



Appendix T
Livability Grant (July 2010)





FY2010 DISCRETIONARY LIVABILITY FUNDING OPPORTUNITY:

ALTERNATIVES ANALYSIS PROGRAM

GRANT APPLICATION

Alternative Analysis Proposal: Alignment and Wireless Streetcar Technology Analysis

The District of Columbia Department of Transportation (DDOT) has started construction on 2.75 miles of a proposed 37-mile streetcar system. The most critical portion of the entire system is the section from Union Station to Washington Circle.

In addition to this streetcar line, DDOT has studied the feasibility of a dedicated transitway on K Street. The proposed streetcar line would share the transitway with bus service from across the region. DDOT estimates that by 2030 the Union Station to Washington Circle streetcar line will carry 26,000 passengers per day over its 2.39 mile length. With 10,800 boardings per mile, this line will be the most heavily used (per mile) streetcar or light-rail line in the country.¹

DDOT seeks to enter the FTA project development process through the Small Starts program. DDOT proposes to conduct an Alternative Analysis concurrent with an environmental review of this extension.

The District of Columbia Department of Transportation proposes 12 months of federally-assisted alternative analysis work. The work has two separate, but related activities. The first element is a relatively traditional study of alternative alignments for sections of the K Street streetcar route east and west of the proposed K Street Transitway area². DDOT will examine alignment options for streetcar turnback through the Washington Circle area as well as

¹ DC's Transit Future System Plan, Final Report, Pages 4-24, 4-25, April 2010

² K Street Transitway, Environmental Assessment 2009

alignment options for the streetcar segment between Union Station and Mt. Vernon Square area to connect the H St. – Benning streetcar segment with the K Street Transitway.

The second element of the requested federal assistance would allow DDOT to research and study streetcar vehicle propulsion options which do not require overhead wires for operation or could provide a hybrid option of wires and non-wire technology. Non-wire propulsion options would allow the DC streetcar to operate for short segments of a route which transverse historic or viewscape areas within the District of Columbia and the federal city without overhead wires.

As the DC streetcar system expands into the federal city area it will be necessary to consider propulsion and alignment options which minimize any negative impact of streetcars on historic areas and scenic view corridors.

This application is unique in that it seeks to evaluate a range of propulsion alternatives to handle these concerns. DDOT believes that the work conducted as part of this Alternatives Analysis will have broad applicability nationally. A number of cities interested in streetcars have cultural resources they wish to protect (San Antonio's Alamo and Baltimore's Mt. Vernon Square, to name two). While other cities have operational reasons to consider alternative propulsion – Seattle, for example, needs a vehicle which can cross electric trolley bus routes without wires.

The work plan for the alignment alternatives will include:

- Analysis of the roadway network in the alignment area
- Analysis of traffic conditions in the alignment area
- Evaluation of at least two or three alternative alignments between Union Station and Mt. Vernon Square and at least four alignment options for turning streetcars in the Washington Circle area
- At least two maintenance facility locations
- Selection of a preferred alternative alignment at each end

The work plan for the propulsion options will include the following tasks:

- Literature review
- Evaluation of battery, capacitor and third rail technologies in streetcar applications
- Review of other known or proposed technologies including dual mode vehicles
- Review of operational status of new technologies
- Evaluation of proprietary versus open-system technologies and components
- Evaluation of alternative propulsion technologies applicability to the District of Columbia

- Preparation of findings and recommendations

Budget

The District Department of Transportation requests \$1.0 million in federal Section 5339 Alternative Analysis funds to be matched by \$1.0 million in District of Columbia local funds appropriated in the FY10 Budget for streetcar planning purposes. This 50/50 federal-local match expresses the strong commitment of DDOT to this project and the importance which we give to advancing the AA for this line segment. As funding becomes available and DDOT begins the AA, DDOT is committed to proceeding with a NEPA study, after consulting with the FTA on a class of action for this extension.

We would expect to charge a small portion of the grant funds for staff time devoted to this project and the balance of the local and federal funds would be used to fund work done by DDOT's Streetcar Program Management Consultants.

Study partners: DDOT anticipates involving a number of stakeholders, including but not limited to the Golden Triangle BID, the Downtown BID, the NoMa BID, the National Capitol Planning Commission and the Washington Metropolitan Area Transit Authority.

Applicant Information:

Progressive Transportation Services Administration
District Department of Transportation
2000 14th Street, NW 5th floor
Washington, DC 20009

Congressional District: District of Columbia

FTA Recipient ID number: 1397

Contact Information:

Scott Kubly
Associate Director, Progressive Transportation Services Administration
District Department of Transportation
2000 14th Street, NW 5th fl.
Washington, DC 20009

Scott.Kubly@dc.gov
Phone: 202-369-5886
Fax: 202-673-2355

Description of Services Provided by the District Department of Transportation: The District Department of Transportation serves as both the city and state Department of Transportation for the District of Columbia. The agency is responsible for construction, maintenance and operation of the City's streets and federal-aid roads and highways; construction, maintenance and operation of traffic and pedestrian signals, streetlights, sidewalks and bikeways; permitting of public space uses; evaluation of the transportation impacts of local development; the oversight of the District's contributions to the Washington Metropolitan Area Transit Authority; ownership and policy management for the DC Circulator bus system; and management and oversight of the DC bikeshare program. DDOT's service area encompasses the entirety of the District of Columbia with the exception of some federal property.

Demonstrated Project Need:

1. Description of Study Area, Transportation Problems and Needs

Transportation Problems and Needs

Currently, there is no single continuous high quality and high performance transit link from the emerging residential areas east of Union Station (e.g., H Street, Benning) and north of Mount Vernon Square (e.g. Shaw), to the employment opportunities and commercial amenities along the K Street corridor. Many commuters from Maryland and Virginia with final destinations on the western side of the K Street corridor use Metrorail's Red line from Union Station to the Farragut North station. Significant overcrowding on the Red line occurs during the inbound morning peak period and the outbound evening peak period. Demand for additional transit service along K Street, NW is demonstrated by the high ridership of the Union Station to Georgetown line of the DC Circulator Bus service. In 2009, 2,393,953 rides were taken on the Circulator route along K Street NW, which is the highest ridership for any Circulator route in the system.

Description of Study Area

The study area extends from Union Station to Washington Circle via K Street. This proposed 2.39 mile streetcar extension connects residential neighborhoods and an emerging business area with the Union Station intermodal transportation center, the convention center, the Downtown Central Business District (CBD), and world renowned universities along with a major medical center. The corridor serves four major neighborhoods (east to west): North of Massachusetts Avenue (NoMa), Mount Vernon Triangle, the Central Business District and Foggy Bottom.

NoMa: The NoMa area is an emerging area of the Central City. When built out it will contain a mix of residential, retail, commercial and institutional uses. Construction of this new neighborhood is well underway. Recent additions include a full-service grocery store, a number of restaurants, several hundred thousand square feet of retail space, the headquarters of the Bureau of Alcohol, Tobacco and Firearms, a hotel and a number of office buildings. The streetcar line will connect the southern end of NoMa to Union Station and the H St. – Benning

streetcar. The streetcar will provide new access to the Northwest One New Community, a mixed income development of 1200 new units (over half of which are reserved for low and moderate income residents) and Union Place, a 700 unit complex with 78 units reserved for low and moderate income residents.

Mount Vernon Triangle: In the recent past Mt. Vernon Triangle was a blighted sea of surface parking lots. While much of the parking remains, a new residential district is developing. Recent additions include multiple restaurants, hundreds of units of moderate income and market rate housing and a new full-service grocery store. In this neighborhood streetcar riders will have a short 2 block walk to the Gallery Place or Mt. Vernon Metrorail stations. The streetcar will also serve the Walter Washington Convention Center and a new convention center hotel with 1167 rooms scheduled to start construction in late 2010.

Central Business District: The District of Columbia has one of the largest CBD's in the nation, with over 350,000 jobs north of the Mall and about 100,000 jobs south of the Mall. The physical constraints of the mall create a much longer east-west travel distance than north-south. Areas of activity around the east-west arterial of K Street, NW include, from east to west: federal offices, the DC judicial center, mixed commercial uses near the 2.5 million sq. ft. Walter E. Washington Convention Center, tourist areas (e.g., White House), institutions (e.g., World Bank), a major law school (e.g., Georgetown University Law School) and George Washington University Hospital.

The CBD is well served by transit, but that transit is capacity constrained during rush hours. K Street is the main point of east-west access into the CBD. By connecting 5 Metrorail lines and 7 Metrorail stations, the K Street streetcar will provide transit capacity expansion throughout the central city and improve connectivity across the corridor. Additionally, the CBD still has substantial development in the pipeline along the Union Station to Washington Circle streetcar line. For example, the planned City Center development on the 10 acre site of the old Convention Center will have 400,000 square feet of retail use, over 1.0 million square feet of office space, a 400 room hotel, 458 rental apartments and 216 condominium units. Under DC zoning rules a minimum of 8 to 10 percent of the residential units will be reserved for low and moderate income renters and owners.

Foggy Bottom: Foggy Bottom is a mixed-use neighborhood. However, there are also many large institutions present as the area is home to George Washington University and Hospital Center, the Kennedy Center, the State Department and the World Bank, among others.

Need for Streetcar

Additional transit capacity is needed on this east-west arterial in order to alleviate congestion and overcrowding. Previous plans, such as the *DC's Transit Future System Plan* (2010) to as far back as 1997's *Transportation Vision, Strategy and Action Plan for the Nation's Capital* indicate that some form of high capacity transit service is needed between Union Station and Washington Circle. DDOT proposes to conduct a traditional alternatives analysis examining alignment options for a streetcar along K Street, NW. Adding streetcars to the K Street

transitway will leverage the investment made in creating an exclusive transitway by adding another transportation option and additional value to the corridor.

Relationship to Other Plans and Studies

DDOT has completed several planning projects that are related to and inform this application for alternatives analysis for a streetcar line between Union Station and Washington Circle. All previous corridor specific and District-wide planning studies indicated significant transportation issues in the study area. A list of the studies, along with brief descriptions is below:

DC's Transit Future System Plan (2010)

The DC Transit Future System Plan is a plan for a District-wide, 37-mile streetcar network and limited stop bus services in the District. This plan is the culmination of 15 years of planning for streetcar in the District of Columbia. The *DC's Transit Future System Plan* defines a network of eight new interconnected streetcar lines and thirteen Metro Express bus lines. The streetcar line from Union Station to Washington Circle will ultimately serve as the spine of the DC streetcar system; providing a dedicated transitway for 3 streetcar lines and multiple bus routes.

K Street Transitway Environmental Assessment (2009)

The K Street transitway study (2009) concluded that the preferred alternative for a K Street Transitway is an exclusive, two-way, two-lane median transitway between 20th St and 9th St NW. The preferred alternative includes two 10-foot general purpose travel lanes and one 12-foot travel / off-peak parking lane in each direction on K Street between 20th Street and 12th Street. Between 12th and 9th Streets, where K Street is narrower, the medians are eliminated and there is only one general purpose lane and one exclusive bus lane in each direction. The streetscape, pedestrian, and transitway improvements recommended by the K Street transitway study did not include streetcars as an alternative due to a ban on overhead wires. After the completion of the study, the District of Columbia passed a law repealing the ban on overhead wires.

Mt. Vernon Square Study (2006)

The District Department of Transportation (DDOT), in collaboration with the District of Columbia's Office of Planning (OP), investigated the transportation management improvements in the Mount Vernon Triangle area, and coordinated that work with the development of a schematic design for the streetscape and public realm.

The purpose of the study was to examine existing transportation conditions in the study area and projected future transportation conditions related to proposed development and public realm designs, and to develop short-term, mid-term, and long-term transportation management and infrastructure improvements.

Need for Additional Study

Pertinent issues remain regarding streetcar alignment, historic sites and viewsheds, streetcar propulsion technologies, and service standards still need to be addressed. A brief description of

the issues and how they should be analyzed during a planning process is below. Further information is provided in the description of Conceptual Alternatives section.

Streetcar Alignments

DDOT will examine alignment options for the streetcar for connections to the H St.-Benning line that is currently in construction. Additional areas that necessitate alignment analysis include the streetcar turnaround in the vicinity of Washington Circle and the alignment around Mt. Vernon Square. Map 1 shows the potential alignment alternatives for study.

Historic Concerns

In the eastern termini of this proposed study area, Union Station (completed in 1908) and its environs have historic significance. Along the proposed alignment, historic districts such as Mount Vernon and Foggy Bottom need additional consideration as streetcar alignments are proposed, so as to minimize the adverse impact on historic properties and viewsheds. West of Mt. Vernon Square the K Street alignment also passes three public squares under the jurisdiction of the National Park Service. DDOT will analyze the feasibility of alternative streetcar propulsion technologies that incorporate wireless propulsion in order to preserve viewsheds and maintain the character of these historic areas.

Alternative Propulsion

One major challenge to the implementation of streetcar has been the prohibition of overhead wires within the boundaries of the original L'Enfant city. While the District has lifted that prohibition for the area served by the H St. – Benning line, the new law requires DDOT to submit a plan for wired and wireless propulsion for future extensions. The legislation and a description of the District legislative process is provided at www.dccouncil.washington.dc.us/lims. Currently, a number of vehicle manufacturers are designing the next generation of streetcar vehicles that can operate primarily or in part without the use of overhead wires. On May 5, 2010 DDOT issued a Request for Information to learn more about the state of propulsion technology. The resulting information will inform the alternative propulsion systems studied. DDOT will evaluate alternatives to determine:

- Capital and operating costs
- Reliability
- Interoperability with existing infrastructure and rolling stock

DDOT anticipates identifying other criteria as part of the Alternatives Analysis.

2. Description of Conceptual Alternatives

The District of Columbia's downtown street network is highly complex, consisting of a traditional street grid at 90 degree angles overlaid with state-named avenues running at angles to the grid. Complicating the layout even further, the downtown street network includes squares which interrupt the network and block widths which change from block to block as one travels along a street. The District's highly complex street network impacts both the proposed alignment alternatives and propulsion technology alternatives studies.

Union Station to Mount Vernon Square Alignment

As described above, this streetcar segment will link a redeveloping, mixed-use section of the central city with DC's intermodal transportation center, Union Station, and connect with the H St. – Benning streetcar segment.

DDOT will investigate a minimum of three alignment options as shown on Map 1. Two of the alignment options assume that the streetcar route will use the H Street Bridge over the Union Station train yard and one option assumes the H St. – Benning streetcar will permanently operate via the pre-existing H St. underpass. Prior to the mid-70s, H Street, NE crossed the Amtrak tracks in an underpass. The H Street Bridge was built as a replacement to the underpass and the underpass was simply sealed up. It has low level use by Amtrak and a private property owner, primarily for vehicle parking and storage on the eastern end. Both alignments using the H Street Bridge run the streetcar west along H Street from the bridge. Alternative 1A, shown in green on Map 1 (top), continues west on H Street to Massachusetts Avenue and then northwest on Massachusetts Avenue to Mt. Vernon Square.

Alternative 1B travels off of the bridge and west on H Street to New Jersey Avenue. At New Jersey Avenue the route turns north and continues to K Street. At K Street the route turns west and continues on to Mt. Vernon Square. This alignment is shown in purple on Map 1 (top).

Alternative 1C assumes that the H St. – Benning streetcar line uses the H Street underpass on a permanent basis. Current plans call for the H Street underpass to be an interim streetcar terminal for a number of years until the H Street Bridge is rehabilitated and prepared for streetcar use. The design and construction of the new bridge is included in the District's TIP.³

A separate DDOT and Washington Metropolitan Area Transit Authority project to complete a partially built pedestrian passageway from the Union Station Metrorail station mezzanine to the H Street underpass is moving forward. That project includes high-speed, high-capacity elevators from the underpass/passageway level to the H Street Bridge level so that streetcar riders will have direct access to Union Station regardless of whether the streetcar is operating via the H Street bridge option or the H Street underpass option. A copy of the elevator schematic drawing is included as an attachment.

The H Street underpass alignment option (Alternative 1C shown in blue on Map 1) turns north out of the underpass onto 1st Street, NE. At K Street the routing turns west and continues along K Street to Mt. Vernon Square. Each of the three alignment options will be reviewed according to the evaluation criteria discussed below in Section 3.

At Mt. Vernon Square DDOT will evaluate a minimum of two route paths around the Square. Alternative 2A would send westbound streetcars north around the Square using Mt. Vernon Place and eastbound streetcars would return using K Street which wraps around the southern

³ Metropolitan Council of Government: www.mwcog.org

border of the Square. Alternative 2B will consider using K Street for both eastbound and westbound streetcars. Leaving Mt. Vernon Square moving west the streetcars will enter a dedicated transitway across the core downtown section of K Street. Both options are shown on Map 1 (middle).

Washington Circle Terminus

In the early stages of the DC Streetcar System K Street corridor streetcar service will terminate in the vicinity of Washington Circle. In the full system build out, two K Street routes will terminate in the vicinity of Washington Circle and a third route will continue west to Georgetown.

DDOT's alignment study seeks to evaluate a minimum of four terminal or turnaround alternatives for the western end of the corridor. The Washington Circle area is the end of the downtown business district along K Street and abuts the George Washington University Medical Center complex. The southern side of the Circle is one block from the GW – Foggy Bottoms station on Metrorail's Blue and Orange lines.

The four proposed alignment options are shown on Map 1 (bottom). The first two turning options, shown in green and purple on the map, involve relatively simple and straightforward turning in or before the Circle. At 21st Street the K Street roadway splits into two sections. The center lanes sink into an underpass roadway which runs underneath Washington Circle. These lanes continue west into Georgetown and connect to the Whitehurst Freeway. The curb lanes of K Street continue west at grade and merge into Washington Circle.

Alternative 3A would use an existing vehicular "U-turn" loop at 22nd Street. An aspect of the analysis of this alternative will be whether the turning radius is acceptable. Alternatively the green route alignment could end in a two or three track stub-end terminal on new decking over K Street just west of 22nd Street.

Alternative 3B simply loops around Washington Circle. Issues with this alignment would involve siting for the terminal stop, availability of a short storage track for one additional car, determining how the how the loop alignment and station stop would impact traffic in the Circle and the value of placing the terminal stop on the southern or southwestern side of the Circle, closest to the hospital and Metrorail station.

The other two alignments that DDOT intends to evaluate are turnaround loops using city blocks east of Washington Circle. Alternative 3C, shown in orange on Map 1 (bottom), turns off of K Street at 22nd Street, preceding north to L Street. At L Street the alignment turns east for one block to 21st Street and south on 21st Street to K Street. At K Street the route turns east to return to Union Station and H Street – Benning Road.

Alternative 3D is shown in blue on Map 1 (bottom). It follows a longer path turning south from K Street onto 21st Street down to I Street. At I Street the alignment turns west and follows I Street for two blocks to 23rd Street. At 23rd Street the streetcar would turn north and continue

up 23rd Street to Washington Circle. The alignment path continues east around the southeastern edge of the Circle to K Street where it continues east towards Union Station. The blue line alignment has the advantage of direct access to the G.W. – Foggy Bottom Metrorail station.

Streetcar Propulsion Alternatives

For over 120 years the District of Columbia has had a prohibition on overhead power and telephone lines, in the Old City of Washington, often colloquially referred to as the L'Enfant City. (See attached Old City map) In June 2010 the District City Council amended the ban on overhead wires to permit use of overhead wires on the H St. – Benning alignment and requiring DDOT to submit a plan for the use of wires on other proposed streetcar extensions.

The issue of overhead wires is not unique to the District of Columbia and streetcar manufacturers have responded with new and experimental streetcars which use alternate power sources. Some of these alternatives are designed solely for transversing short wireless segments of a route and other propulsion alternatives are designed to substitute for the overhead wire power system for longer stretches of operation. DDOT's Alternatives Analysis grant application seeks funding to evaluate the advantages and disadvantages of alternative streetcar propulsion systems and provide a recommendation for this and future streetcar lines. The alternative propulsion systems, in various stages of development and use, can be divided into three broad categories. DDOT will explore all three categories as described below.

Alternative Power Supply Systems

(This information comes from the "Streetcar Technology Assessment" report prepared by the URS Corp. for the City of Charlotte Engineering & Property Management Dept. in May, 2010)

Third Rail Technology: Powered by an embedded rail between the running rails for transfer of energy. The third rail is energized only when the vehicle passes over that segment of rail. Energy is then transferred by either a physical contact with the rail or by means of induction. When the vehicle is not present, then that rail segment is not energized.

Battery and/or Capacitor: Utilizes onboard energy storage systems that deliver power to the vehicle. Once the battery or capacitor is depleted, it must be recharged from a power source such as an Overhead Contact System, regenerative braking, other wayside power supply or any combination thereof.

On-Board Fuel Systems: Derive wireless propulsion from non-electric fuel sources. Potential alternatives include: Hydrogen fuel cells, hydrogen internal combustion engines, and clean diesel-electric generator. The hydrogen based systems have not been advanced to a point where they can be applied to a transit vehicle for commercial application. Fuel cell technology continues to be developed along with the infrastructure required for hydrogen fuel cells including storage tanks and pumping equipment for refueling the vehicles. Diesel-electric generator sets have been used in various applications in the United States and abroad, however the industry is moving away from fossil fuel based systems.

Proprietary vs. Open Technology for Propulsion Systems

Currently there are a number of manufacturers conducting research on wireless propulsion technology. A preliminary review of propulsion alternatives suggest that some systems are proprietary while others are open. Proprietary systems tend to have the infrastructure and rolling stock designed in tandem. This is particularly true in the systems using third rail power. Open systems, mostly battery/capacitor and on-board fuel systems, focus solely on rolling stock. This increases vehicle interoperability. As part of the Streetcar Propulsion Alternatives Analysis, DDOT will consider the benefits and risks of both proprietary and open technology systems.

Operating Strategies and Service Standards

The basic operating strategies and service standards for the DC streetcar system are detailed in the *DC's Transit Future System Plan* which is available on the DDOT website, www.ddot.dc.gov. The system will operate seven days a week with: Monday – Thursday from 6 a.m. to midnight; Friday from 6 a.m. to 2 a.m.; Saturday from 8 a.m. to 2 a.m. and Sunday from 8 a.m. to 10 p.m. Current plans call for service frequencies of 10 minutes on each route. As the system is built out and some corridors have more than one streetcar route, those corridors will have more frequent headways as a result of the combined routes. As the system is built out, streetcars will replace some bus routes and other bus routes may be modified to feed the streetcar network. DDOT anticipates charging \$1.00 per ride and utilizing an off-board fare collection, proof-of-payment system.

3. Preliminary Evaluation Criteria

How will the extension support existing communities?

In response to the transportation, economic, and community development needs facing the District; DDOT seeks to extend the existing DC Streetcar line under construction from Oklahoma Avenue, NE to Union Station further west. The planning for an extension from Union Station to the Washington Circle/Foggy Bottom Area will help support the following community-oriented DDOT actions:

- Maximize transit mode share;
- Review accessibility and housing affordability benefits in terms of the proposed transit investment;
- Explore environmental benefits from increasing transit and travel options along the extended corridor.
- These goals support the livability criteria for the DOT-HUD-EPA partnership for sustainable communities and focus on furthering the DDOT's mission of developing and maintaining a cohesive, sustainable transportation system that delivers safe, affordable, and convenient ways to move people and goods — while protecting and enhancing the natural, environmental, and cultural resources of the District.

At a minimum, the existing communities will see these benefits:

- Existing communities along the line in the CBD and in Foggy Bottom will receive higher capacity transit service;

- Communities along the H St. – Benning line will receive more direct access to jobs in the CBD and services in NoMa and the Mt. Vernon Triangle;
- Communities along the H St. – Benning line will receive more frequent transit service;
- The improved transit access and capacity will help maintain the competitiveness of the CBD as the office location of choice for the region; and
- Investments in public and private infrastructure.

In what ways will the extension provide more transportation choices?

Today the District of Columbia enjoys a variety of transit services that serve its nearly 600,000 residents⁴, thousands of workers and over 10 million annual visitors. Although a variety of services exist in the District, not all residents in the District enjoy easy access to transit or convenient connections. In recent years the District has invested close to \$15 million in local funds to help provide premium transportation services in the District which include: four limited stop bus routes, five DC Circulator bus routes, and improved local bus service operated by WMATA. In addition, DDOT is responsible for the design and construction of the DC Streetcar Program, a local investment commitment thus far of almost \$100 million.

DDOT's goal to provide more transportation choices is met through the construction of over 37 miles of new streetcar lines citywide. The first 2.75 miles of the system are currently under construction and are scheduled to initiate revenue service in 2012. The city government seeks to continue to improve the local transportation network in order to meet increasing transit demand and reduce crowding. By expanding the transportation network and providing additional services such as streetcar, the District not only helps increase capacity and accessibility for residents, but also supports the region's growth and vitality. Furthermore, the combination of dedicated right-of-way and higher capacity will dramatically reduce travel time and attract new riders.

The need to plan and study the benefits and impacts of the streetcar network extension from Union Station to Washington Circle is of critical importance as DDOT evaluates ways to address the need for additional transit services on the K Street corridor.

In 2009 the DC Circulator route from Union Station to Georgetown carried 2,393,953 riders, an increase in ridership from 2,101,950 in 2008.⁵ This route, operating on a ten minute headway, is congested during peak hours. Similarly, other local WMATA bus routes that travel along portions of the proposed corridor such as the X series routes, D series routes and the 80s are all well utilized, particularly during peak afternoon hours. The X routes, 80s, Ds, (all among the 10 busiest routes in the District) carry between 8,000 to 12,000 passengers a day. The Metrorail Red Line which travels through three of the District's major activity centers (Union Station, Gallery Place and Farragut North) along the proposed extension also suffers from peak period

⁴ District of Columbia, Population Estimates, US Census Data 2009

⁵ DCST Ridership Report, Fiscal Year 2008-2009.

capacity constraints. Each of these three Metro Rail stations has an average of 20,000-30,000 boardings per day.⁶

The streetcar network extension along K Street will add capacity in the corridor, with a 2030 ridership projection of 26,000 daily riders.⁷ The alternatives analysis will help evaluate the impacts of mode share and travel changes by riders who will benefit from having a variety of modes to choose from for intra-city travel.

The extension of the streetcar network will not only help alleviate capacity constraints in existing transit services, but also support improved east-west travel in the District.⁸ Increased east-west connectivity has been sought by residents and employees along the K Street corridor; especially by residents at the far ends of the corridor near Mt. Vernon and Foggy Bottom. Demand for this service is confirmed by the success of the DC Circulator route which provides a single seat ride from Union Station to Washington Circle and Georgetown. The extension will also facilitate connectivity for residents living in northeast Washington along the H Street and Benning Road corridor that will now be able to travel directly to work, shop, and medical appointments along the K Street corridor with no transfers.

Will the extension help promote equitable and affordable housing?

The District of Columbia has a relatively new inclusionary zoning law which requires that a certain percentage of units (generally 8 to 10 percent) be set aside in new developments or substantial rehabilitations for affordable housing. The goals of the program are to create mixed income neighborhoods; maintain or expand the number of affordable housing units for a diverse labor force; seek equitable growth of new residents; and increase homeownership opportunities for low and moderate income households.⁹

The proposed extension will also help support and increase transportation options for affordable housing community initiatives adjacent to the eastern part of the corridor such as The Northwest One New Community. This community is the District's first New Community project. Comprised of five low-income housing complexes, it is located in Ward 6, between North Capitol Street on the east, New York Avenue on the north, New Jersey Avenue on the west and K Street on the south. The One Vision Private Development team, selected by the District government to help revitalize the area, was able to reach an agreement with the leadership of the adjacent 199-unit Sursum Corda Cooperative to expand their development plan for the entire community, greatly increasing the number of new affordable housing units, workforce units, retail and other amenities. The combined plan preserves 520 existing low or moderate income units and builds an additional 600 subsidized units and 600 market rate units.¹⁰

⁶ Metrorail and Metrobus Ridership data, WMATA, 2009.

⁷ DC Transit Future System Plan, Pages 4-24, 4-25, April 2010.

⁸ The DC Neighborhood Circulation Study conducted jointly by WMATA and DDOT in 2008 emphasizes the need for additional east-west travel capacity. http://wmata.com/about_metro/planning_dev.cfm

⁹ DC Department of Housing and Community Development, Inclusionary Zoning www.dhcd.dc.gov

¹⁰ DC Office of Planning, New Communities Project, Northwest One.

The neighborhood, which has long been plagued by high crime and poverty, is surrounded by several emerging districts --NoMa (North of Massachusetts Avenue) and Mt. Vernon Triangle-- that are undergoing intense redevelopment and investment efforts. Over 9,000 new housing units are planned for the NoMa community with 1,683 available or under construction.¹¹ The neighboring Mt. Vernon Triangle community expects a final build-out totaling 4,000 to 5,000 new housing units.

DDOT hopes that the alternatives analysis planning process will help the agency increase coordination with the DC Office of Planning, the Office of the Deputy Mayor for Planning and Economic Development and the DC Department of Housing and Community Development to continue to make the District a more sustainable and livable city. To that end, this Alternatives Analysis will dovetail with the Office of Planning's streetcar land-use planning effort currently underway. This study will help develop strategies to maximize the District's return on its investment in streetcars.

How will the extension enhance the District's economic competitiveness?

The expansion from Union Station to Washington Circle of the DC Streetcar will enhance the District's economic competitiveness by facilitating movement along one of the most dense employment nodes in the region (over 133,000 projected jobs per mile within one-quarter mile of stops in the core K Street corridor in 2030); helping revitalize local community activity nodes and spreading wealth and access to employment opportunities to other areas of the city. The extension along the K Street corridor means new transportation services for residents and workers within the District that will connect activity centers, facilitate intermodal transfer opportunities, and relieve crowded Metrorail and Metrobus lines. The extension will also enhance the economic competitiveness of the region by providing commuters traveling from Union Station to the K Street and Mt Vernon Square areas additional transportation choices. Over 17,000 commuters arrive at Union Station daily during the work week along with several thousand Amtrak travelers.¹²

Below is a summary of some of the most recent economic activity throughout sections of the corridor. Each section expects continued growth over the next five to ten years with most of the activity focused on the eastern end of the corridor which is less fully built-out.

Eastern Part of the Corridor (NoMa / Mt. Vernon Triangle)

The District has targeted this area of the corridor for commercial and residential redevelopment. District wide and neighborhood plans have identified the need for investment in higher-capacity fixed-guideway transit here to support medium- to high-density mixed-use development. The proposed extension links current economic growth along the H Street corridor, where it is estimated that the retail and restaurant leakage in the area is more than \$66 million per year to two emerging commercial nodes in Mt Vernon and NoMa. The District needs to make the necessary transportation investments in these areas to ensure accessibility

¹¹ www.nomabid.org see development map.

¹² Union Station Intermodal Transit Center Feasibility Study, Page A-5, October 2009.

and prepare them for future growth. The build out of the Mount Vernon Triangle will require approximately \$1.8 billion of private capital and will produce approximately \$50 million in annual taxes to the District of Columbia. Similarly private-sector developers in the NoMa area, recognizing the demand for close-in office and residential space within the District, began to realize the neighborhood's potential of up to 20 million square feet of mixed-use space over the next ten years. In 2010 five million square feet of development will be completed, with a private sector investment to date of \$1.5 billion.

Center of the Corridor

The K street corridor runs right through the heart of the Downtown core. Although there is access to over 20 Metrobus routes, three of the five DC Circulator routes and seven Metrorail stations; the corridor can still benefit from additional transit investments to help alleviate the travel demands of more than 181,000 current employees. The DC government's net investment over the past 10 years in Downtown is estimated at \$300 million, accompanied by \$10 billion in private investment.

In addition, with close to 10 million visitors a year to our nation's capital, K Street is the "Main Street" for many of these visitors and their transportation access points for travel to Union Station, Dupont Circle, Georgetown, Foggy Bottom and the White House. In 2007, visitor spending exceeded \$5.5 billion, creating \$620 million in tax receipts for the District of Columbia.¹³

Planning for new transit services and improvements such as the Union Station to Washington Circle extension will ensure that visitors and employees are able to move with ease throughout the downtown area; this in return will continue to place the city at the forefront of transit services in our nation and help sustain our economic competitiveness for years to come.

Western Part of the Corridor

The George Washington University Foggy Bottom campus serves as the economic anchor of the western part of the proposed streetcar route extension. With close to 25,000 students, and 2,500 faculty and support staff, George Washington University is of the biggest employers in the region. The campus covers over 20 city blocks and is one of the top universities in the nation, investing close to \$172,000,000 in research alone almost every year.¹⁴ Although the area is already served by the Foggy Bottom Metrorail Station, the DC Circulator and four local bus routes, the DC Streetcar will provide the campus with additional transportation choices that make it more attractive to current and potential students and faculty.

In addition, the DC Streetcar extension will provide a connection to residents of the Foggy Bottom and Georgetown communities, as well as access to other activity centers of importance to visitors and residents alike such as the Kennedy Center and the World Bank.

¹³ Destination DC, Planning Information. www.washington.org

¹⁴ George Washington University, factsheet. www.gwu.edu/explore/aboutgw/facts

Will the planning process help coordinate policies and leverage investment along the corridor?

The proposed planning process will coordinate the following studies that have either been completed or are currently underway: *K Street Transitway Environmental Assessment* (2009), *Mount Vernon Triangle Transportation and Public Realm Project* (2006), *DC's Transit Future System Plan* (2010), and the *Streetcar Master Land Use Study* (currently underway at the Office of Planning).

An additional planning process is necessary to complement the studies previously mentioned and determine a preferred alignment. DDOT envisions a holistic planning process that will build on information gathered in previous studies and apply it particularly to streetcar alignment alternatives. When analyzing alignment alternatives, DDOT will consider policies such as economic development areas, business improvement districts, historic districts, zoning regulations, and design guidelines.

Completing an alternatives analysis and determining a preferred alignment for this corridor will help to leverage future investment because it helps assure private investors that the District of Columbia intends to build the streetcar system and has properly analyzed alignments and propulsion technologies. A consolidated planning effort also will help the District to define areas where private investment should be directed, and facilitate future development.

What will be the value added to the impacted communities and neighborhoods?

The value added to the impacted communities and neighborhoods will include all of the following:

- Increased transportation options
- Less transit overcrowding and traffic congestion
- Better environmental outcomes because of cleaner streetcar propulsion technology
- Increased leverage of the K Street Transitway – buses and streetcars
- Stronger east-west connectivity
- Expanded private investment linked with the public infrastructure commitment
- More connections between low and moderate income residential areas and employment opportunities

Technical Capacity of the Applicant

DDOT's Progressive Transportation Services Administration (PTSA) will manage the alignment and propulsion technology alternatives analysis assisted by the agency's Streetcar Program Management consultant, Shiels Oblatz Johnsen, Inc. and HDR Engineering, Inc. Joint Venture.

The PTSA staff assigned to this project are:

Circe Torruellas, Senior Transportation Planner, PTSA

After completing her studies in law and public policy in 2005, Ms. Torruellas, a native of San Juan, Puerto Rico, began her career in transportation with the District of Columbia Department of Transportation, as part of the Capital City Fellows Program. The Fellows program affirmed her passion for public service and helped her develop a deep interest in developing innovative transportation solutions.

In her current position as a senior transportation planner at DDOT, Ms. Torruellas is helping lead several high profile transit projects and studies including the DC Streetcar project and the Union Station Intermodal Transportation Center Feasibility Study. Ms. Torruellas actively coordinates the project planning, environmental studies and public outreach. In addition, partnered with the Washington Metropolitan Transit Authority (WMATA), Ms. Torruellas serves as the jurisdictional representative in various studies to improve Metrobus services in the city, which include: The 30s and 70s Bus Line Service Evaluations, the D routes service evaluation, the DC Neighborhood Circulation Study and the earlier 30s Bus Line Study.

Ms. Torruellas holds a B.A. degree in International Relations and Policy Studies from Syracuse University (2001), a Masters in Public Policy from the University of Minnesota Hubert H. Humphrey Institute (2003), and a Juris Doctor from the University of Puerto Rico School of Law (2005).

Waiching Wong, Capital City Fellow, PTSA

Waiching Wong is a Capital City Fellow at the Government of the District of Columbia, focusing on urban economic revitalization through multi-modal transportation projects and neighborhood revitalization through site-specific developments. During her time as a Capital City Fellow, she has worked with both the Office of the Deputy Mayor for Planning and Economic Development, and the District Department of Transportation. Before moving to the nation's capital, Waiching worked at the Chinatown Community Development Center on San Francisco's Central Subway Project and at The Greenlining Institute as an Affordable Housing Program Manager leading multi-sector partnerships advocating for affordable housing and financial investments in California. She holds a masters degree in City and Regional Planning from Cornell University and a B.A. in Political Economy from the University of California, Berkeley.

Ms. Torruellas and Ms. Wong will work under the direction of Scott Kubly, Associate Director of DDOT, who has more than ten years of transit and government management experience.

Ildefonso Burgos-Gil, Deputy Associate Director, PTSA

DDOT has also recently hired an Associate Director, Ildefonso Burgos-Gil to manage streetcar system construction. Mr. Burgos-Gil is a professional engineer with over 13 years of combined planning, design, project and program management experience on highway transportation, transit and commuter railroad infrastructure projects in California. Prior to his arrival at DDOT Mr. Burgos-Gil spent nearly four years working for the Peninsula Corridor Joint Powers Board managing the construction of a \$100 million railroad bridge.

Shiels Obletz Johnsen, Inc. and HDR Engineering, Inc. Joint Venture

DDOT has selected a team of consultants to provide program management services for the successful design, construction, and operation of the DC Streetcar. The team is comprised of a variety of firms with specialized experience and capabilities in program management, planning, operations, financial planning, legal support, strategic and project communications, governance and management, and procurement.

Shiels Obletz Johnsen, Inc. (SOJ) is a small, Portland and Seattle-based firm that specializes in the management of complex urban development projects for public and private clients. SOJ has overseen streetcar project development in both Portland and Seattle including planning, design, construction and financing. They have experience in the technical, operations, safety and intergovernmental relations aspects of streetcar projects, too. Principals at the firm have become involved in U.S.-based streetcar manufacturing prototypes as well as alternative analysis projects in Oregon. Rick Gustafson, the team's Principal, is the Executive Director and Chief Operating Officer for the Portland Streetcar and is responsible for its operations, budget, finance and communications.

HDR Engineering has assisted clients around the nation in delivering successful Small Starts and New Starts projects from initial planning through final design and construction. HDR recently secured federal TIGER funds for the construction of streetcar projects in Tucson and New Orleans, where they are also providing planning, NEPA, design, preliminary engineering, and program management services. HDR also has expertise in transit capital planning and development, including market analysis, ridership forecasting, and cost/benefit analysis. Mr. David Vozzolo, the Program Manager for the DC Project, has participated in HDR streetcar projects in over nine U.S. cities and is a former Deputy Associate Administrator at the Federal Transit Administration.

Other members of the core team include Zimmer Gunsful Frasca Architects LLP (architecture/design), LTK Engineering Services Inc (engineering), Ball Janik LLP (government relations), Andrea Ferster Law Offices (legal), Jeffrey A. Parker & Associates Inc (finance), and Collaborative Strategies LLC (communications).

The team was chosen through a competitive process and DDOT anticipates finalizing and signing a contract by the end of July.

Potential Impact of the Decision-Making

FTA support of DDOT's alignment and propulsion technology alternatives analysis will allow the agency to continue the National Environmental Policy Act actions required for DDOT to seek New Start funding for expansion of the H Street-Benning Road streetcar west through downtown DC. As detailed in the *DC's Transit Future System Plan*, the K Street segment from Washington Circle to Mt. Vernon has the highest per mile ridership in the proposed network

and the Union Station to Mt. Vernon segment is among the top three or four best utilized segments.

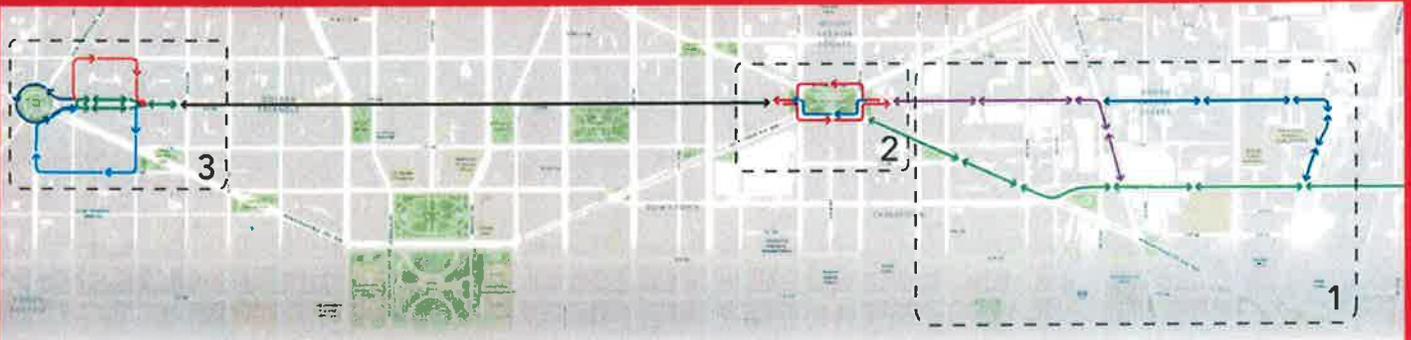
The alternatives analysis will allow DDOT to assess in a public process the host of physical alignment issues which must be considered in arriving at a preferred alternative. The process will identify the fastest routes, the routes with the least and most impact on other vehicular traffic, the routes most likely to spur further economic development, the routes generating the highest ridership potential and the routes most preferred by citizens who engage in the study process and outreach.

Additionally, the physical alignment analysis will identify historic sites and structures as well as the viewsheds worthy of continued protection from visual interference or obstruction. Compilation and assessment of these locations will provide information to the wireless propulsion technology assessment in determining which wireless technology best fits the District's needs and budget.

Connecting the K Street corridor streetcar line with the H Street-Benning Road streetcar expands the transportation opportunities for lower income residents of the District living in Ward 7 and portions of Wards 5 and 6 east of Union Station. It provides the opportunity for one-seat trips from lower income communities in the H Street-Benning Road corridor to nearly the entire downtown business district and the George Washington Medical Center complex.

This streetcar route improves connections to seven Metrorail stations serving five Metrorail lines as well as enhances access to Union Station, WMATA's busiest Metrorail station, Amtrak's second busiest train station and the location of expanding intercity bus service. The expanded K Street streetcar route provides frequent transit service to the H Street, NE entertainment and cultural district and will encourage property owners to continue to reinvest in this rebuilding corridor.

In short, this line is the cornerstone of the District's 37 mile streetcar system.



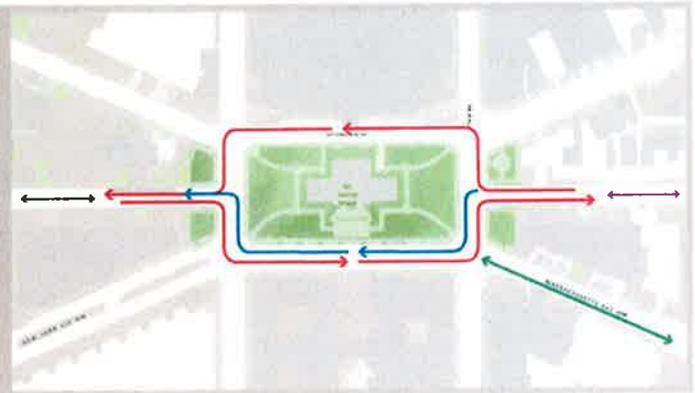
1 Union Station

- 1A - Green
- 1B - Purple
- 1C - Blue



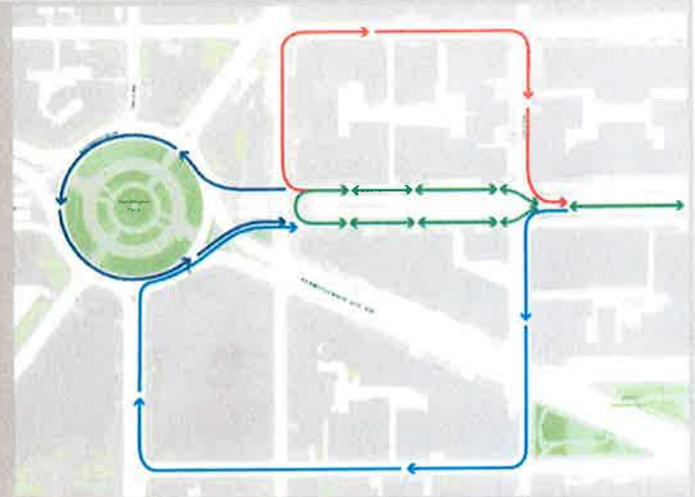
2 Mt. Vernon Square

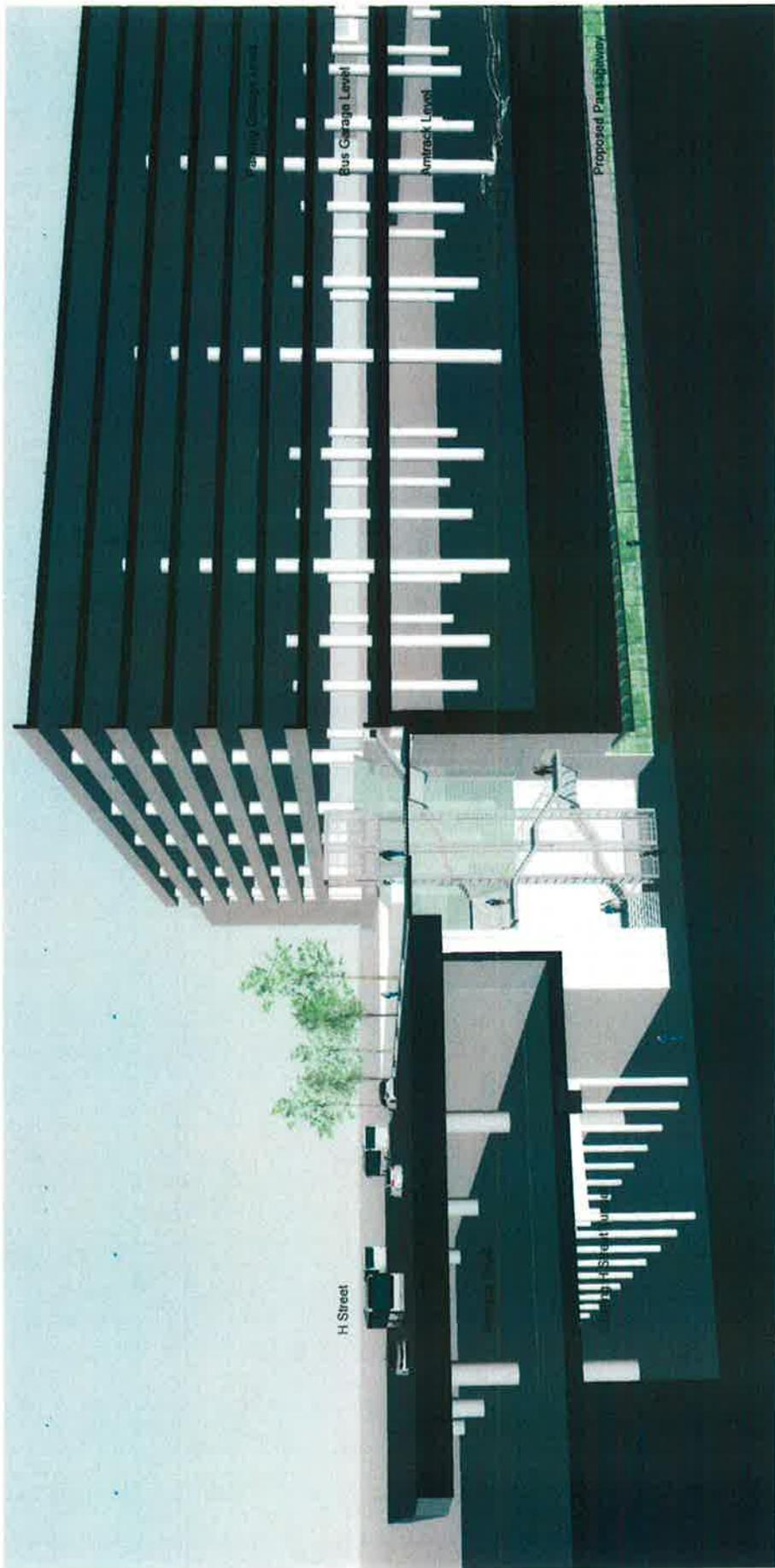
- 2A Loop - Red
- 2B Version - Blue



3 Washington Circle

- 3A - Green
- 3B - Purple
- 3C - Orange
- 3D - Blue





Sectional Perspective

(NTS)

H Street Pedestrian Access and Passageway

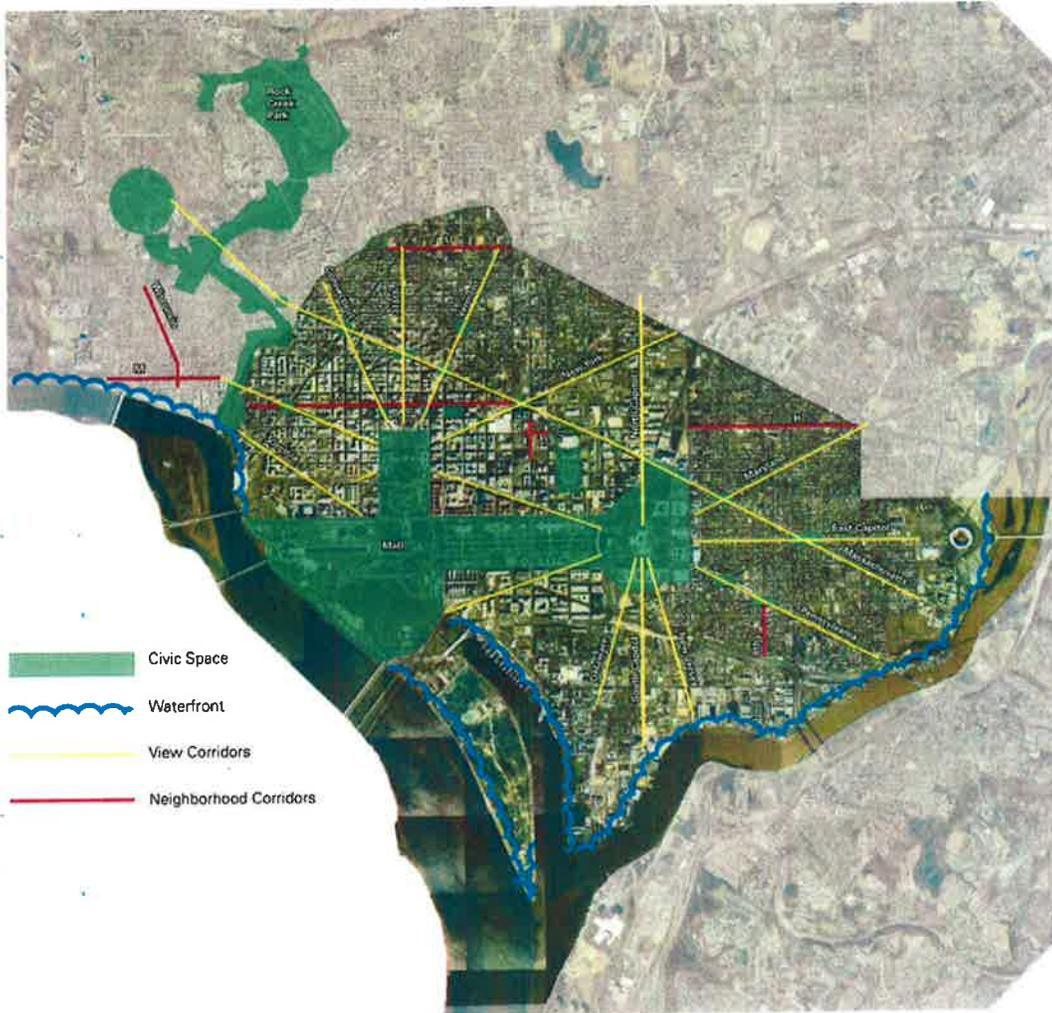
Metro Union Station Inter-Modal Access and Capacity Study 04.19.10



KGP Design Studio



Washington D.C. - L'Enfant Plan - Assets



DC Streetcar



ZGF
August 2007
DRAFT

Summary

	Visual Impact	Capital Cost	O&M Cost	Proprietary Technology	Proven Reliability
POWER SUPPLY SYSTEMS					
Overhead Contact System	●	●	●	●	●
Underground Conduit System	●	●	●	●	●
Ground-Level Systems					
Contact	●	●	●	●	●
Contactless	●	●	●	●	●
On-Board Generation					
Internal Combustion	●	●	●	●	●
Fuel Cells	●	●	●	●	●
POWER STORAGE SYSTEMS					
Batteries	●	●	●	●	●
Capacitors	●	●	●	●	●
Flywheels	●	●	●	●	●

● No Issues
 ● Minor Issues
 ● Major Issues
 ? Unresolved



American Public Transportation Association

APTA Streetcar and Heritage Trolley Subcommittee



DC Surface Transit, Inc.

Board of Directors

President

Mr. Richard H. Bradley
Downtown BID

Vice-President

Ms. Leona Agouridis
Golden Triangle BID

Secretary/Treasurer

Mr. Jim Bracco
Georgetown BID

Members

Ms. Kristen Barden
Adams Morgan Partnership
BID

Mr. Carlton Diehl

Ms. Virginia I. Laytham
Clyde's Restaurant Group

Ms. Patty Brosmer
Capitol Hill BID

Mr. Joseph D. Sternlieb

Mr. Michael Stevens
Capitol Riverfront BID

Mr. Greg O'Dell
Washington Sports and
Convention Authority

July 12, 2010

The Honorable Peter M. Rogoff
U.S. Department of Transportation
Federal Transit Administration
East Building 4th Floor
1200 New Jersey Avenue, SE
Washington, DC 20598

Dear Administrator Rogoff:

I am writing to express DC Surface Transit Inc.'s (DCST's) support for the District Department of Transportation's (DDOT's) application for Federal funding to conduct an alternatives analysis for streetcar alignment in the vicinities of Washington Circle and Mt. Vernon Square, the termini of the K Street corridor. It is our understanding that the \$1M in Federal funds would be matched by \$1M in local funds.

Currently, K Street's ability to move people, goods and services in and around Center City is constrained by an inefficient design and its deteriorating physical condition. Additionally, Metro Rail stations in the corridor are operating at over capacity. The need for a better K Street to meet the significant transportation demands placed upon it by the city and the region has long been widely recognized. The proposed alternatives analysis of the K Street "gateways" will advance the city's efforts to develop a new plan for this key corridor.

DCST was created in 2004 to promote convenient and affordable surface transit in the District of Columbia. Its members include the Adams Morgan, Capitol Hill, Capitol Riverfront, Downtown, Georgetown and Golden Triangle Business Improvement Districts; Washington Convention and Sports Authority; and the National Capital Planning Commission.

The DCST is eager to continue its partnership with DDOT and others to realize the successful and timely rebirth of K Street as a model of 21st Century transportation in the United States.

Sincerely,

Richard H. Bradley
President

DC Surface Transit, Inc.

1250 H St., NW Suite 1000 Washington, DC 20005
Phone (202) 661-7570 Fax (202) 661-7599