

DC's Transit Future System Plan

FINAL REPORT

April 2010



DISTRICT OF COLUMBIA DEPARTMENT OF TRANSPORTATION





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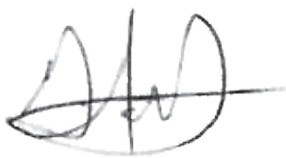
DC's Transit Future System Plan

The District of Columbia has entered an exciting new period of its history. The District has recovered from decades of declining population and is growing again. Neighborhoods across the city are reemerging and adding people, jobs and retail. Other neighborhoods are poised for growth and await the right catalyst. This rebirth has created challenges for the District's infrastructure, and we need to make the transportation investments that will support our recent growth and further strengthen our neighborhoods.

This plan is the culmination of a five-year effort to identify transit challenges and opportunities and recommend appropriate investment to meet these challenges and capitalize on opportunities. This plan lays out a series of investments in Metro Express limited-stop bus service and articulates a vision for a 37-mile streetcar system.

The *DC's Transit Future System Plan* has already made significant improvements to the mobility of District of Columbia residents and workers. New Metro Express limited-stop bus services, in coordination with local Metrobus routes, now provide faster and more convenient transit service along key transportation corridors within the District. The District has also started construction on its first streetcar lines. Continued transit improvements are in the works as the *DC's Transit Future System Plan* addresses both current and future challenges.

These new services will join our DC Circulator bus service and bike sharing program to form a new, local transit network. DDOT looks forward to continued engagement with the community as we bring these plans to fruition.



Gabe Klein, Director
District Department of Transportation



Executive Summary

The District of Columbia Department of Transportation (DDOT), in partnership with the Washington Metropolitan Area Transit Authority (WMATA), has developed the DC's Transit Future System Plan to establish a new, efficient, high-quality surface-transit network that supports community and economic development initiatives and connects residents and neighborhoods to employment centers, commercial areas, recreational facilities, and multimodal transportation hubs. The recommended plan includes a network of new streetcar lines operating in eight corridors, a transitway with reserved lanes for transit along K Street NW, as well as new Metro Express limited-stop bus service operating in 13 corridors across the city.

Purpose and Need for Transit Investments

The transportation system within DC will have to accommodate continued growth in population and employment over the next 20 years. In 2003 the District Government established a goal of adding 100,000 new residents to the city by 2014. Since that time, population has increased from 577,000 to nearly 600,000 residents and is expected to continue growing over the next 20 years. Currently there are about 700,000 employees working in the District, and that number is forecast to grow by more than 20 percent by 2030. Because of this growth, more people will be commuting to work and making more trips within the city. The number of total internal trips—one-way journeys using one mode of transportation in the District—is expected to increase 32 percent by 2030. In addition, many Metrobus routes are currently at or above capacity, and several Metrorail lines are expected to become highly congested by 2015 and exceed capacity by 2020. It is clear that the District faces a significant transportation challenge in the future.

A well-balanced and multi-modal transportation system is integral to the city's efforts to sustain and enhance the quality of life and is key to its future economic growth and role as the nation's capital. These efforts require integrating land use and transportation by implementing transportation projects that enhance intermodal connectivity, livability, and vitality. The District needs infrastructure investments that create or reinforce vibrant and stable neighborhoods, rebuild retail corridors, attract new jobs to the city, and promote sustainable development patterns. While economic conditions have improved in the District

over the past decade with a robust real estate market and resurgence in the city's residential population, the unemployment rate for DC residents remains substantially higher than that for the metropolitan region as whole. As such, transit investments are needed that will provide improved access to jobs and connect residential neighborhoods to the city's growing employment centers.

Recommended System Plan

In response to the transportation, economic, and community development needs facing the District, DDOT developed a transit system plan that establishes new high-quality transit services to connect DC residents to jobs, commercial businesses, recreational facilities, and regional transportation hubs. The plan includes:

- Re-establishment of streetcar service in the District of Columbia;
- Implementation of limited-stop bus service along major corridors; and
- Creation of a dedicated transitway on K Street NW.

Streetcar

The streetcar system will consist of modern low-floor vehicles operating on surface tracks that are embedded in the street pavement. Figure ES-1 shows the proposed streetcar element of the system plan. The vehicles will mostly operate in travel lanes that are shared with automobile traffic, although in some instances the streetcar may take advantage of available right-of-way and operate in exclusive transit-only lanes. The streetcar vehicles for the initial projects will be electrically powered via overhead



DC Streetcar Vehicle



Metro Express Bus

wires. Vehicles used in subsequent segments will have the ability to travel for limited distances without overhead wires to protect historical viewsheds. The streetcar stops will be generally located every $\frac{1}{4}$ to $\frac{1}{2}$ mile along the routes. The stops will include a small shelter and information regarding fares, route, and schedule. They may also have an off-vehicle fare collection system.

The new streetcar services are forecast to accommodate more than 147,000 daily trips by 2030, improve travel times by up to 38%, and reduce crowding on existing Metrobus lines by 27% in the corridors served by the new system. The streetcar component of the system also has the potential to stimulate more intense mixed-use development consistent with the city's Comprehensive Plan and zoning designations for the streetcar corridors. The system will serve as a catalyst for encouraging a pattern of high-quality, transit-oriented development and strengthening neighborhoods across the city.

Metro Express Limited-Stop Bus Service

The recommended plan also includes a network of new limited-stop bus services, referred to as "Metro Express," as shown in Figure ES-2. Four Metro Express routes have already been implemented in the District and operate along portions of Georgia Avenue, 16th Street NW, Wisconsin Avenue, and Pennsylvania Avenue. These services, operated by WMATA, consist of high-frequency bus services using specially marked vehicles with stop spacing of $\frac{1}{4}$ to $\frac{1}{2}$ mile along the routes. The Metro Express bus services will also include signal priority at key intersections for transit to facilitate the flow of buses and real-time Next Bus arrival displays at shelters served by the route.

K Street NW Transitway

The planned K Street NW Transitway is a critical component of the priority bus network because of the street's regional importance as a major transit corridor, connecting workers to the District's (and the region's) largest employment center and circulating people within the downtown core. The street currently carries over 20 Metrobus and commuter bus routes as well as the DC Circulator. The transitway project will reconstruct and reconfigure K Street NW between 9th Street NW and 20th Street NW to create dedicated lanes for transit. The preferred alternative includes a two-way, two-lane median transitway to accommodate bus services, two 10-foot wide general travel lanes in each direction, and one 12-foot travel/off peak parking lane in each direction. Raised medians would separate the general-purpose travel lanes from the bus-only lanes and provide width for passenger platforms and landscaping. The Transitway will also accommodate streetcar services along the corridor in the future to provide additional capacity; (pending additional study). The Federal Highway Administration (FHWA), in conjunction with the DDOT prepared an Environmental Assessment (EA) for the project and issued a Finding of No Significant Impact (FONSI) in December 2009.

Planning Process

This recommended system plan builds upon several earlier studies that were commissioned to identify potential solutions to the current transportation challenges that face the District of Columbia. The Transportation Vision, Strategy, and Action Plan (1997), developed by the DC Department of Public Works (DPW), identified several District corridors that would benefit from increased transit investment. Transit alternatives were selected to advance into more detailed project development in WMATA's District of Columbia Transit Development Study (2002), which was conducted as a follow-up to the 1997 plan.

Figure ES-1: System Plan - Streetcar Element

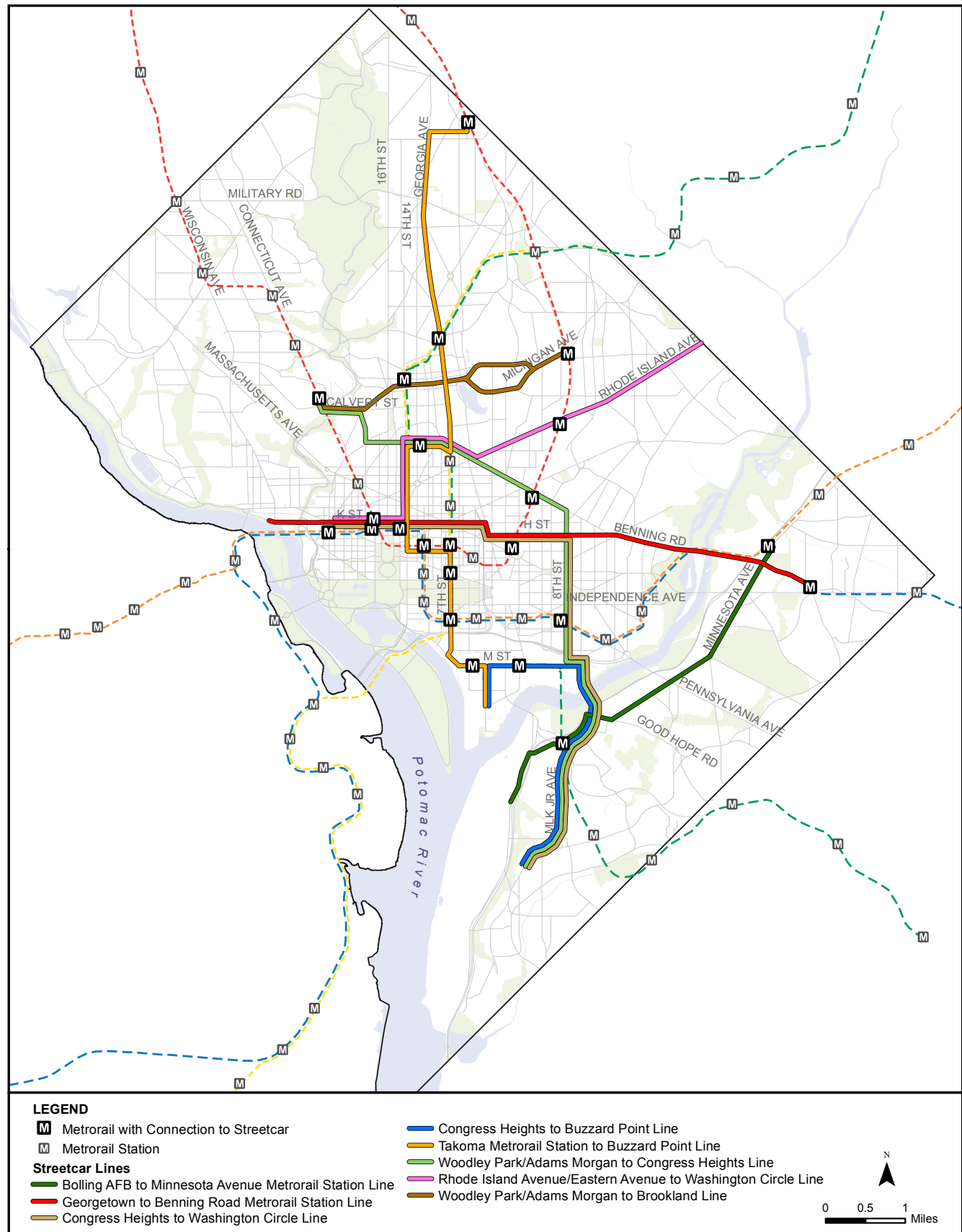
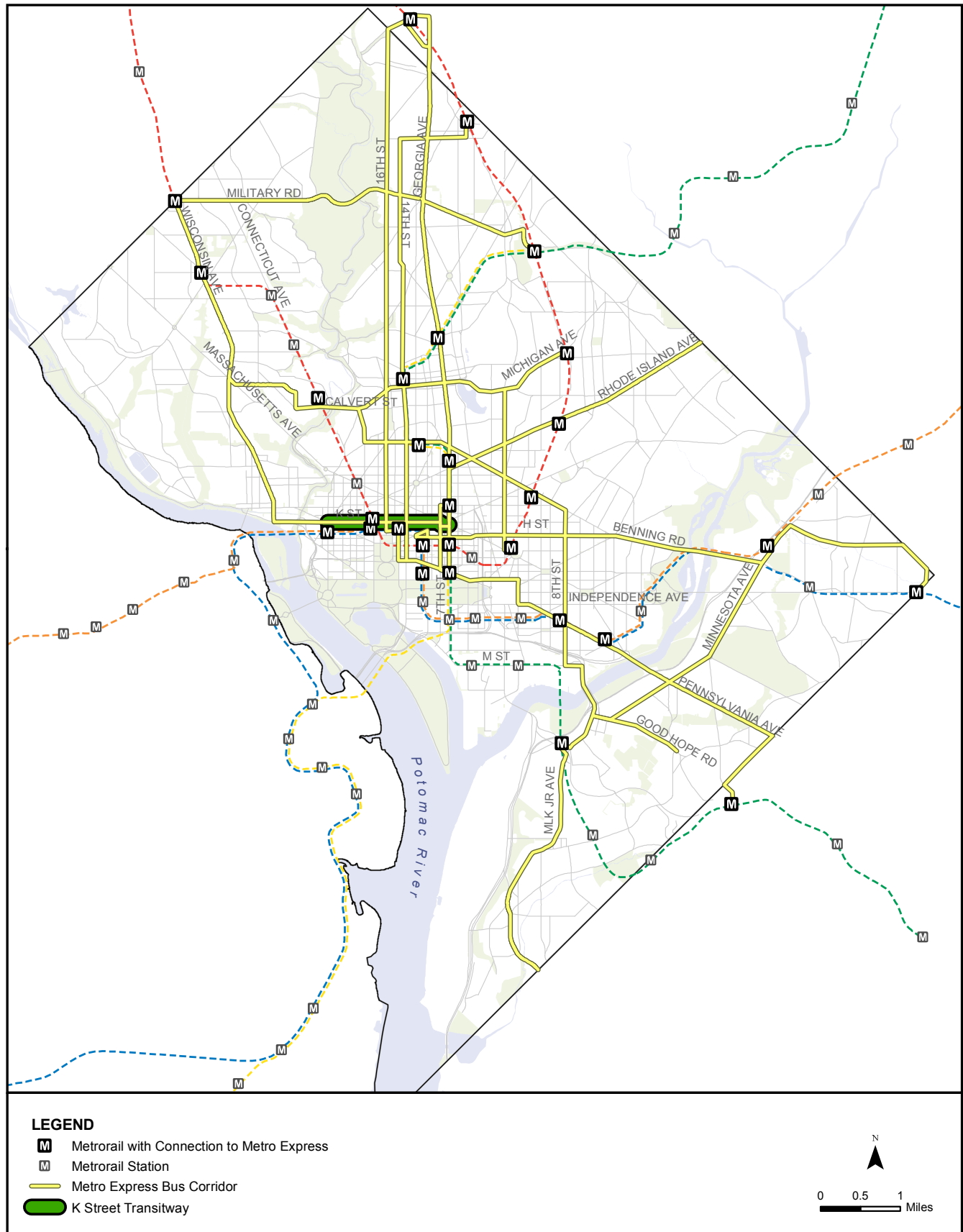


Figure ES-2: System Plan - Metro Express Bus Element



The DC Alternatives Analysis and System Plan, completed in 2005, evaluated specific streetcar and enhanced bus service options for corridors that were identified in the 2002 Transit Development Study and included an extensive public, agency, and stakeholder review process. The evaluation consisted of a three-step screening process designed to select the best mix of transit investments in each of the corridors by measuring performance of alternatives relative to the following four goals:

- Improve Access and Mobility;
- Encourage Community and Economic Development;
- Enhance Transit System Performance; and
- Promote Environmental Quality.

A total of 24 evaluation measures related to these goals were used to identify the best performing transit investment options to serve study area needs. Governmental agencies, neighborhood groups, businesses, community organizations and the public were actively involved in developing the recommended plan. Outreach efforts involved focus groups, presentations, briefings, community workshops, and public meetings.

DDOT initiated an update of the transit system plan in 2008 based on a re-evaluation of potential streetcar segments, taking into consideration the impact of substantial growth in the District since 2005. The 2008 system plan update incorporated:

- Additional streetcar segments along Florida Avenue NW/NE, 8th Street NE, and U Street NW to respond to rapid growth in the U Street Corridor and “NoMa” area by the New York Avenue Metro Station;
- Implementation of system phasing with a greater emphasis on maximizing ridership potential in the early phases of system development;
- Updated project costs and financial plan to reflect the changes in project phasing;
- Incorporation of WMATA's Priority Bus Corridor Network (based on their 2005 study) into the system plan; and
- Additional transit services along 16th Street NW, 14th Street NW, North Capitol Street, and Rhode Island Avenue NE.

In 2010 DDOT completed a review and major update of the system plan to address recent transportation and development initiatives. DDOT had implemented several new limited-stop bus services and initiated construction on several key streetcar segments. Based on these factors, the 2010 Update process incorporated the following elements:

- Implementation of 2005/2008 recommendations; these include:
 - Anacostia Streetcar
 - H/Benning Streetcar
 - 11th Street Bridge Replacement
- New development and development plans;
- Current design/construction projects;
- Review of needs and opportunities; and
- Additional public and stakeholder input.

The 2010 Update includes an evaluation of five additional corridors for streetcar services and made several slight adjustments to streetcar connections based on the review of transportation needs and opportunities. It also includes a revised project phasing and financing plan that incorporates developments from 2005 to 2010. These components of the System Plan are summarized in the following sections.

Figure ES-3: Initial Projects

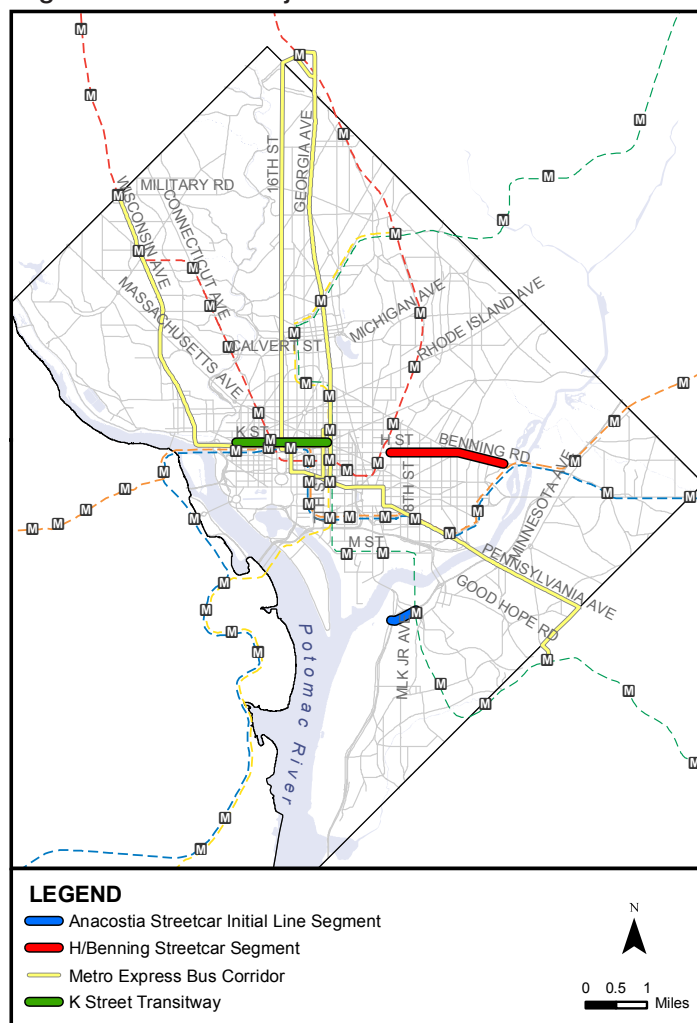


Figure ES-4:
Streetcar System - Phase 1

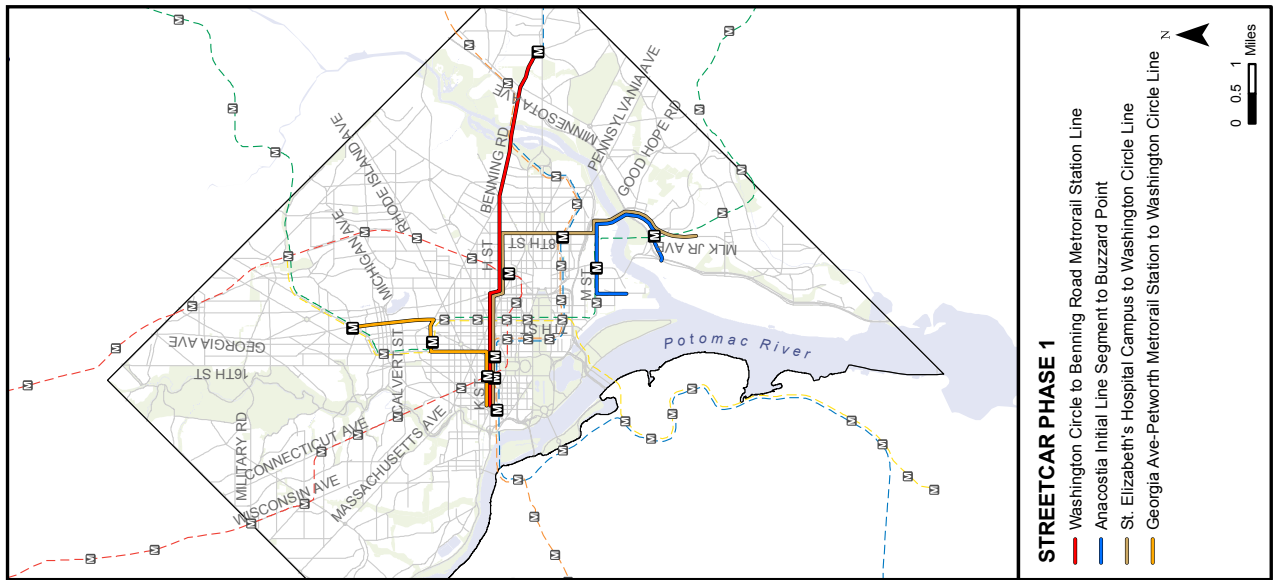


Figure ES-5:
Streetcar System - Phase 2

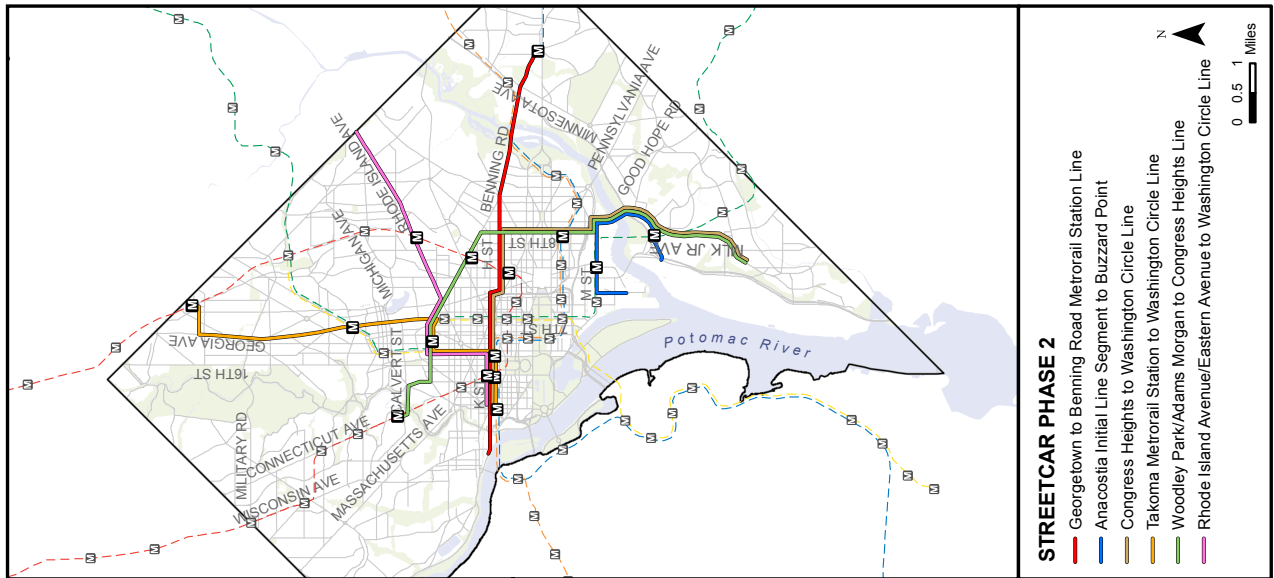
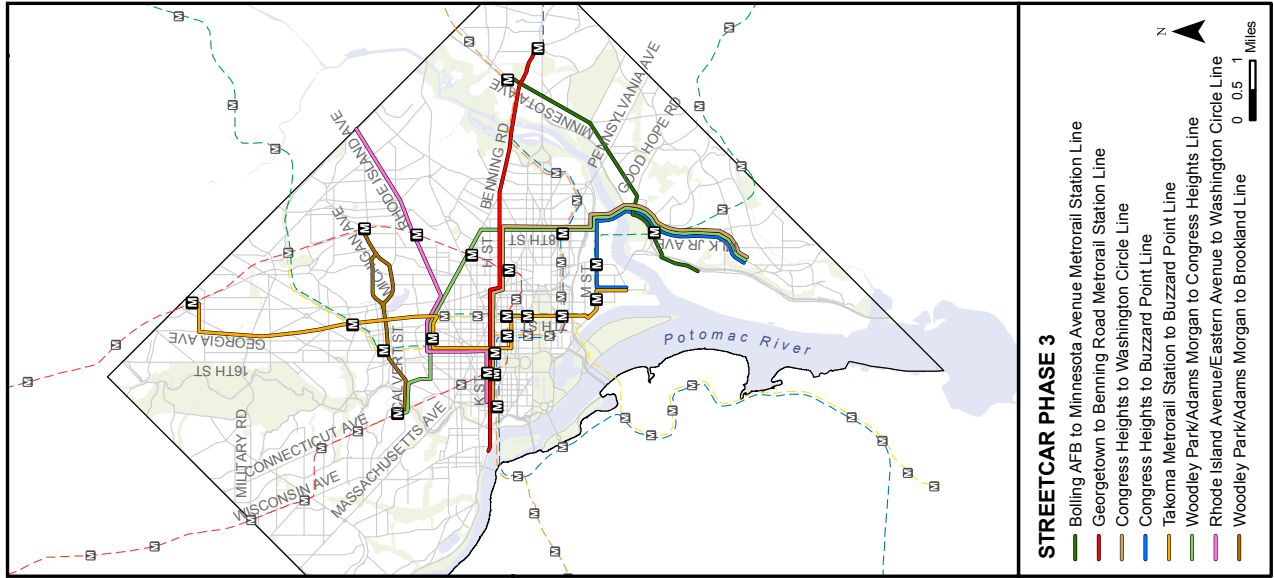


Figure ES-6:
Streetcar System - Phase 3



Streetcar System Phasing

DDOT envisions implementing the streetcar system in phases, which include an initial phase of projects that are already under construction (see Figure ES-3) and three future phases of system development (see Figures ES-4 to ES-6). The streetcar project phasing strategy is based on the following criteria:

- **Ridership** – Early phases focus on the most productive high ridership segments of the proposed system.
- **Interconnection of Streetcar Lines** – The phasing strategy establishes an initial system of interconnected streetcar lines that expand outward to city neighborhoods in subsequent phases of system implementation. This strategy allows for greater flexibility for operations, vehicle fleet management, and maintenance and storage facility construction and utilization.
- **Coordination with Other Infrastructure Projects** – To the extent possible, the streetcar phasing has been designed to coordinate the construction of streetcar facilities with planned roadway, bridge reconstruction, and development projects located along the line.

Streetcar Performance

Ridership forecasts for the year 2030 were prepared for the recommended streetcar system using the regional travel demand forecasting model and Metropolitan Washington Council of Governments population and employment forecasts.

- The estimated average weekday ridership for the full streetcar system is about 147,000 or about 3,970 riders per mile for the 37-mile system.

- The DC Streetcar System's per-mile ridership forecast would exceed the average weekday per-mile ridership for the Portland Streetcar in Oregon (3,200 riders per mile), which has been in operation since 2001. It would also exceed the per-mile ridership of other existing streetcar lines, such as the Tacoma Streetcar (2,000 riders per mile), the South Lake Union Streetcar in Seattle (1,300 riders per mile), and the New Orleans Regional Transit Authority streetcars (500 riders per mile).

Streetcar System Costs and Funding

The capital and operating cost estimates and financing strategy for the recommended streetcar system plan are as follows:

- **Capital Costs** – \$1.5 billion in Year 2009 dollars or about \$1.9 billion in Year of Expenditure (YOE) dollars;
- **Annual Operating Costs (complete system)** – \$68 million per year in Year 2009 dollars or about \$127 million per year in Year 2030 dollars;
- **Federal, Local and Private Funding Sources** – Project capital funding assumes a split of 25% federal, 25% local and 50% corridor-specific (including Benefit Assessment District (BAD) and parking fees) funding. Project operating and maintenance costs not covered by fare box revenues are assumed to be covered by a local funding contribution.
- **Pay-As-You-Go Financing for Local Capital Funding** – The plan proposes providing the needed local capital funds on a cash basis. Under this approach, a local funding contribution would cover the non-federal share of project costs in the early years, and corridor specific benefit assessment districts and parking fee revenues would cover a greater share of the project cost in subsequent years.