improved commercial uses. The overlay establishes uniform building design standards and guidelines for development review through PUD and special exception proceedings. The overlay encourages vertically-mixed uses within a quarter mile of the Georgia Ave.-Petworth Metro Station." Building heights are restricted to between 50 and 65 feet. **Sources:** *Summary of Zoning Districts* http://dcoz.dc.gov/info/districts.shtm; *District of Columbia Zoning Map* http://atlas.dcoz.dc.gov/DCZoningMap/default.aspx?resetsession=true; *Summary of Overlay Districts* http://dcoz.dc.gov/info/overlay.shtm

Parking and Car Dependency

Parking spaces are available on one or both sides of this segment of Georgia Ave., as are numerous "pocket" parking lots. Many people appear to depend on cars for mobility, yet the building pattern appears to be dense enough to support streetcars.

Metro Connectivity/Additional Transit Capacity

Access to the Green and Yellow lines (Georgia Avenue-Petworth and Shaw-Howard University Stations) provide Metrorail service to residents on the north and south ends of this segment. However, streetcar service would bridge the significant gap between the two stops.

Overhead Wires

Overhead wires would contribute to visual clutter north of the Petworth Station along Georgia Ave. As with other avenues in the District, the width of the street would make it impossible for the tree canopy to mask overhead wires were they to be installed along this segment.

 # IV – 8 Study Segment: Georgia Ave. NW – Kansas Ave. to Takoma Metrorail Station

Phase 1 – Later Construction

Land Use

North of Kansas Ave., the land uses along Georgia Ave. are primarily residential with a few commercial establishments at major intersections. Between Delafield Place and Arkansas Ave., the intensity of retail establishments increases slightly. Detached houses still account for a significant portion of the street frontage. Near the Missouri Ave. intersection, auto-related service businesses are concentrated around a now-defunct Chevrolet dealership. North of Piney Branch Rd., reduced development densities are reflected in chain retail businesses like Safeway and CVS, both of which feature large parking lots in front of their stores. Walter Reed Army Medical Center, a 113-acre fenced complex, fronts the segment for one block between Aspen and Butternut Sts. where the route turns toward the Takoma Metro Station. Plans for mixed-use residential, institutional, and commercial development are under study for the Medical Center, scheduled to close in 2011.

Figure 24: Safeway on Georgia Avenue

The route proceeds through the Takoma Historic District along Butternut St. through a residential neighborhood lined with single- family houses and a few small apartment buildings. At Butternut and 4th St., the proposed route jogs north for one block, to a commercial node near the Takoma Park Metro station where the streetcar line terminates.[36] This route seems very awkward with

[36] The zoning along Georgia Ave. consists of **C-2-A** and **C-3-A** south of Whittier St. North of Whittier, Georgia Ave. is zoned **R-5-B**. The Butternut St. segment is zoned **R-1-B** and **R-5-A**, with the commercial node around the Takoma Park Station having a zoning designation of **C-2-A**, with a the Takoma Park HD Overlay.
R-1-B allows "matter-of-right development of single-family residential uses for detached dwellings with a minimum lot width of 50 feet," with a maximum height of 3 stories or 40 feet.

numerous tight turns at corners, and it is not clear where a turnaround/turn-back for the streetcar would be located.

Historic and Economic Designations

This segment falls outside of the L'Enfant Plan and the Central Employment Area (see Figure 4). However, a portion of it does fall within the Takoma Park DC Historic District and adjacent area now under study for inclusion in the district. Enterprise Zones are present along this segment, with none in excess of 20 percent poverty (see Figure 6).

Site & Building Design

In general, small businesses along this segment cater to a predominantly local clientele. Detached single-family houses along the northern portion of this segment reflect lower residential density as one gets farther away from downtown Washington. A fairly mature tree canopy shades the sidewalks and street although it is in need of replanting in places where parking lots lack a landscaped buffer with the sidewalk.

Parking and Car Dependency

Parking spaces appear to be available along most of Georgia Ave.; however, the moderately high development densities in the surrounding neighborhoods suggest that parking spaces may be scarce at times. Further, it is unclear how a streetcar would impact curbside parking on which merchants currently depend.

Metro Connectivity/Additional Transit Capacity

The Red Line (Takoma Park Station) serves the northern segment of the route and would likely be a destination for many streetcar riders along this segment of Georgia Ave. Given the moderate-to-high density of the residential areas surrounding the Georgia Ave. commercial corridor, a streetcar line would likely attract riders who might previously have relied on cars (to get to Safeway, for instance). However, as noted above, the connection between Georgia Ave. and the Metro station is awkward given the tight physical constraints of the streets.

Overhead Wires

As with other avenues in the District, the width of Georgia Ave. would make it impossible for the tree canopy to mask overhead wires, were they to be installed along this segment. Through the Historic District, streetcar wires would be inappropriate. And it would be virtually impossible to have overhead wires under the Metro tracks at Cedar and Carroll Sts.

Sources: *Summary of Zoning Districts* http://dcoz.dc.gov/info/districts.shtm; *District of Columbia Zoning Map* http://atlas.dcoz.dc.gov/DCZoningMap/default.aspx?resetsession=true; *Summary of Overlay Districts* http://dcoz.dc.gov/info/overlay.shtm

Route # IV: Summary and Conclusions on Georgia Ave./14th St./7th St. Corridor

Nearly 10 miles in length, this route is the longest in the proposed streetcar system. Reaching from southwest Washington to the Takoma Metro Station, it connects outlying residential neighborhoods to the Chinatown entertainment district, the downtown office district, and the emergent redevelopment along 14th St.

Were they to be installed, overhead wires would be particularly detrimental where the route crosses the National Mall along 7th St., where it runs through the L'Enfant City and where it runs through the Historic District and area under study for extension of the District. In the downtown areas along this route, overhead wires would contribute visual clutter to a well-maintained streetscape and, in general, to the expansive and clear vistas along the entire route. Wires here would be contrary to a 121 year planning legacy that has prohibited or avoided overhead wires in the L'Enfant City.

Because of the difficulties of connecting directly to the Takoma Metro Station, an alternative would be to extend up Georgia Ave. to the northern part of Walter Reed (the area controlled by GSA) and locate a turn back there on undeveloped. Discussions are already underway about a shuttle between Walter Reed and the Takoma Metro Station, so there may be little need for the tracks to extend to the Station itself.

Route # V: Minnesota Ave./Good Hope Rd. Corridor

Phases 1 and 3

(See Route # II: NOTE TO READER REGARDING ALL ANACOSTIA SEGMENTS)

 # V – 1 Study Segment: Minnesota Ave. – Minnesota Ave. Metro Station to Good Hope Rd.

Phase 3

Land Use

With the exception of the intersection at Benning Road, the built character of Minnesota Ave. is almost uniformly residential. Where retail development does exist between Benning Rd. and E. Capitol St., and at the Pennsylvania Avenue intersection, it is single-use and auto-oriented. The existing zoning code supports this pattern of development, with provisions for mixed-use between Benning Rd. and E. Capitol St., and at the Pennsylvania Ave. intersection[37].

Historic and Economic Designations

This segment is outside of the L'Enfant Plan and the Central Employment Area (see Figure 4). Similarly, it is not within any historic districts, business improvement districts, or neighborhood investment fund areas (see Figures 3, 5 and 7).

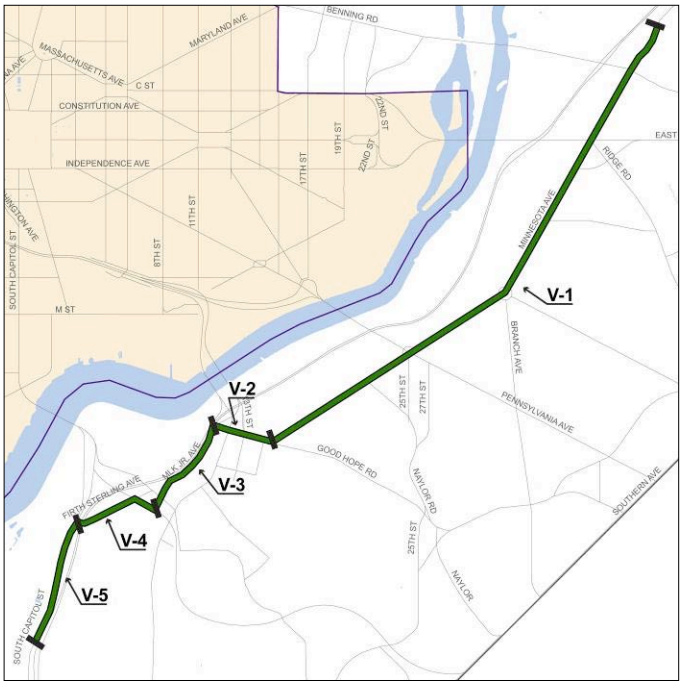

Figure 25: Route # V is divided into five segments, which are defined in greater detail below.

Between East Capitol Rd. and F St. SE, the route passes through an Enterprise Zone with a poverty rate over 20 percent (see Figure 6).

Site & Building Design

The Minnesota Ave. right-of-way is either two lanes in each direction, or one lane per direction with curbside parking. Sidewalks are generally present along the route. Pedestrian access to the street varies—in residential areas, detached houses typically face the street; retail areas are often set back from the sidewalk with surrounding parking. Mature street trees line the corridor for most of the

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[37] The zoning between the Minnesota Ave. Metro Station and Good Hope Rd. is a mixture of **C-1**, **C-2-A**, **C-3-A**, **R-2**, **R-5-A** and **R-5-B** designations.
C-1 allows "matter-of-right neighborhood retail and personal service establishments and certain youth residential care homes and community residence facilities to a maximum lot occupancy of 60% for residential use." The maximum allowable height is three stories, or 40 feet.
R-2 allows "matter-of-right development of single-family residential uses for detached and semi-detached structures" and a maximum height of three stories, or 40 feet.
Sources: *Summary of Zoning Districts* http://dcoz.dc.gov/info/districts.shtm; *District of Columbia Zoning Map* http://atlas.dcoz.dc.gov/DCZoningMap/default.aspx?resetsession=true; *Summary of Overlay Districts* http://dcoz.dc.gov/info/overlay.shtm

route. The streetcar line will encounter some difficulty at its crossing of Pennsylvania Ave. Design details of this crossing were not available.

Parking and Car Dependency

Street parking is available along the residential segments of Minnesota Ave., with limited or no street parking available in commercial areas. However, most of the route along Minnesota Ave. is only 40 feet wide, curb to curb. Given that each streetcar will be 8.6 feet wide, there will be little room left in the street for curbside parking. Where strip retail exists, there is usually ample off-street parking available.

Figure 26: Minnesota Avenue looking southeast towards Anacostia

Metro Connectivity/Additional Transit Capacity

The streetcar route along Minnesota Ave. is proposed to be part of the third and final phase of the system. Bus service is well established along this corridor. As there is no Metrorail access along most of Minnesota Ave., streetcar service would enhance public transportation options and provide connections between the Orange Line (Minnesota Ave. Station) and the Blue and Green Lines (Benning Road and Anacostia Stations, respectively).

Overhead Wires

An established tree canopy covering much of the street in the residential portions of Minnesota Ave. corridor could interfere with operations of an overhead wire streetcar.

V – 2 Study Segment: Good Hope Rd. – Minnesota Ave. to Martin Luther King Jr. Ave.

Phase 1 – Earliest Construction

Land Use

The streetscape along this segment of Good Hope Rd. can be characterized as a mixture of older 1- and 2-story retail and mixed-use buildings, with some auto-oriented buildings separated from the street by parking lots. Most buildings contribute to a pedestrian-friendly environment streetscape by opening onto sidewalks. However, many buildings are either vacant or do not currently contain ground-level retail establishments. Zoning for this segment is supportive of mixed-use, and it is adjacent to the "Anacostia HD" district[38].

Historic and Economic Designations

Located outside of L'Enfant Plan and the Central Employment Area, this segment is located within the Anacostia Business Improvement District. One block between 13th St. and MLK Jr. Ave. is protected by the Anacostia Historic District (see Figure 3, 4 and 2 on pages 12, 13 and 11, respectively).

The southern side of this segment is an Enterprise Zone with a poverty rate over 20 percent as well as a Neighborhood Investment Fund Area (see Figures 6 and 7). The segment also is completely within the Anacostia Economic Development Zone (see Figure 8).

Site & Building Design

The Good Hope Rd. right-of-way contains two sidewalks and one lane of traffic with curbside parking in each direction. Pedestrian access to the street is good, with most buildings opening directly onto the street. Some mature street trees are present along the street.

Parking and Car Dependency

A new building for the United Planning Organization along the south side of Good Hope Rd. has its own fenced parking lot with significant capacity. Otherwise, limited street parking is available along Good Hope Rd., with a few off-street strip retail lots available between 14th and 13th Sts.

Metro Connectivity/Additional Transit Capacity

The junction of the streetcar line from the 11th Street Bridge to the Good Hope Rd. segment is unexplained. Presumably this would occur somewhere west of Minnesota Ave. and east of Martin Luther King Jr. Ave. DDOT needs to clarify how this would work and compare it to other alternatives.

Overhead Wires

An undeveloped tree canopy along Good Hope Rd. will leave overhead wires exposed. Further, several turns around corners would be required with considerable overhead wire webbing to provide the stay wires to turn the power wire at the corners.

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NOTE: The following study segments overlap with those described in ***Route # II.*** *They are to be completed as part of the Martin Luther King Jr. Ave./M St., SE Corridor.*

[38] The zoning between the Minnesota Avenue and Martin Luther King Jr. Ave. is a mixture of **C-2-A** and **C-3-A**.

 # V – 3 Study Segment: MLK Jr. Ave. – Good Hope Rd. to Howard Rd.

Phase 1 - Earliest Construction

 # V – 4 Study Segment: Firth Sterling Ave. – MLK Jr. Ave. to Bolling Air Force Base

Phase 1 – Earliest Construction

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 # V – 5 Study Segment: South Capitol St. – Firth Sterling Ave. to End of Line

Phase 3

This segment of South Capitol St. is a service road between Bolling Air Force Base and I-295. Given that this segment will function only as a spur to an eventual turnaround and maintenance facility, an analysis of this segment is intentionally omitted.

Route # V: Summary and Conclusions on Minnesota Ave./Good Hope Rd. Corridor

Economic redevelopment along commercial sections and additional public transportation investments are long overdue in Anacostia. Both Anacostia in general, and Minnesota Ave. in particular could benefit from both. However, street width is narrow and would not easily accommodate 2-way streetcars with passenger stops unless current on-street parking was removed. DDOT should study paired streets for streetcars along all narrow streets in the city now included in the DDOT streetcar plan.

Overhead wires on these narrow streets for two-way tracks would almost certainly interfere with trees and would contribute to visual clutter in an area that requires the highest quality design elements both at street level and above.

Route # VI: Florida Ave./8th St./U St./Calvert St. Corridor

Phase 1, 2 and 3

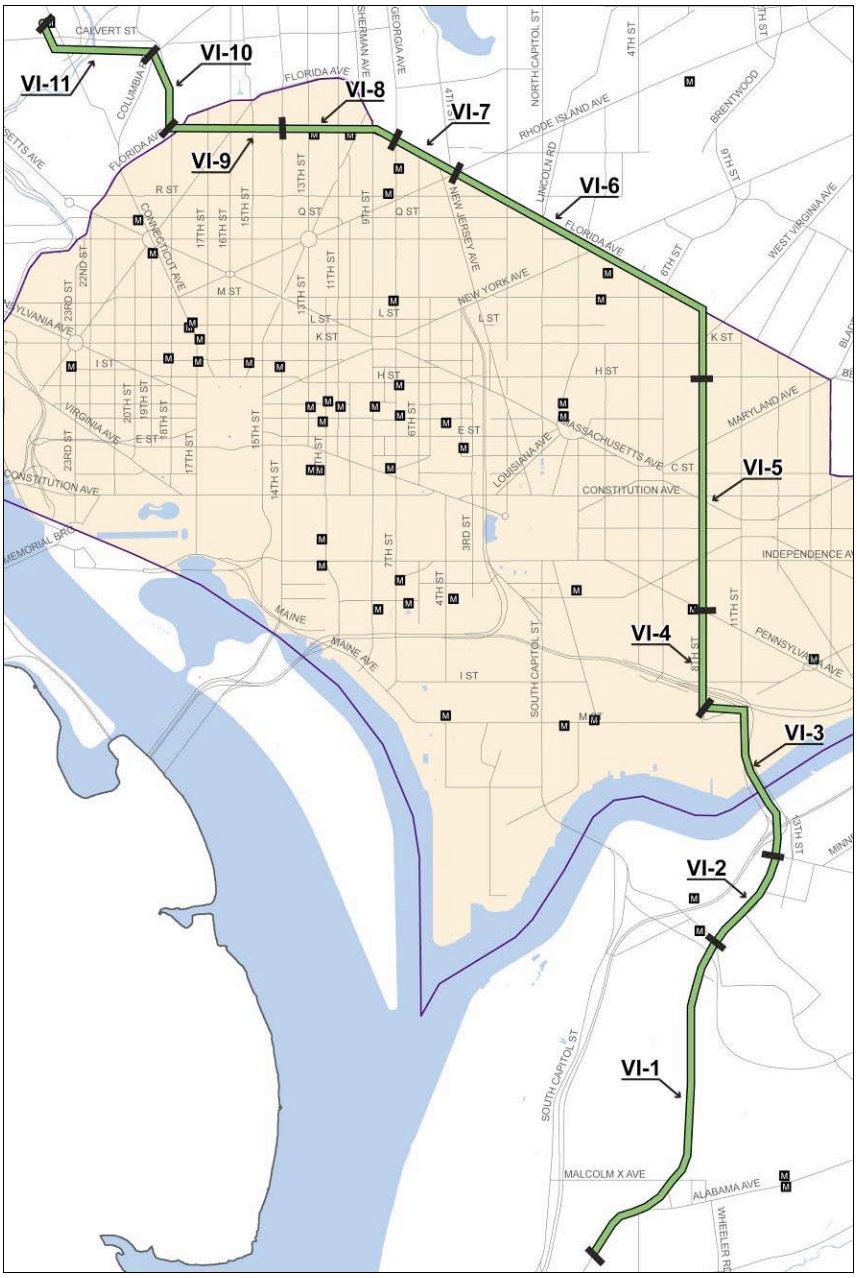

Figure 27: Route # VI is divided into eleven segments, which are defined in greater detail below.

 # VI - 1 Study Segment: MLK Jr. Ave. SE – Savannah St. SE to Howard Rd. SE

Phase 2

 # VI - 2 Study Segment: MLK Jr. Ave. SE – Good Hope Road SE to Howard Rd. SE

Phase 1 – Earliest Construction

 # VI - 3 Study Segment: 11th St. Bridge/M St. SE – Good Hope Road to 8th St.

Phase 1 – Later Construction

#VI 1-3 study segments are to be completed as part of the Martin Luther King Jr. Ave./M St., SE Corridor. For a detailed description of these segments, see **Route II**.

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 # VI - 4 Study Segment: 8th St. SE – Navy Yard to Eastern Market Metro Station

Phase 1 – Later Construction

 # VI - 5 Study Segment: 8th St. SE – Eastern Market Metro Station to H St. NE

Phase 1 – Later Construction

#VI 4-5 study segments are to be completed as part of the 8th St./MLK Jr. Ave./K St./H St. Corridor. For a detailed description of these segments, see **Route III**.

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 # VI - 6 Study Segment: 8th St., NE/Florida Ave. – H St., NE to Rhode Island Ave.

Phase 2

Land Use

Along 8th St., NE between H St. and Florida Ave., single-family row houses are the primary land uses. Gallaudet University is located at 8th St. and Florida Ave., with a mix of auto-oriented and residential uses to the northwest. Gas stations, vacant buildings with large street setbacks create a discontinuous street frontage that is inhospitable to pedestrian travel. The uses around the New York Ave./Florida Ave./Gallaudet University Metrorail Station are primarily auto-oriented and light industrial. Northwest of New York Ave., dilapidated row houses are mixed in with numerous gas stations, while row houses become larger and retail businesses more numerous close to Rhode Island Ave.[39]

Historic and Economic Designations

This segment, between H St. and Florida Ave. (the former Boundary Ave. that defined the northern boundary of the L'Enfant City of Washington) is within the L'Enfant Plan (see Figure 2). The portion north of Florida Ave. falls outside of the L'Enfant Plan, and passes the Gallaudet College Historic District between 9th and 6th Sts. Outside of any historic districts, the segment does cross through the NoMa Business Improvement District between 4th St. NE and North Capitol St. (see Figure 5).

Along Florida Ave., the segment passes through Enterprise Zones with poverty rates over 20 percent (see Figure 6). Between New York Ave. and Rhode Island the segment borders the

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[39] The zoning along this segment is a mixture of **R-4**, **C-M-1**, **C-M-2**, **C-3-C**, and **C-2-A**.
C-M-1 allows "development of low bulk commercial and light manufacturing uses…to a maximum height of 3 stories/40 feet."
C-M-2 allows "development of medium bulk commercial and light manufacturing uses…to a maximum height of 60 feet."
Sources: *Summary of Zoning Districts* http://dcoz.dc.gov/info/districts.shtm; *District of Columbia Zoning Map* http://atlas.dcoz.dc.gov/DCZoningMap/default.aspx?resetsession=true; *Summary of Overlay Districts* http://dcoz.dc.gov/info/overlay.shtm

Bloomingdale and Eckington Neighborhood Investment Fund Area, with the Shaw Neighborhood Investment Fund Area to the south between 1st St., SW and Rhode Island Ave. (see Figure 7).

Site & Building Design

On 8th St. between H St. and Florida Ave., the shaded sidewalks are lined with continuous row houses. There are numerous front porches, entrances that face the street and a pleasant pedestrian environment. Between 8th St. and North Capitol St., the building stock on the south side of Florida Ave. is generally dilapidated and few street trees are present. On the north side of Florida Ave. is the Florida Ave. Market that is slated for mixed-use redevelopment that will increase the vibrancy of the area and reinforce streetcar use. Relative to the width of the road, sidewalks are narrow, contributing to an unpleasant walking environment. Closer to Rhode Island Ave., a more-coherent building frontage of row houses and businesses emerges, and the tree canopy becomes more mature with greater coverage. With this shift, sidewalks also become wider.

Parking and Car Dependency

High volumes of auto traffic move along Florida Ave.'s six lanes and street parking is not available. Residents who live along the corridor must park their cars along side streets or rely on public transportation. Streetcar service would likely attract increased numbers of transit riders in this neighborhood.

Metro Connectivity/Additional Transit Capacity

Metrorail's Red Line (New York Ave./Florida Ave./Gallaudet University Station) and Green and Yellow Lines (Shaw/Howard University Metro Station) both serve this corridor. However, because stations are located on different lines and separated by significant distance, transit patrons may wish to ride the streetcar to stations that are beyond walking distance.

Overhead Wires

As with other avenues in the District, the wide width of Florida Ave. would make it difficult for a mature tree canopy to mask overhead wires.

 # VI - 7 Study Segment: Florida Ave. – Rhode Island Ave. to Georgia Ave.

Phase 2

Land Use

The street frontage between Rhode Island Ave. and Georgia Ave. is primarily a mixture of residential and commercial uses.[40] Row houses account for a significant majority of the building stock, and a number of them have been recently renovated. With their historic appeal and small footprints, the row houses along this segment constitute a fine-grained mosaic that, when fully occupied by ground-level retail uses, could support vibrant pedestrian activity. Sidewalks are relatively narrow.

Historic and Economic Designations

This segment lies outside the L'Enfant Plan and the Central Employment Area (see Figure 4). It borders the LeDroit Park and Greater U St. Historic Districts (see Figure 3), but does not pass through any business improvement districts (see Figure 5).

[40] Zoning along this segment is a mixture of **C-2-A** and **C-M-3**.

Entirely within an Enterprise Zone with a poverty rate over 20 percent, this segment is also bordered by the Shaw Neighborhood Investment Fund Area to the south (see Figures 6 and 7).

Site & Building Design

Nearly all buildings along this segment face the street and open directly onto brick-paved sidewalks, creating an atmosphere supportive of pedestrian activity. Despite the narrowness of the sidewalk, a healthy tree canopy shades the street.

Parking and Car Dependency

No street parking is available along Florida Ave. between Rhode Island and Georgia Aves., making residents along the corridor dependent on public transportation and parking along side streets. Streetcar service would add value to buildings that are currently in poor repair or vacant.

Metro Connectivity/Additional Transit Capacity

All portions of this segment are within one-half mile of the Green and Yellow Lines (Shaw/Howard University Metrorail Station). This streetcar line would provide service to different parts of town than does Metrorail, and thus it would only indirectly reduce the ridership burden on the Metrorail system.

Overhead Wires

Given the width and lack of a tree canopy overhead wires will be visible along this segment.

 # VI – 8 Study Segment: Florida Ave./U St. NW – Georgia Ave. to 14th Street

Phase 2

This segment will be completed as part of the Georgia Ave./14th St./7th St. Corridor. For a detailed description of this segment, see **Route IV.**

 # VI - 9 Study Segment: U St. NW – 14th St. to 18th St.

Phase 2

Land Use

West from the 14th St. intersection, land uses are a mixture of residential and commercial types.[41] Between 14th and 15th Sts., large apartment buildings line the street to the north, while a self-storage warehouse and old bank building-turned-restaurant occupy the southern street frontage. A variety of retail shops, a fire station and several large apartment buildings occupy the blocks between 15th and 18th Sts.

Historic and Economic Designations

This segment lies within the L'Enfant Plan and it passes through the Greater U St., 16th St., and Strivers' Section Historic Districts (see Figure 3).

[41] The zoning along this segment is a mixture of **R-5-B**, **R-5-D** and **C-2-A**.

Between 14th and 16th Sts., the route passes through an Enterprise Zone with poverty levels over 20 percent (see Figure 6), while the Logan Circle Neighborhood Investment Fund borders the entire segment to the south (see Figure 7).

Site & Building Design

U St. is home to a significant number of historic buildings, most of which are row houses that have been converted to retail uses at or below street level. Older buildings that were explicitly built for retail purposes are also present, and intermingled with several recent development projects that include ground floor retail. The sidewalks along this segment are characteristically narrow, with few street trees providing shade. Buildings face and open onto the street, generating significant levels of pedestrian activity.

Figure 28: U Street looking west

Parking and Car Dependency

High volumes of auto traffic move along U St., and metered street parking is available along most of this segment. Given the high development density of this neighborhood, many visitors and residents use public transit instead of cars. Given the shortage of parking, the presence of a streetcar line would likely increase transit use further.

Metro Connectivity/Additional Transit Capacity

Because no Metrorail station serves this segment, visitors and residents alike would likely use streetcar service frequently. It is unclear whether such service would reduce the passenger burden on the Metrorail system.

Overhead Wires

The presence of many renovated historic buildings along the U St. corridor creates a visually pleasing aesthetic that overhead wires would disrupt.

 # VI - 10 Study Segment: 18th St. NW – U St. to Columbia Road

Phase 2

Land Use

18th St., the primary commercial street of the Adams Morgan neighborhood, is home to a vibrant collection of bars, restaurants and boutiques.[42] Its small, historic buildings attract large numbers of pedestrians.

[42] The zoning of this segment is **C-2-A** and **C-2-B**.
Sources: *Summary of Zoning Districts* http://dcoz.dc.gov/info/districts.shtm; *District of Columbia Zoning Map* http://atlas.dcoz.dc.gov/DCZoningMap/default.aspx?resetsession=true; *Summary of Overlay Districts* http://dcoz.dc.gov/info/overlay.shtm

Historic and Economic Designations

This segment is outside of the L'Enfant Plan and does not pass through any historic districts (see Figure 3), however, it does cut through the Adams Morgan Partnership Business Improvement District (see Figure 5).

Site & Building Design

The building stock of 18th St. consists mainly of historic row houses that have been converted into retail establishments, while other businesses are situated in older one-story buildings that were built explicitly for retail use. All buildings open directly onto the sidewalk, supporting and generating significant pedestrian activity. Street trees are present in some locations, but the relatively narrow sidewalks in some locations leave insufficient room for tree beds.

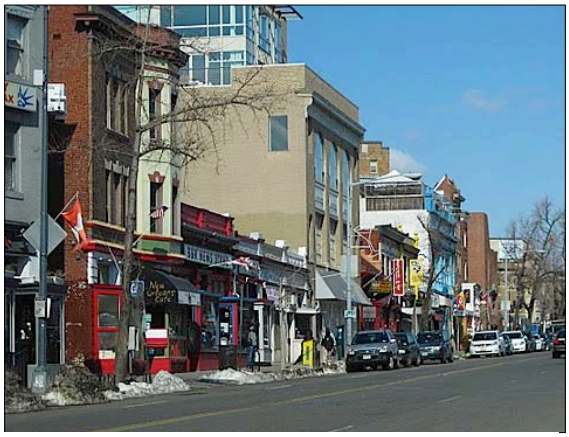

Figure 29: 18th Street looking north

Parking and Car Dependency

The metered parking spaces that line 18th St. in both directions are heavily utilized during most hours. Dedicated bike racks exist along the street but are scarce.

Metro Connectivity/Additional Transit Capacity

Because no Metrorail station serves this segment, streetcar service would serve visitors and residents alike. It is unclear whether such service would reduce the passenger burden on nearby Metrorail stations.

Overhead Wires

The mixture of renovated historic structures and newer buildings creates a visually pleasing aesthetic that new overhead wires would disrupt.

 # VI - 11 Study Segment: Calvert St. – 18th Street to Woodley Park Metro Station

Phase 2

Land Use

From its origin at 18th St. and Columbia Rd., Calvert St. is a primarily residential street. Lined with well-maintained historic row houses, the street is home to a mix of single- and multi-family residences. After the Duke Ellington Bridge, the street houses assorted commercial establishments on either side of Connecticut Ave.[43] At 24th St., the streetcar line terminates, looping around on 24th and then Connecticut Ave. before returning east on Calvert St.

Historic and Economic Designations

This segment is outside of the L'Enfant Plan, but lies within the Kalorama Triangle Historic District east of the Duke Ellington Bridge. The Woodley Park Historic District encompasses a small portion of the segment at its western end (see Figure 3).

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[43] The zoning along Calvert St. is **R-5-B**, **WP/C-2-A**, and **WP/C-2-B.**
Sources: *Summary of Zoning Districts* http://dcoz.dc.gov/info/districts.shtm; *District of Columbia Zoning Map* http://atlas.dcoz.dc.gov/DCZoningMap/default.aspx?resetsession=true; *Summary of Overlay Districts* http://dcoz.dc.gov/info/overlay.shtm

Site & Building Design

The building stock along the Calvert St. corridor is architecturally significant and in excellent condition. A mature tree canopy covers the entire corridor (with the exception of the bridge), and bike and parking lanes extend the length of the segment on both sides of the street.

Parking and Car Dependency

Non-metered parking spaces are available along Calvert St. east of Connecticut Ave., while metered spaces are available to the west of Connecticut, on 24th St., and on Connecticut Ave. during non-commuter hours. Dedicated bike racks exist along the streets in Woodley Park.

Metro Connectivity/Additional Transit Capacity

Red Line Metrorail service (Woodley Park Station) allows customers to travel both to the northern DC suburbs and into downtown. The proposed streetcar line does not overlap with existing Metrorail service. Thus, the presence of a streetcar line would not likely affect Metro ridership.

Overhead Wires

The presence of many renovated historic residences and the monumental Duke Ellington Bridge along the Calvert St. corridor creates a visually pleasing aesthetic that overhead wires would disrupt.

Route # VI: Summary and Conclusions on Florida Ave./8th St./U St./Calvert St. Corridor

At approximately nine miles in length, this streetcar route would connect Anacostia to the commercial districts in Capitol Hill and along H St., U St., Adams Morgan, and Woodley Park. This line will provide a direct connection between areas of the city that can only be reached currently by transferring at least once on the Metrorail system. This streetcar route will link several activity centers together along one line, and may encourage evening and weekend use in this congested area.

Given the route's path through numerous historic districts including those in Anacostia, Capitol Hill, U St., and Woodley Park, extra care must be taken to ensure that historic viewsheds in commercial districts are preserved.

Route # VII: Rhode Island Ave./U St./14th St./K St. Corridor

Phases 1, 2 and 3

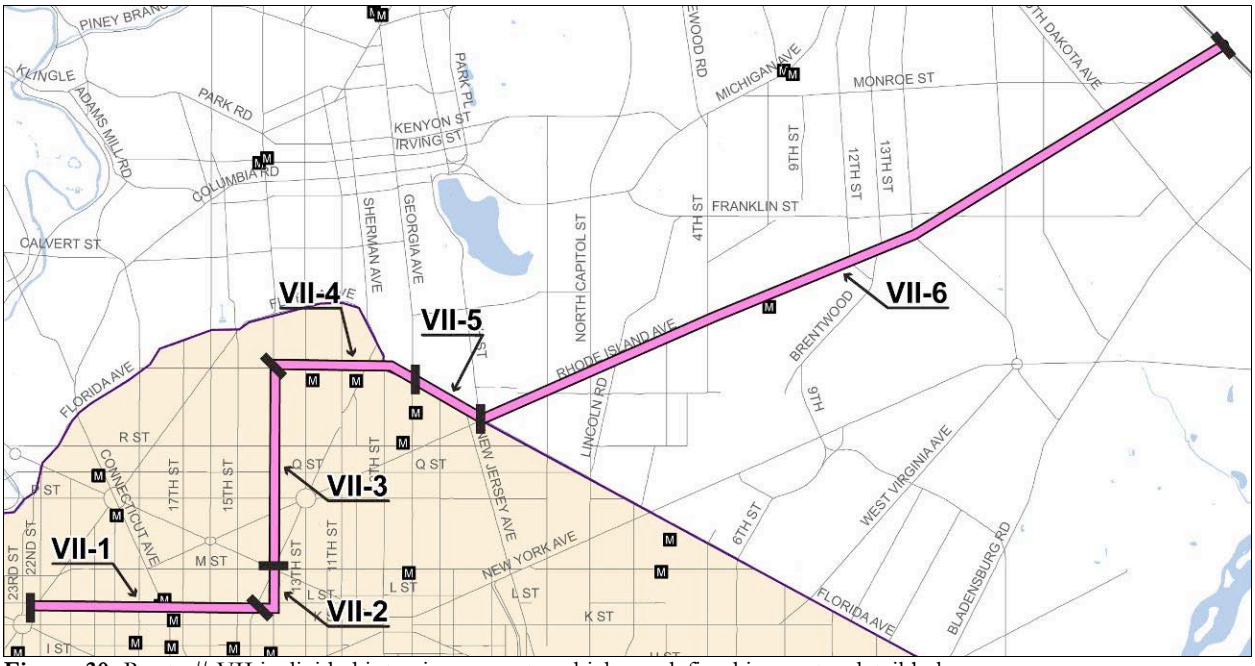

Figure 30: Route # VII is divided into six segments, which are defined in greater detail below

NOTE: The following study segment is along the same alignment as the segment described in **Route # I.** *It is to be completed as part of the H St./Benning Rd./K St. Corridor.*

 # VII – 1 Study Segment: K St. NW – Rock Creek Parkway Bridge to 14th St.

Phase 1 – Later Construction

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NOTE: The following study segments are along the same alignments as the segments described in **Route # IV.** *They are to be completed as part of the Phase 1 Georgia Ave./14th St./7th St. Corridor.*

 # VII – 2 Study Segment: 14th St. NW – F St. to Thomas Circle

Phase 1 – Later Construction

 # VII – 3 Study Segment: 14th St. NW – Thomas Circle to U St.

Phase 1 – Later Construction

 # VII – 4 Study Segment: U St. NW – 14th Street to Georgia Ave.

Phase 1 – Later Construction

****

The following study segment is along the same alignment as the segment described in **Route # VI.** It is to be completed in Phase 2 as part of the Florida Ave./8th St./U St./Calvert St. Corridor.

VII – 5 Study Segment: Florida Ave. NW – Georgia Avenue to Rhode Island Ave.

Phase 2

VII - 6 Study Segment: Rhode Island Ave. – Florida Ave. to Mt. Rainier

Phase 3

Land Use

Rhode Island Ave. is a major corridor leading into and out of the city, and thus, a gateway for visitors and commuters to the District. It is lined with row houses and some commercial uses between Florida Ave. and the Rhode Island Ave. Metro Station. Mixed-use development is under construction around the Rhode Island Metro Station, on the site of the former Metro bus bays and "Kiss and Ride" lot. Between the Metro station and the District boundary, land uses are mainly commercial or light industrial uses. The development density of this segment is moderate to low, with many buildings in the segments towards Maryland being set back from the sidewalk.[44] Rhode Island Ave. is widely regarded as having significant development potential – one report called it "Diamond of the District" – particularly when the investment/development climate improves.

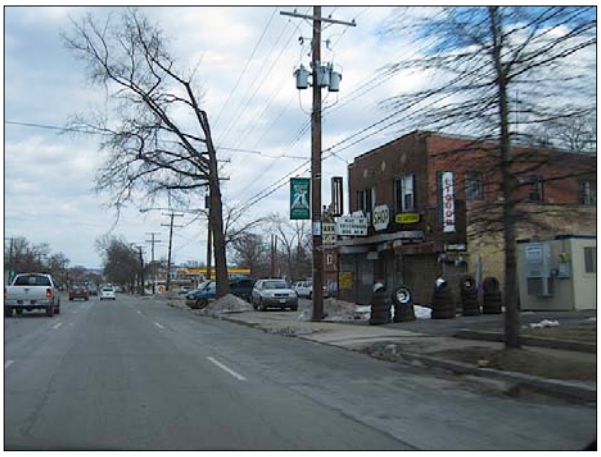

Figure 31: Low density commercial along Rhode Island Avenue

Historic and Economic Designations

This segment lies outside of L'Enfant Plan and the Central Employment Area, but it passes through the LeDroit Park Historic District between Florida Ave. and 2nd St. (see Figures 4 and 3, respectively).

Between the Rhode Island Ave. Metro Station and 18th St. NE, an Enterprise Zone with a greater than 20 percent poverty rate lies to the south (see Figure 6). Between Florida Ave. and 4th St. NE, the route passes through the Bloomingdale and Eckington Neighborhood Investment Fund Area, while the Brookland and Edgewood Neighborhood Investment Fund Area borders Rhode Island Ave. between 4th St. and South Dakota Ave. NE (see Figure 7).

Site & Building Design

The relatively low intensity of land uses along the Rhode Island Ave. Corridor, combined with the broad width of the street suggests that many pedestrians must walk long distances to get from an origin to their destination. Pedestrian and cyclist amenities like benches and bike racks are absent.

Parking and Car Dependency

The low density of development combined with the fact that many businesses open onto parking lots suggests that users of the street typically drive along Rhode Island Ave. instead of using public transportation. Despite this, the construction of a streetcar line could alter this trend.

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[44] The zoning for this segment is **R-4, C-2-A, C-3-A, C-2-C, R-5-A,** and **R-1-B.**
Sources: *Summary of Zoning Districts* http://dcoz.dc.gov/info/districts.shtm; *District of Columbia Zoning Map* http://atlas.dcoz.dc.gov/DCZoningMap/default.aspx?resetsession=true; *Summary of Overlay Districts* http://dcoz.dc.gov/info/overlay.shtm

Metro Connectivity/Additional Transit Capacity

The Red Line (Rhode Island Avenue Station) is accessible for an approximately one-mile of this segment. Streetcar service as currently envisioned would dramatically enhance public transit service for underserved residents along the corridor.

Overhead Wires

No overhead wires currently exist along Rhode Island Ave. Their installation on such a grand gateway into the District would have a highly negative impact on both the character of the neighborhood and initial perceptions of the city.

Route # VII Study Segment: Summary and Conclusions on Rhode Island Ave./U St./14th St./K St. Corridor

Streetcars would significantly upgrade public transit service for communities along Rhode Island Ave. approaching Mount Rainier, Maryland, providing a connection to both the Rhode Island Ave./ Brentwood Metro station and the K St. Corridor. Improved transit access could result in a boom in investment along Rhode Island Ave., benefiting a part of Washington that is economically depressed.

Route # VIII: Calvert St./Columbia Rd./Irving St./ Michigan Ave. Corridor

Phases 2 and 3

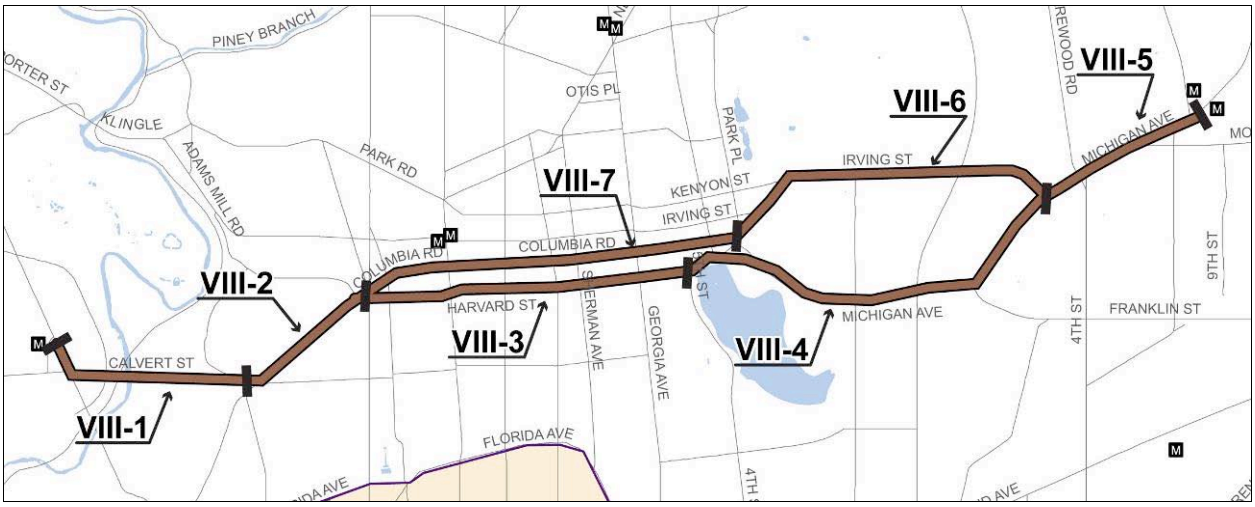

Figure 32: Route # VIII is divided into seven segments, which are defined in greater detail below

NOTE: The following study segment is along the same alignment as the segment described in **Route # VI.** *It is to be completed in Phase 2 as part of the Florida Ave./8th St./U St./Calvert St. Corridor.*

 # VIII - 1 Study Segment: Calvert St. NW – Woodley Park Metro Station to 18th St.

Phase 2

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 # VIII - 2 Study Segment: Columbia Rd. NW – 18th St. to 16th St.

Phase 3

Land Use

The land uses along this segment are predominantly commercial. A variety of restaurants and retail establishments are characteristic of the land uses along Columbia Rd. A CVS and Safeway serve as anchors, drawing shoppers from nearby neighborhoods. Northeast of Quarry Rd., land uses are mainly residential, with several large apartment buildings fronting the street. This diverse mix of land uses creates a vibrant pedestrian street scene.[45]

Historic and Economic Designations

This segment is outside of the L'Enfant Plan and does not pass through any historic districts, but it is within the Adams Morgan Partnership Business Improvement District (see Figure 5).

The Columbia Heights Neighborhood Investment Fund Area lies to the south of the segment (see Figure 7).

[45] The zoning along this segment is **C-2-B**, and **R-5-D.**
Sources: *Summary of Zoning Districts* http://dcoz.dc.gov/info/districts.shtm; *District of Columbia Zoning Map* http://atlas.dcoz.dc.gov/DCZoningMap/default.aspx?resetsession=true; *Summary of Overlay Districts* http://dcoz.dc.gov/info/overlay.shtm

Site & Building Design

The buildings along the southwestern blocks of this segment are a mix of old row houses that have been converted to retail space, and newer retail buildings that house businesses like CVS and Safeway. To the northeast, old apartment buildings front the street close to the 16th St. intersection. All buildings open onto the sidewalk, and mature street trees provide shade to pedestrians.

Parking and Car Dependency

Metered parking spaces line Columbia Rd. in both directions, but patrons of the diverse array of businesses along the street are heavy users of existing bus service. Streetcar service would likely intensify public transit use along Columbia Rd.

Metro Connectivity/Additional Transit Capacity

No Metrorail service currently exists within the immediate vicinity of this segment; however access to the Green and Yellow Lines (Columbia Heights Station) is nearby.

Overhead Wires

No overhead wires currently exist along Columbia Rd. and their installation would interfere with views of the three architecturally significant churches at the 16th St. intersection.

 # VIII - 3 Study Segment: Harvard St. NW – 16th St. to 5th St.

Phase 3

Land Use

Single- and multi-family residences[46] typify land use along Harvard St. The newly renovated Carlos Rosario Public Charter School sits at the intersection of Harvard and 11th Sts.

Historic and Economic Designations

This segment is outside of the L'Enfant Plan and does not fall within any historic or business improvement districts.

Between 16th St. and Georgia Ave., the streetcar line passes through Enterprise Zones with poverty levels in excess of 20 percent (see Figure 6). The entire segment is within the Columbia Heights Neighborhood Investment Fund area.

Site & Building Design

Nearly all buildings along Harvard St. are row houses, which front directly onto the street. The street is one way heading east, is narrow (three lanes in width with two used for parking as observed on a weekend day) and has a very mature tree canopy, all of which contribute to a favorable walking environment.

Parking and Car Dependency

One lane of un-metered parking is available to residents and visitors to Harvard St. Parking spaces are relatively abundant, but they would likely be eliminated as part of the street redesign when streetcars are installed, crowding side streets with additional automobiles.

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[46] The zoning along this segment is **R-4**, **C-2-A** and **C-2-B**.
Sources: *Summary of Zoning Districts* http://dcoz.dc.gov/info/districts.shtm; *District of Columbia Zoning Map* http://atlas.dcoz.dc.gov/DCZoningMap/default.aspx?resetsession=true; *Summary of Overlay Districts* http://dcoz.dc.gov/info/overlay.shtm

Metro Connectivity/Additional Transit Capacity

Metrorail's Green and Yellow Lines (Columbia Heights Station) are accessible to residents who wish to travel north or south. The proposed streetcar line's east-west orientation, will compliment the Metrorail's connectivity but is not likely to significantly impact ridership.

Overhead Wires

No overhead wires currently exist along Harvard St., and their installation would negatively impact the character of this residential neighborhood.

VIII – 4 Study Segment: Michigan Ave. – 5th St. to Irving St.

Phase 3

Land Use

This segment hosts major medical institutions for the city including Children's Hospital, Washington Hospital Center, and the National Rehabilitation Hospital. At the McMillan Reservoir, the character of the land fronting the proposed streetcar line shifts dramatically from historic medium-density row houses to low-density public and institutional uses. All buildings along this segment are set back significantly from the multi-lane road. Land uses are not conducive to pedestrian activity.

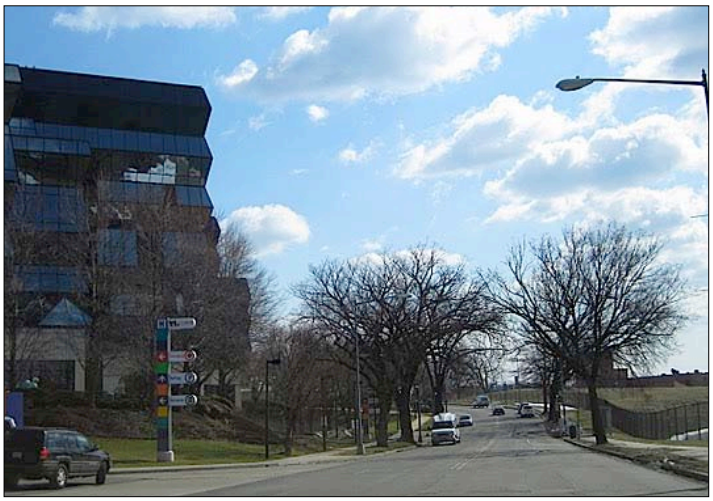

Figure 33: Children's Hospital on Michigan Avenue

Historic and Economic Designations

This segment is outside of the L'Enfant Plan, the Central Employment Area, and business improvement districts.

To the south of the streetcar line between 5th St. and 1st St. NW is an Enterprise Zone with poverty in excess of 20 percent (see Figure 6). Similarly, the Bloomingdale and Eckington Neighborhood Investment Fund area is to the south of the segment between 5th St. and Franklin St. NE (see Figure 7).

McMillan Reservoir and the Sand Filtration Site to the south are part of the McMillan Park Historic District; and the Air Force Retirement Home buildings and contributing elements are eligible for inclusion on the National Register. The Lincoln Cottage is a National Historic Landmark and could possibly be served by both a Georgia Ave. line and a Michigan Ave./Irving St. line—probably with shuttle service.

Site & Building Design

The high speed at which traffic travels along Michigan Ave. is a significant deterrent to pedestrian activity along this segment. The medical facilities would be the main draw for streetcar passengers in this segment. While the sidewalk is set back from the fast-moving traffic, and a tree canopy is present, this segment is unlikely to attract pedestrians.

Parking and Car Dependency

Currently, this segment is engineered and built mainly for cars. The road interchanges are engineered like those on a freeway. A streetcar line would be a significant step toward promoting public transit as a way to reach the medical centers, but the existing land use pattern may continue to discourage public transit use even after a streetcar line is built.

Metro Connectivity/Additional Transit Capacity

No Metro station is in the near vicinity. Streetcar service might expand public transit to the medical centers, but cannot be expected to alleviate Metrorail traffic.

Overhead Wires

No overhead wires currently exist along Michigan Ave. Because parts of Michigan Ave. sit on or near the topographic ridge of the District, overhead wires have the potential to obstruct and disfigure views and viewsheds both south toward the Mall, the Capitol and the historic city; and north toward the AFRH. In addition, overhead wires will disrupt views along the length of the avenue, for instance toward the National Shrine.

 # VIII – 5 Study Segment: Michigan Ave. NE – Irving St. to Brookland CUA Metro Station

Phase 3

Land Use

Between Irving Street and the Brookland/CUA Metro Station, Catholic University and other Catholic institutions occupy the land on both sides of Michigan Ave. Sidewalks are present along the sides of the street, but broad setbacks and few amenities exist to engage pedestrians.

Figure 34: Brookland/CUA Metro Station is the likely turnaround point for Route VIII

Historic and Economic Designations

This segment is outside of the L'Enfant Plan and Central Employment Area, and does not fall within any historic or business improvement districts. Between 4th St. NE and the Brookland-CUA Metro Station lies the Brookland and Edgewood Neighborhood Investment Fund area.

Site & Building Design

All buildings are set back significantly from the street, separated from the roadway by landscaped berms and parking lots. A mature tree canopy shades the sidewalks. The streetcar line terminates at the Brookland/CUA Metro station, but it is unclear from existing DDOT documentation where streetcars will turn around.

Parking and Car Dependency

Currently, this segment is engineered and built mainly for cars, with a number of fragments of the abandoned Interstate such as Taylor St. Bridge, Michigan Ave. Bridge and Irving St. interchange. A streetcar line would be a first step toward promoting public transit in the area, and would probably

be used heavily by Catholic University students who do not have cars as a means to access the Adams Morgan neighborhood. Some current auto users may also be enticed to take public transit instead of their cars.

Metro Connectivity/Additional Transit Capacity

The Red Line (Brookland/CUA Station) is proximate to Catholic University and its adjacent neighborhoods. However, the station is only linked to the University via an overpass. While residents who wish to travel north or south are served by Metro, the east-west orientation of the streetcar line will compliment transit service. The addition of streetcar service is therefore unlikely to significantly impact local Metrorail ridership. However, the proposed streetcar line will provide connection between two parts of the city that are not currently connected by Metrorail. A number of cross-town bus lines have evolved, and their capacity should be fully considered in planning a new streetcar route.

Overhead Wires

No overhead wires currently exist along large sections of Michigan Ave. The Brookland community has strongly supported placing utility wires that do exist along this and other streets underground. There is widespread agreement that this measure will increase the attractiveness and livability of the area. The addition of streetcar wires would not be compatible with other city-funded initiatives to underground wires in the neighborhood. Wires would be especially noticeable around the medical complexes and interfere with views of the park-like approach to North Capitol St.

 # VIII - 6 Study Segment: Michigan Avenue/Irving St. – Brookland-CUA Metro Station to Columbia Rd.

Phase 3

Land Use

The land fronting the proposed streetcar consists mainly of low-density public and institutional uses. The medical centers are set back significantly from the multi-lane road. As Irving St. passes through the residential area, parking on both sides of the streets limits traffic effectively to one lane.

Historic and Economic Designations

This segment is outside of the L'Enfant Plan and the Central Employment Area and it does not pass through any historic or business improvement districts.

Site & Building Design

The high speed at which traffic travels along Irving St. is a significant deterrent to pedestrian activity along this segment. The medical centers are likely to be the major draw for streetcar passengers. While the sidewalk is set back from the fast-moving traffic, and in some cases there are trees along the sidewalks, this area is not inviting for pedestrians.

Parking and Car Dependency

Currently, this segment is engineered and built mainly for cars. The road interchanges are engineered similar to those on a freeway. A streetcar line would be an important step in promoting public transit as a way to reach the medical centers; however, the existing land use pattern is not particularly supportive of public transit use even after a streetcar line is built.

Metro Connectivity/Additional Transit Capacity

The closest Metrorail access is to the Green and Yellow lines (Columbia Heights Station) and to the Red Line (Brookland/CUA Station). but they are some distance away from the medical centers. Streetcar service would expand transportation options to the medical centers.

Overhead Wires

No overhead wires currently exist along Irving St., and any that are installed would be exposed in plain view because of the street's wide right-of-way.

VIII – 7 Study Segment: Columbia Rd. NW – Hobart Place to 16th St.

Phase 3

Land Use

Residential land uses typify the land use pattern along this segment of Columbia Rd., with a mixture of single- and multi-family residences present.[47] The newly renovated Carlos Rosario Public Charter School sits at the intersection of Harvard and 11th Sts.

Historic and Economic Designations

This segment is outside of the L'Enfant Plan and Central Employment Area, and it does not pass through any historic or business improvement districts.

The proposed streetcar line passes through Enterprise Zones with poverty rates over 20 percent between Georgia Ave. and 16th St. NW, and the segment passes through the Columbia Heights Neighborhood Investment Fund area (see Figures 6 and 7, respectively).

Site & Building Design

Nearly all buildings along Columbia Rd. are row houses, which front directly onto the street. The street is one way in the eastbound direction, is narrow (two lanes in width) and has a very mature tree canopy, which lend to a favorable walking environment.

Parking and Car Dependency

One lane of un-metered parking is available to residents of and visitors to Columbia Rd. Parking spaces are relatively abundant, but they would likely be eliminated as part of the street redesign when streetcars are installed. The presence of a streetcar may reduce auto dependency along the street.

Metro Connectivity/Additional Transit Capacity

Access to the Green and Yellow Lines (Columbia Heights Station) provides convenient transit service to nearby residents who wish to travel north or south from Columbia Heights. Because the streetcar line travels in an east-west direction, it will not likely impact local Metrorail ridership in a significant way. The proposed streetcar line will provide a connection between two parts of the city that are underserved by Metrorail.

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[47] The zoning along this segment is **R-4**, **R-5-D, C-2-A** and **C-2-B**.
Sources: *Summary of Zoning Districts* http://dcoz.dc.gov/info/districts.shtm; *District of Columbia Zoning Map* http://atlas.dcoz.dc.gov/DCZoningMap/default.aspx?resetsession=true; *Summary of Overlay Districts* http://dcoz.dc.gov/info/overlay.shtm

Overhead Wires

No overhead wires currently exist along Columbia Rd., and their installation would negatively impact the character of this residential neighborhood by obscuring views to the northeast.

Route # VIII: Summary and Conclusions on Calvert St./Columbia Rd./Irving St./Michigan Ave. Corridor

This route would more effectively link together Woodley Park, Columbia Heights, and Catholic University by providing a shortcut between two stations on the Metrorail's Red Line (Woodley Park Station and Brookland/CUA Station) that are separated by nine Metro stops but are only three and a half miles apart. Passing through the Woodley Park, Kalorama Triangle, and McMillan Park Reservoir Historic Districts, the route's overhead wires threaten to diminish views of historic significance within these neighborhoods.

CONCLUSION - DC STREETCAR ROUTE ASSESSMENT

As transit demand increases and Metrorail reaches its full capacity, the proposed system of eight streetcar lines (or routes) outlined by the DC Department of Transportation in the April 2010 *DC's Transit Future System Plan Final Report* can provide an additional mass transit option and new connections among the city's revitalizing neighborhoods.

Overall, the proposed routes make sense and should boost investor confidence in many areas of the city that need new centers of economic life. However, we suggest further study and refinements along some routes, especially in Anacostia, on Capitol Hill and Georgia Ave./Takoma Metro. The connection of the H St./Benning Road segment to Union Station remains a particularly vexing and potentially costly issue if the city undertakes condemnation of private property and/or if Amtrak's many concerns cannot be addressed.

With the well-developed and tested propulsion technologies on the market that meet US purchasing requirements under Buy America and that will keep our streets free of overhead streetcar wires DC does not need to settle for an inferior, 20th century technology of overhead wires but can work instead with vendors to produce a 21st century streetcar for our world-class city. We are pleased that DDOT is taking steps to open up competition for development of a wireless prototype for DC and to move towards a wireless system for the city.

While an improvement, the thinner wires recently proposed by DDOT to reduce wire visibility will still introduce an unwelcome visual element that has been prohibited or substantially avoided in our city for 121 years. The recently enacted city legislation allowing overhead wires on H Street on a temporary basis, and requiring regular assessments of advances in streetcar propulsion technology, demonstrates DC's commitment to a future wireless streetcar system that can stimulate the marketplace to produce wireless systems for DC as well as other cities.

The overriding question is: How will the city pay for the streetcar system? As of this writing, the greatest impediment to implementation of a DC streetcar system is the failure of both DDOT and the DC Council to tackle the issue of financing for streetcars in context with funding for Metro, the Circulator and other critical transportation services. We urge DDOT and the recently retained streetcar consultants to work collaboratively with businesses, residents and developers along all of the proposed routes (H St./Benning Rd., Anacostia; 8th St., SE; RI Ave., MI Aves., K St., 14th St., etc.) to determine their realistic contribution to financing the system and the conditions under which they can do so.

As streetcars -- a promising new member of the DC transit family -- move from planning construction, city officials, businesses and civic organizations must work together to define a realistic and detailed plan to finance, govern, and manage this system in the years ahead. We look forward to participating with others in this essential work.

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APPENDIX A: *A WORD ON WIRES*

Washington is a planned city with vital vistas and views located around the entire rim of the District's topographical bowl. Our city is unique in the world. Residents and visitors alike enjoy the spacious quality of our city streets, and our broad uncluttered views. Since the late 1880's, the city has taken extraordinary care to protect many areas from overhead utility wires, adopting policies to prevent street signs and streetlights projecting into intersections. Within the city, neighborhoods such as Brookland that are not protected from overhead utility wires are eager for funding to remove the clutter of wires from their streets.

In 1889, an Act of Congress barred overhead streetcar wires in the L'Enfant City and Georgetown. 121 years later, DC has committed itself to a new streetcar system for DC that will be powered by 19th century overhead wires carried on poles and structures on the streets throughout the city with the promise of wireless segments to accommodate iconic views of the Mall and federal monuments. Why? District officials cite their preference for dealing with "open source technology" that is likely to be available from more than one vendor. Even as Washington is purchasing streetcars that can operate only with overhead wires for the H St./Benning Rd. and Anacostia sections and cannot be adapted to run only on batteries, *cities around the world are installing 21st century streetcar systems that are* ***not powered by overhead wires***, like the wireless system in Seville, Spain pictured below.

Figure 35: CAF Catenary-free streetcar (Photo Courtesy of Trainelec)

Figure 36: DC's original streetcar system operated in the L'Enfant Plan city without wires.

Figure 37: In 2010 the city is purchasing streetcars that operate primarily on overhead wires.

We suggest that you travel the proposed streetcar routes as we did and look at the various intersections in all four directions. We believe that you will be struck as we were by the very long vistas on all of the wide streets – K St., Rhode Island Ave., Benning Rd.; by the bustling activity of reviving neighborhoods along 14th St. and Georgia Ave.; and by the huge potential of new development along Rhode Island Ave. Many streets have trees, but the tree canopy will never obscure the wires or the stanchions on which they rest. Further, wires are not uniformly straight: Streetcars must turn corners and get around curves. Below are four sketches of how these wires will look at intersections.

OVERHEAD STREETCAR WIRES AT INTERSECTIONS

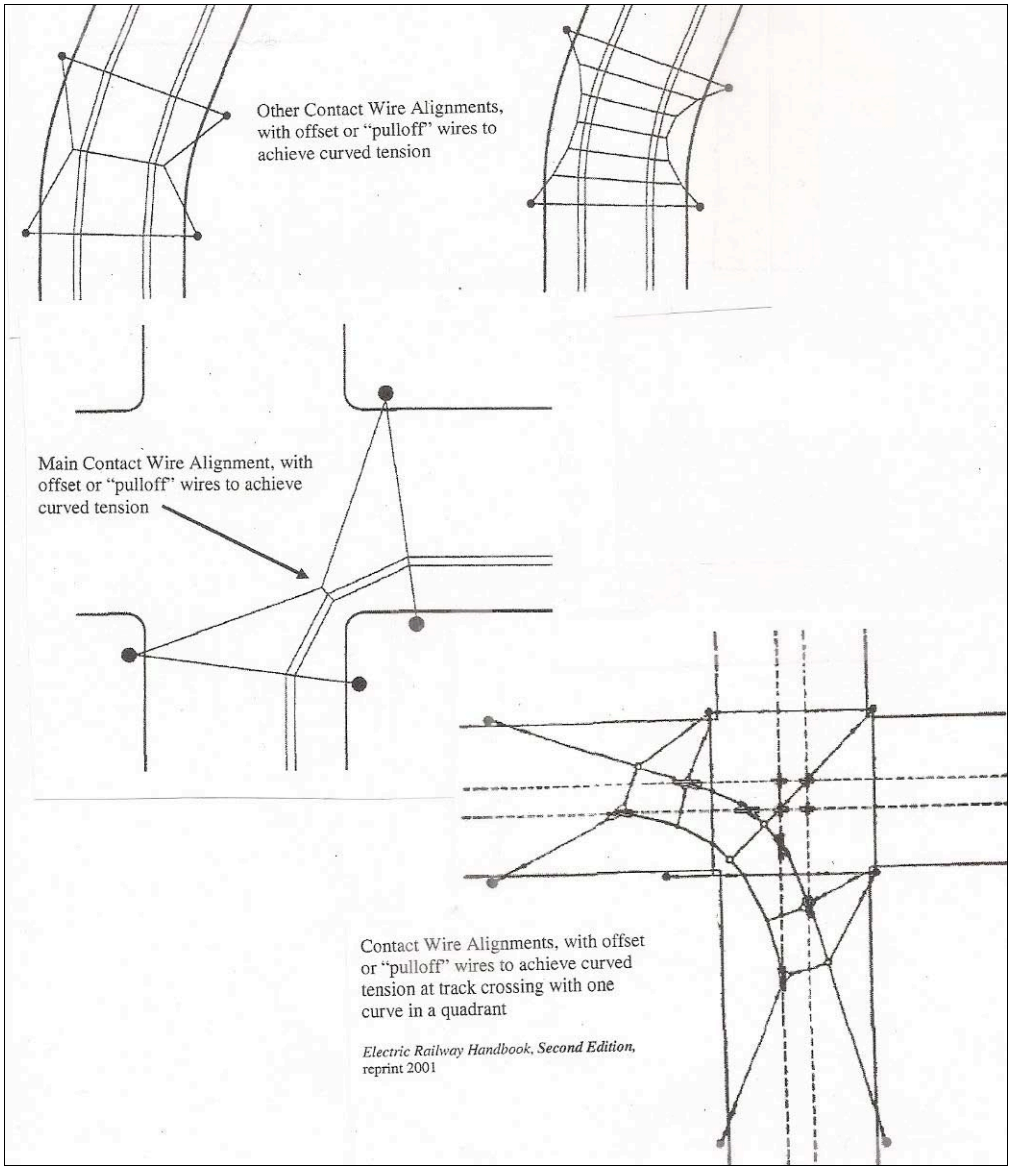

Figure 38: Diagrams courtesy of *Reducing the Visual Impact of Overhead Contact Systems*, TRB, 1995.

APPENDIX B:
Critique of DDOT's Wireless Technology Assessment

Appendix F of the *DC Streetcar Plan*, October 2010 contains a section titled "Wireless Streetcar Vehicle Options," dated 4/29/2010, that provides a brief overview of the leading streetcar manufacturers who offer some form of wireless propulsion technology with a description of advantages and disadvantages of each type of system.

DDOT's descriptions are brief and incomplete, leaving the reader with the erroneous conclusion that wireless technology is still untested, experimental and not worth further consideration. Because of the brevity of the manufacturer descriptions in Appendix F, we are providing a more comprehensive and updated description of some of the technologies (in blue). *We urge DDOT to revise its 4/29/2010 assessment to incorporate these changes and to issue a new report that compares all capital and life cycle costs associated with the most promising system for consideration in DC.*

ALSTOM (Bordeaux)

Appendix F states that the system can operate only for limited distances without the use of ovehead wires, that wireless operations are not as reliable as overhead wires and and that there are considerable infrastructure costs for the vehicles and the track.

Update information and add to "Advantages:"
Ansaldo Bredo of Italy is offering TRAMWIRE, an improved version of the Alston system that was installed in Bordeaux in 2003. TRAMWIRE is a next-generation version of the surface current collection system. The TRAMWIRE system addresses and solves the problems with the Bordeaux system and is undergoing tests in Naples. The only limitation is whether the center rail is installed. Wherever the center rail is installed, the streetcar can operate without overhead wires. Ansoldo Breda has supplied 466 of DC's Metro cars.

BOMBARDIER

Appendix F states that the Bombardier system can be used only with the Bombardier Flexity Tram, that additional infrastructure is required and that none is in operation.

Update information and add to "Advantages:"

Bombardier manufactures two systems:

- PRIMEMOVE. A non-overhead wire system that uses a contact-less, inductive electric power supply located under the cars and between the rails. The manufacturer claims to be resistant to all weather conditions including snow, ice, sand, rain and water.
- MITRAC. A high-performance double layer capacitor that stores electrical energy that is gained during operation and braking.

The ultra capacitor is recharged by regenerative braking and provides 30% of the power needs. It is used to increase acceleration without having to increase the capacity of the battery or externally supplied electric power. The ultra-capacitor's advantage is in its rapid discharge rate (for acceleration) and better charge/discharge cycle life, compared to a battery. The inductive power supply cable can be integrated in-between existing tracks (saw-cutting the pavement to install the power cable) and there is no wear of the pick-up coil since it is energized by magnetic field. The Primove System is estimated to be about 30% more expensive than overhead wire alternatives, but

according to Bombardier, *the savings in energy and maintenance costs enable the investment to be recovered within six to ten years.*

The field test in Bautzen, Germany has successfully concluded. Bombardier will install a PRIMEMOVE /MITRAC streetcar system in a soon-to-be-announced German city in 2010.

Bombardier has three railroad manufacturing facilities in the US. Bombardier supplied the Acela trains to Amtrak. The track widths and configurations are not different from what we have now.

KINKISHARYO

Appendix F states that no vehicles have been produced and tested and there is no information about whether the technology is proprietary.

Update information and add to "Advantages:"

The introduction to this section of the Appendix indicates the LFX300 model is designed for the US and scheduled to debut in 2010. Earlier this year Kinki Sharyo announced it would supply a 10-mile, hybrid overhead wire/battery system to Dallas in 2010, with a range on batteries of 3 miles between charges. The October 2010 issue of *Railway Age (*page 12) reported that the LFX300 model will officially debut in the U.S. in November, possibly in Washington, DC. The firm has manufactured rail vehicles since 1920 and manufactured Japan's Super Limited Express. The manufacturer claims to be the number one supplier of low floor cars in North America, having supplied Seattle, Phoenix, Jersey City, Santa Clara and Boston.

KAWASAKI

Appendix F lists as disadvantages concerns about proprietary battery technology and possible environmental/battery storage issues.

Update information and add to "Advantages":

The latest version of Kawasaki's Swimo streetcar includes advanced metal hydride batteries that recharge 60 times faster than existing battery charging options and are being developed for a range of 6 miles. Most all of the new battery technology is proprietary, but generally, batteries from different manufacturers can be substituted, without having to structurally modify the vehicle or the propulsion system. There are environmental issues with disposal of all batteries, even the lead-acid varieties in our cars. While not in revenue service, the SWIMO system has undergone extensive vetting and evaluation in Sapporo, Japan since 2007.

SIEMENS

Appendix F lists as disadvantages that the tram is still in development and they are not fully wireless.

Update information and add to "Advantages":

Siemens offers hybrid systems using lithium-hydride batteries and ultra capacitors (SITRAS). The company installed a hybrid system in Lisbon, Portugal in 2008. Siemens has a 25 acre production facility in Sacramento, CA and has supplied 17 North American locales, which they claim represents 1 out of 3 light rail vehicles purchased in North America.

UNITED STREETCAR, LLC.

Appendix F concedes that "considerable design changes are needed in the vehicle to allow the inclusion of sufficient batteries and capacitors to support revenue service without overhead wires."

Update information and add to "Disadvantages":

The April 10, 2009, *Battery Drive Feasibility Study* prepared by LTK Engineering addressed the issue of the changes required to modify the United Streetcar prototype design to accommodate sufficient batteries to operate for approximately one mile. **The report concluded it was not practical because it would require structural redesign of the vehicles to support the weight of the batteries.**

CAF/TRAINELEC

Appendix F lists as disadvantages that this is CAF's first "experiment with wireless trams" and incorrectly states the start date of service in Seville as 2011. Both pieces of information are incorrect.

Correct the information:

CAF installed a non-overhead wire streetcar system in Seville, Spain, that began commercial operation in March 2010. (Seville formerly had to remove the overhead wires at times of religious processions.) The Seville system uses ultra-capacitors.

This is not an experimental installation: CAF tested and validated the ultra capacitor system over a period of two years, first in their laboratory and then at the test track in Vélez-Málaga in the south of Spain. CF has done more than 620 miles of overhead-wire free operations including more than 1500 starts and stops. The maximum length of operation without overhead wire depends on many conditions: the route itself (flat line or with slopes), load, use of auxiliaries (air condition etc.), but CAF has managed more than one mile. Charging time is 20 seconds.

CAF is now installing a non-overhead wire installation for Saragossa, Spain, that will begin commercial operations in late 2010. It will be a hybrid system, using ultra-capacitors and batteries. The recharging will be done at the stops and can be done either through overhead current collection or through a contact under the train.

CAF is the major rail equipment manufacturer in Spain. CAF has a facility in Sacramento, CA, where they assemble and maintain regional trains. During 1998-2002, WAMATA purchased 192 Metro cars from CAF. CAF has supplied equipment for the Houston Tram, Pittsburgh LRV, Sacramento LRV, and rehabilitated LRVs for the Port Authority of Allegheny County, Pittsburgh.

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