

GOVERNMENT OF THE DISTRICT OF COLUMBIA  
DISTRICT DEPARTMENT OF TRANSPORTATION



Progressive Transportation Services Administration

**REQUEST FOR INFORMATION  
DC STREETCAR**

**Request for Information (RFI) – DC Streetcar Vehicle**

**RFI Number:** DCKA-2011-I-0079

**Issuance Date:** February 23, 2011

**Due Date:** March 8, 2011

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The District Department of Transportation (DDOT) is soliciting information on the structure of contract and interest of transit operators to operate and maintain the existing and future citywide DC Streetcar system.

**Treatment of RFI Responses and Respondents**

This is not a Request for Offers. Rather, following review of the RFI responses, DDOT may issue one or more Requests for Proposal (RFP).

All respondents to the RFI will be invited to respond to subsequent an RFP. However, DDOT reserves the right to invite other parties to respond to such solicitations. Further, parties responding to the RFI are unrestricted in modifying the composition of team members and program approaches should they decide to respond to a subsequent solicitation.

DDOT recognizes that some respondents may consider that disclosing their interest and ideas could compromise competitive advantage should they ultimately decide to respond to a subsequent Solicitation for Offers. All responses will remain confidential outside of the review team and individual responses will not be shared with the public or other respondents. DDOT considers responses to this RFI as part of its outreach and research effort; and as such, more in the nature of a survey.

DDOT intends to use the information in the responses to establish parameters and requirements included in an RFP. Potential respondents must determine for themselves the relative advantages and disadvantages of responding to the RFI. DDOT assumes no responsibility or liability for any potential claim of harm and damage.

By submitting a response, the respondent expressly acknowledges that DDOT assumes no such responsibility or liability.

## **Overview**

The District of Columbia has initiated construction of the first two segments of a 37-mile streetcar network including a two-mile segment along H St NE and Benning Rd NE, and a .5-mile segment on Firth Sterling Rd in Anacostia. The H St/Benning Rd segment is planned to be operational in 2012 with a private operator in place by August 2011.

The District has purchased three streetcars from Inekon-Skoda of the Czech Republic and is in the process of acquiring more cars, some with off-wire capability. The total annual operating hours for the system is projected to grow steadily and be almost 100,000 annual hours by 2015. See Figure 1 for a depiction of the overall system and see Appendix A- *Draft Operation and Maintenance Plan* for a description of the first segments to be built and operated.

## **Request for Information**

As plans move forward to operate a citywide streetcar system, it is DDOT's desire to search the open market for information regarding potential operators of a streetcar system. This request for information seeks advice and input from experts in operation and maintenance of transit systems regarding operation and maintenance contract provisions.

DDOT welcomes your ideas, suggestions, questions, comments and concerns regarding the DC Streetcar project. DDOT is seeking information on the following:

- Vehicle Maintenance
- Preferred contract length that creates a stable relationship and provides operators the incentive to maintain the system for excellence in service and longevity
- Contract payment methodology
- Contract General Provisions
- Vendor responsibilities
- City (Owner) responsibilities
- Revenue collections
- OCS and track maintenance

Appendix C includes a series of questions regarding contract provisions for which input is sought from interested vendors.

## **Procurement Process**

This Request for Information (RFI) is considered a preliminary phase in a public procurement process. DDOT reserves the right to cancel, revise or supplement this RFI at anytime. If DDOT elects to move forward with a formal procurement process, it will issue a Request for Proposals (RFP) to firms interested in competing to operate the streetcar. Any procurement, finance or other concepts provided in response to this RFI shall become the property of DDOT.

### **Local Small Disadvantaged Business Enterprises (LSDBE)**

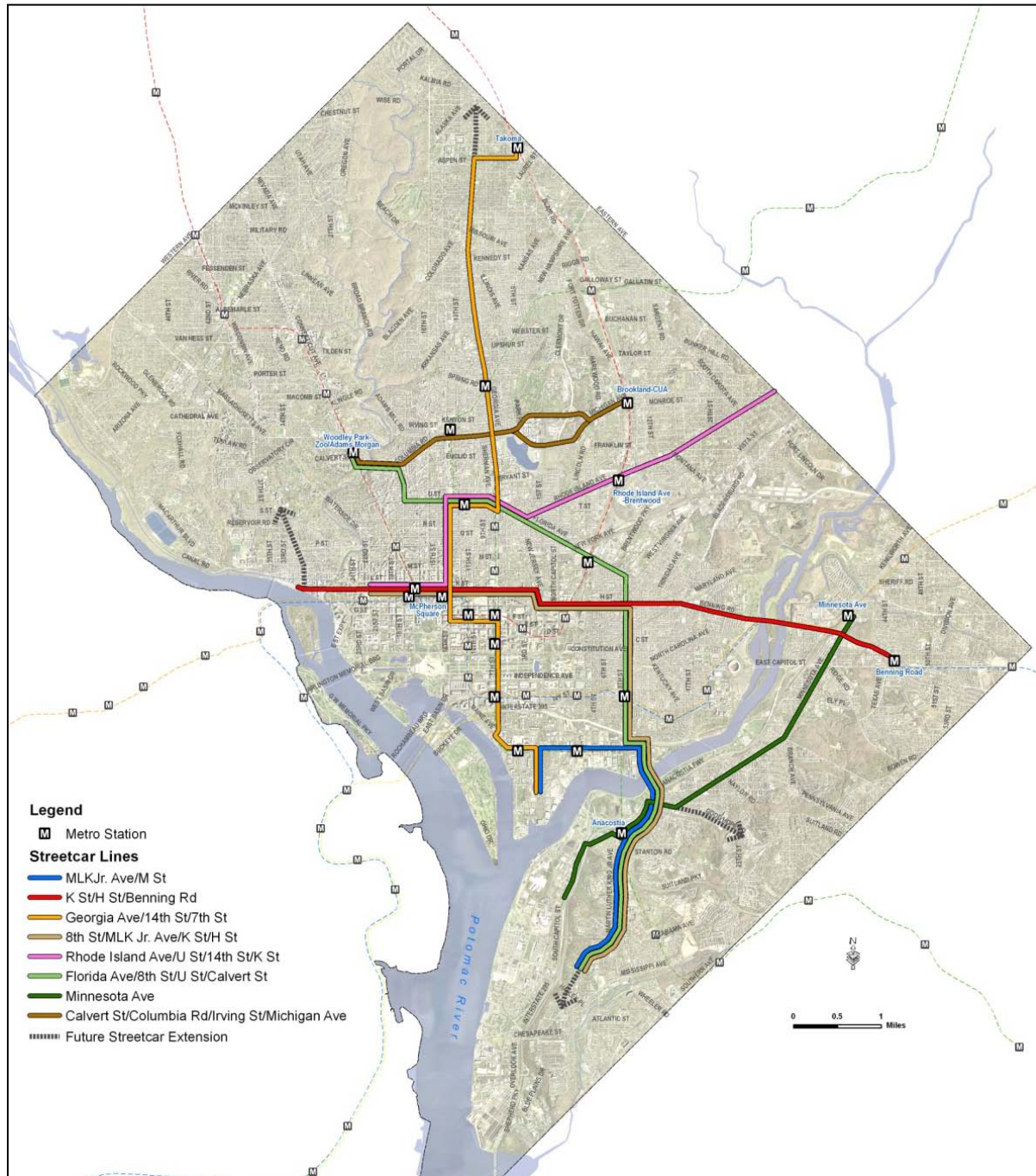
DDOT highly encourages LSDBEs to participate in both the RFI and RFP processes.

Responses to this RFI are due no later than the date identified above. Please submit your response electronically to [ralph.burns@dc.gov](mailto:ralph.burns@dc.gov) or in written hardcopy form to:

**District Department of Transportation**  
Progressive Transportation Services Administration  
2000 14<sup>th</sup> Street NW, 5<sup>th</sup> Floor  
Washington, D.C. 20009  
**Attention: Ralph Burns, Deputy Associate Director**

In an effort to reduce waste, if submitting a hardcopy, please refrain from using 3-ring binders, spiral bindings, and other non-recyclable binders and folders.

**Figure 1. Full System Map**





## Appendix A- DC Streetcar Operation and Maintenance Plan (DRAFT)

### System

DDOT has developed a vision for a 37-mile streetcar system and has begun construction on two segments. Phase one of the Streetcar system will include over 20 miles of track, including four lines proposed to be built by 2018. The first segment of the DC Streetcar System to open will be the H St/Benning Rd streetcar route from Union Station to Oklahoma Avenue (See Figure 1). For the H St/Benning Rd route, the streetcar will travel a 2.02 mile route on H Street and Benning Rd in both east and west directions.



Figure 1- H St/Benning Rd

### Stations

Stations (stops) utilize raised boarding platforms. From an average curb and sidewalk height of 8 inches above the street, the streetcar boarding platform will have wheelchair-accessible ramps to a level of approximately 14 inches above the street. The streetcar is a “low floor” design and includes an automatic leveling system to maintain the floor at the same level as the platform. Thus, passengers in wheelchairs can roll directly onto the streetcar.

Although each station is designed to fit the unique characteristics of the stop location, all stations include a small shelter, informational signage, trash receptacles, and a feature called “Next Bus”, a GPS controlled system that tracks the movement of each streetcar.

Stations also include lighting, crosswalk signals where appropriate and various physical markings to guide users to safe passage areas. There are 7 designated streetcar stops along the route to receive and discharge passengers. Stations will be ramped to a raised curb from which convenient wheelchair access will be provided to the low-floor



section of the vehicle across a bridge-plate at one of the three doors on each side of the vehicle. The other two doors will have step access.

Stations are located at intervals of approximately 1,500 to 2,000 feet to provide ready access to many downtown origins and destinations. Stops on the H St/Benning Rd segment are located at:

- Union Station at 1<sup>st</sup> St NE (segment terminus)
- 4<sup>th</sup> St NE
- 8<sup>th</sup> St NE
- 13<sup>th</sup> St NE
- H St/ Bladensburg RD/ Benning Rd
- 19<sup>th</sup> St NE
- Oklahoma Ave NE (segment terminus)

## Vehicle Operations and Capacity

DC Streetcar has acquired three (3) vehicles and is purchasing two (2) more standard streetcars and one streetcar with off-wire capability. The three owned Inekon vehicles known as the TRIO car were manufactured by the Ostrava Transit Agency, Ostrava, Czech Republic. They are 20.13 meters long (66 feet), which is between the size of a typical light rail vehicle (95 feet) and a typical city bus (40 feet). The car width is 2.46 meters (8 feet 2 inches). The cars transport seated and standing passengers and can accommodate 29 seated passengers, 2 passengers in wheelchairs, and 86 standing passengers for a total capacity of 113 (AW2). The streetcar is all electric, including heat and air conditioning, and is powered from a single overhead wire. An operator's control cab is placed at both ends of the car for bi-directional use, but only a single operator is required for operation. The car uses a Train to Wayside Communication (TWC) system that allows the operator to shift a track switch, or to hold a traffic light in the green mode until the train has completely passed through the intersection.

The cars have been manufactured previously for use in Europe. However, the European design has been modified to meet U.S. standards and expectations. The modifications to the specifications include: 1) cabs at both ends to allow reverse operations; 2) doors on both sides of the vehicles; 3) air conditioning; and 4) ADA requirements including bridge plates and reserved space for passengers in wheel chairs, and numerous other features. Streetcars are manually controlled by human operators, like a bus or light rail train. Operators will operate by line of sight, keeping their vehicle speeds in check so as to be able to stop short of obstructions on the track ahead.

The DC Streetcar will operate within the existing travel lanes and travel through intersections like other traffic, being controlled by traffic lights, signs and other devices. Preemptive signaling can occur at major intersections. Opticom signal extension can also be provided to extend signal length. Elsewhere the existing signal progressions is maintained with streetcars moving with traffic, relatively unimpeded between car stops. Switching will only be needed for abnormal or emergency movements.





## Support Systems and Fixed Facilities

The system elements required to support the operation of streetcars over the line include the revenue service and non-revenue service tracks, the traction electrification system, communications equipment, a maintenance and storage facility, fare collection, and security equipment.

1. **Revenue and Non-Revenue Trackage:** The main line consists of a single track as described above which is the route for revenue service. Streetcars will operate with the flow of traffic. Non-revenue trackage will be provided to enable dwell time for the operator, turnaround and access to the maintenance facility. The western terminus will involve cutting a portal (see picture below) through the H St Overpass and traveling under the Amtrak tracks through the H St Underpass and terminating with a stop at 1st St NE. This would provide District residents with a direct connection to the Union Station Metrorail station. It would also allow DDOT to store vehicles under the Western Bridge Abutment, completely screened from the community.

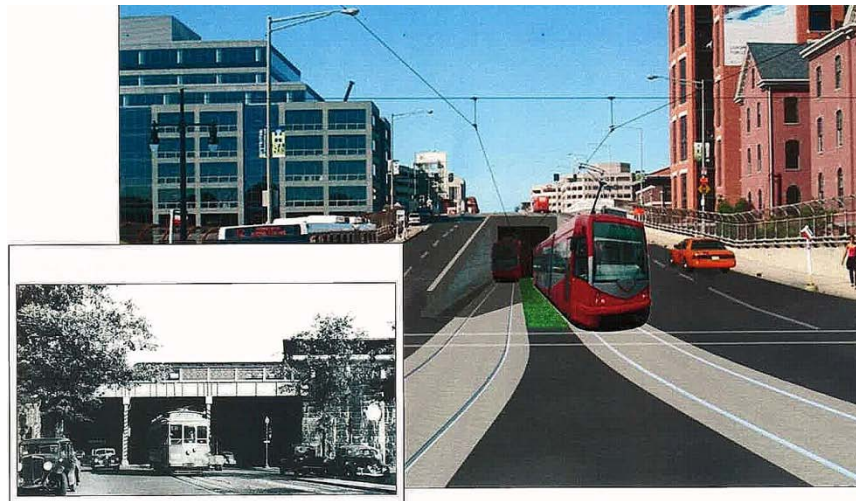


Figure 2-H Street Portal

The Eastern terminus at Benning Rd will include a turn-back to allow the vehicles to change direction in the median of Benning Rd. The road narrows at this point from four lanes in each direction to three lanes in each direction. This allows DDOT to utilize the median without impacting cars or other transit.

2. **Maintenance and Storage Facility:** The maintenance facility will allow for vehicle maintenance capabilities including inspection, servicing and component replacement. The streetcar maintenance facility is in design and will be constructed as part of the H St/ Benning Rd Phase II Streetcar Project underneath the H St. Overpass. The facility will be designed to be capable of handling daily and periodic cleaning, inspection and light maintenance. It will have a capacity to store 9 vehicles.
3. **Traction Electrification:** The traction electrification system (TES) will include three elements: two to three (2-3) substations that convert low voltage commercial AC to the nominal DC voltage required to operate the streetcars, overhead contact system (OCS) that provides the positive circuit to carry DC power from



substations to the streetcars, and the running rails that act as the negative return circuit from streetcars back to the substations.

The single-wire OCS system is designed to minimize visual impacts on the surrounding community. The system will have two poles on opposite sides of a street, supporting a non-powered wire crossing the street, with the powered contact wire suspended from the wire spanning the street. Whenever possible, the poles are combined with the street lighting to reduce visual clutter.

4. **Communications Equipment:** The communications equipment consists of two categories, operator-to-controller and train-to-wayside communications system (TWC). TWC will be on all cars and able to call traffic and train signals at certain intersections. Communications between operators and between operators and the control center at the maintenance facility will be provided through radios. TWC is used for controlling right-of-way in situations where streetcar movements conflict with the normal operation of auto traffic and for the control of powered track switches.

### Anacostia Initial Line Segment

On February 17, 2009 DDOT initiated the construction of the 0.5 mile Anacostia Initial Line Segment (AILS), also referred to as the Blue Line, with the goal of providing an opportunity for the public to see and experience streetcar vehicles in operation. The original AILS project connects the Navy Annex with the Barry Farms Residential Area to Anacostia Metro Station (as noted in Figure 3 in red below). The project also connects the streetcar to a maintenance and storage facility to be located at 2750 South Capitol Street, just south of the NSF Anacostia.

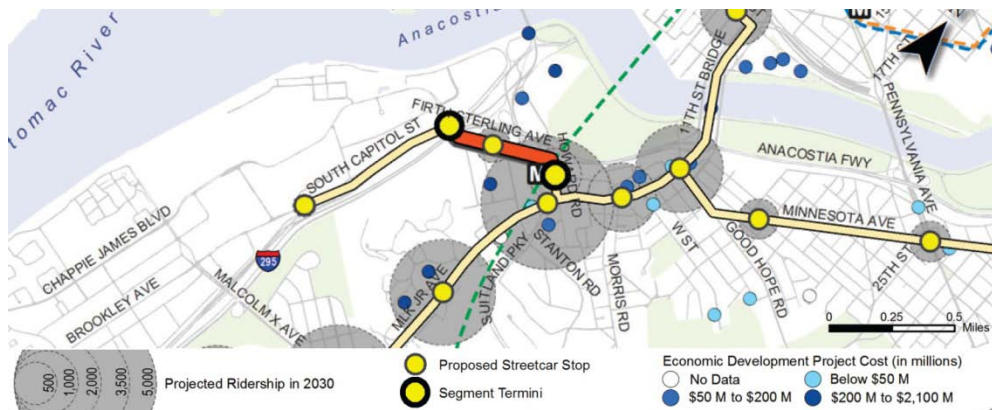


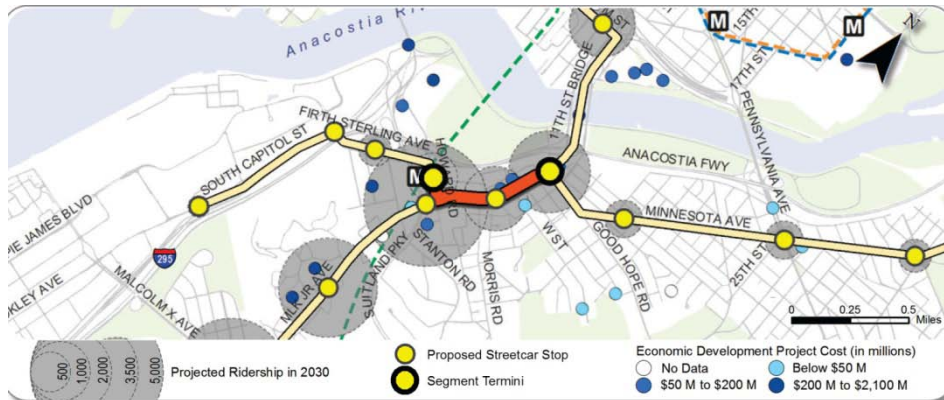
Figure 3- Anacostia Initial Line Segment

### Anacostia Extension to 11<sup>th</sup> St Bridge

The Anacostia Extension is approximately .61 miles in length and will link the current Anacostia Initial Line Segment to the 11th St Bridge. DDOT initiated a NEPA process in November 2010 to determine the optimal alignment for the Anacostia Extension. It will also provide a connection from the Anacostia Metro Rail Station through the Historic



Anacostia business district to Good Hope Road and the 11th St Bridge, which is critical to connecting the eastern and western sides of the Anacostia River. This will extend the Blue Line to a total of 1.11 service miles.

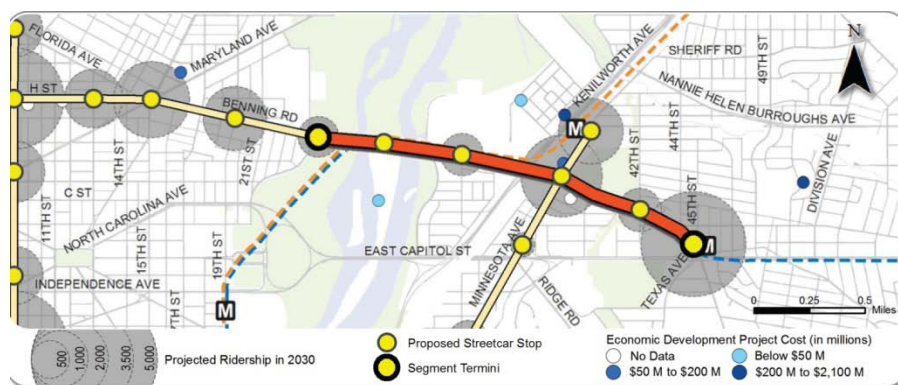


**Figure 4- Anacostia Extension**

### Future Segments & Extensions

The DC Streetcar plans to extend its service and is conducting feasibility studies in cooperation with regional partners for additional streetcar lines. The proposed streetcar system plan identifies a number of extensions and lines. The following is the status of streetcar development for Phase I:

1. **Benning Road Extension:** The Benning Road Streetcar Extension project is a 1.79 mile extension of the H Street/Benning Road Streetcar line, or Red Line projected to begin service in late 2014. The project is located along Benning Road NE from Oklahoma Ave to the Benning Road Metro Station at East Capitol Street and will utilize vehicles capable of operating off wire. This extension will extend the total line length to be approximately 3.81 miles.



**Figure 5- Benning Rd Extension**

2. **K St Centerway:** The proposed K St Centerway line is made up of two segments (Figures 6 and 7) that serve the region's largest concentration of jobs and provides connections to every Metro line in the region. DDOT has developed plans for a dedicated transitway in the center of K St. This transitway would service both buses and streetcars from Union Station to Washington Circle. The K St Project is a Complete Streets project and has an Environmental Assessment completed for street improvements and a busway. This 2.39 mile extension from

The map displays the proposed streetcar line in downtown St. Louis. The line is shown with yellow circles representing stops and a red line representing the segment termini. The map includes street names such as M St, N St, K St, North Capitol St, D St, C St, and Florida Ave. A legend indicates projected ridership in 2030 (500 to 5,000) and economic development project cost in millions (\$0 to \$200 M).

The map displays the proposed Streetcar system in downtown St. Louis, Missouri. The system is shown as a yellow line with yellow circles representing proposed stops and black circles representing segment termini. The map includes a legend for projected ridership in 2030 and economic development project cost. The projected ridership is shown in a color-coded scale from 500 to 5,000. The economic development project cost is shown in a color-coded scale from No Data to \$2,100 M. The map also includes a scale bar and a north arrow.

**Projected Ridership in 2030**

- 500
- 1,000
- 2,000
- 3,500
- 5,000

**Economic Development Project Cost (in millions)**

- No Data
- \$50 M to \$200 M
- \$200 M to \$2,100 M

**Map of the proposed Streetcar Line 1 in Washington, D.C.**

**Legend:**

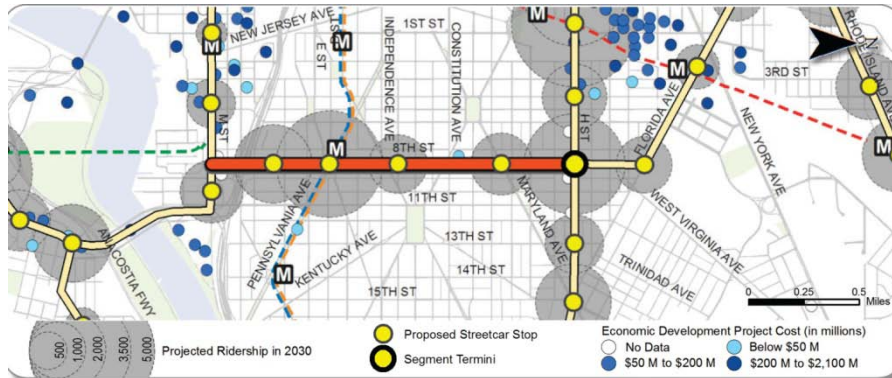
- Projected Ridership in 2030:** 500, 1,000, 2,000, 3,500, 5,000
- Proposed Streetcar Stop:** Yellow circle
- Segment Termini:** Black circle
- Economic Development Project Cost (in millions):**
  - No Data (White circle)
  - \$50 M to \$200 M (Blue circle)
  - \$200 M to \$2,100 M (Light blue circle)

**Map Labels:** MAINE AVE, 4TH ST, 1ST ST, M ST, 8TH ST, 11TH ST, PENNSYLVANIA AVE, ANACOSTIA FWY, MINNESOTA AVE, GOOD HOPE RD, NAYLOR RD, OHIO DR, POTOMAC RIVER, NAVY YARD, 2ND ST, 11TH ST BRIDGE.

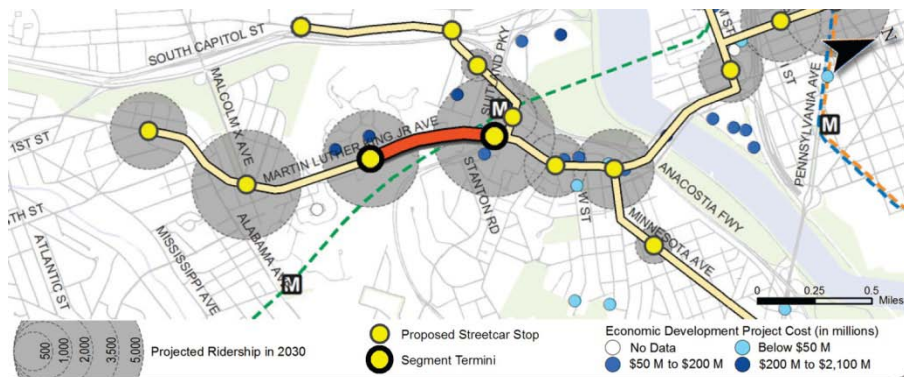
**Scale:** 0, 0.25, 0.5 Miles

Page 6 of 15

4. **8<sup>th</sup> St/ St Elizabeth/ Congress Heights Extension/ MLK Jr. Ave:** The Yellow Line includes a 1.64 mile segment (Figure 9) along 8<sup>th</sup> St connecting the H St and M St streetcar lines which is projected to begin service in late 2015. This line would be extended .61 miles from the Anacostia Metro Station to St Elizabeth's Hospital (Figure 10) and is projected to begin service in 2017. This line would require approximately 2.2 miles of new track construction but would create a 5.24 mile service line by using the Blue line and Red line tracks already constructed.



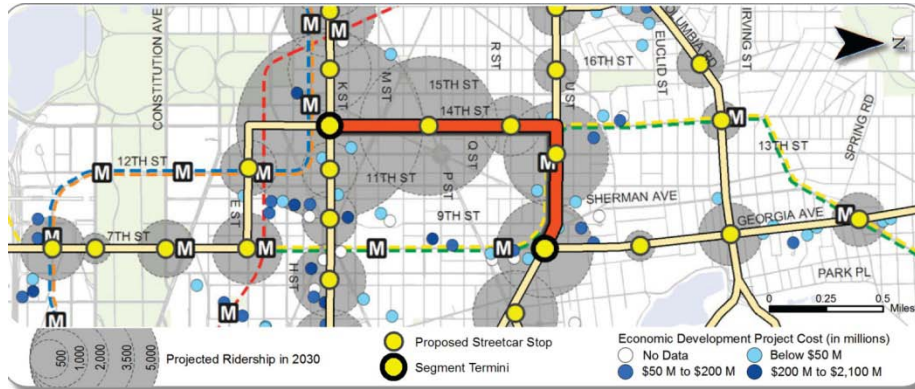
**Figure 9- 8th Street**



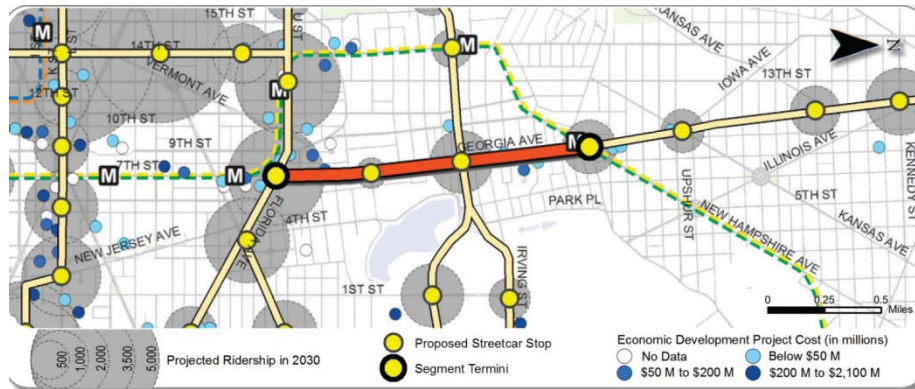
**Figure 10- MLK Jr. Ave**

5. **14<sup>th</sup> St/ Lower Georgia Ave/ 7<sup>th</sup> Street:** The 14<sup>th</sup> St extension north of K St is approximately 1.55 miles in length and is projected to begin service in late 2016 (Figure 11). This line, also known as the Orange line, would be extended with the Lower Georgia Extension—approximately 1.39 miles of new rail construction connecting the Shaw/Howard University and Georgia Ave-Petworth Metro Stations (Figure 12). Lower Georgia is projected to begin service in late 2017. The 7<sup>th</sup> Street Extension, projected for completion in mid to late 2018, is approximately 2.74 miles in length connecting the Waterfront SEU Metro Station and the M St Streetcar to the McPherson Sq Metro Station and the K St Streetcar (Figure 13).

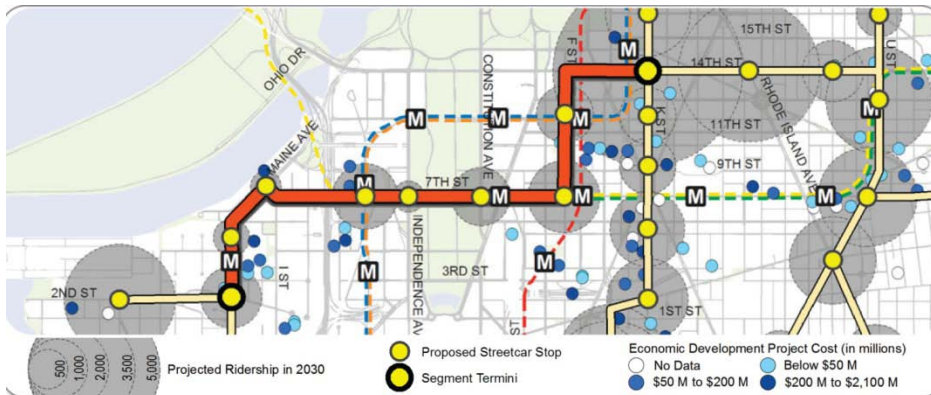




**Figure 11- 14th Street**



**Figure 12- Lower Georgia**



**Figure 13- 7th Street**

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## OPERATIONS ANALYSIS

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Alternative streetcar operational strategies need to be considered and an analysis has been carried out to develop operating schedules, fleet sizes and operator requirements for weekday and weekend/holiday service.

### **Operating Issues and Assumptions**

The operating strategy for the streetcar assumes that frequent service (10–20 min headway) will be provided and that cars will stop at any boarding platform along the line on demand (i.e., when passengers wanting to board, are seen to be waiting on the platform and/or when a rider on board the car signals to alight).

### **Hours of Service**

Base service is expected to run Monday through Thursday, 6:00 a.m. to 12:00 p.m.; Friday, 6:00 a.m. to 2:00 a.m.; Saturday, 8:00 a.m. to 2:00 a.m.; and Sundays and holidays, 8:00 a.m. to 10:00 p.m.

### **Service Policy**

The operating strategy for the streetcar assumes that frequent service will be provided and that cars will stop at any boarding platform along the line on demand (i.e., when passengers wanting to board, are seen to be waiting on the platform and/or when a rider on board the car signals to alight). The service frequency will be 10-minutes at all times.

### **Fare Structure**

The DC Streetcar fare structure is same as the DC Circulator. Riders will be able to transfer from Metrobus, Metrorail or the Circulator for a small fee with use of the regional SmartTrip.

### **Fare Collection**

Operators of streetcars will not interact with passengers and a fare collection system needs to be devised. DC Streetcar anticipates using a combination of on-board and off-board fare collection, as well as Smarttrip to reduce cash on board. A proof of payment system is also anticipated through inspection or other means.

### **Emergency Operation**

The operating system can incur periods of interruption of electrical service due to emergency conditions. A contract with WMATA for a “bus bridge” during extended interruptions could provide the ability to maintain service.





## **Placing Streetcars Into and Out of Service**

All vehicles will be stored overnight and will enter the system from the maintenance facility located at the western abutment under the H St overpass. When streetcars are removed from revenue service, they return from the end of the line stations to the maintenance facility.

## **Streetcar Crew Size**

Each streetcar is operated by one person. Each streetcar operator is responsible for the safe movement of his or her vehicle.

## **Terminal Times**

Allowance will need to be provided for layover time for the purpose of operator rest and schedule recovery so that a late-arriving streetcar may start its run on time.



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## MAINTENANCE REQUIREMENTS

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Urban rail projects of all kinds typically result in placement of well-designed, attractive facilities out in the public domain, where they are subject to normal wear-and-tear and, unfortunately, occasional abuse. Defensive design and effective maintenance policies are ultimately just as important as functional design.

### Maintenance Strategies

The vehicle maintenance responsibilities will need to be in accordance with qualification, work rules and standard procedures and include regular cleaning and servicing, periodic preventive maintenance inspections and change-outs of work components. Some components will likely need to be sent to specialty facilities for heavy servicing (e.g., wheel sets to a shop with a wheel-truing machine) or repair and/or rebuilding (e.g., traction motors to heavy electric equipment repair vendor). Generally, activities performed in-house could share one or more of these characteristics:

- Safety-related function
- Periodic inspection
- Repetitive in nature
- Required as part of response to emergencies or service disruptions

Activities for which use of outside vendors are likely, include those that:

- Occur infrequently (or at least, less frequently)
- Need specialized personnel, procedures, and/or equipment
- Represent a large volume of work having a long maintenance cycle
- Economics favor contracting the work

Maintenance needs include:

1. **In-House Vehicle Maintenance:** providing the necessary equipment to perform general vehicle maintenance activities related to the streetcars.
2. **Right-of-Way Maintenance:**
  - A. Wheel truing
  - B. Powered switches
  - C. Painting
  - D. Body repair
  - E. Traction substations
  - F. Rail signals
  - G. Overhead wire
  - H. Tree trimming
  - I. Track cleaning
  - J. Snow removal



3. **Vehicle Cleaning:** car cleaning will need to be provided.

### Committed Vendors

Shelter Cleaning and Maintenance: Shelter cleaning and maintenance for bus shelters is currently managed through a long-term contract with Clear Channel.

Signal Maintenance: Signal maintenance on streets is currently held by an outside vendor.

### Vehicles, Support Systems, Fixed Facilities Maintenance Needs

All streetcar facilities and equipment require ongoing servicing and maintenance. This section briefly describes the kinds of activities that are accommodated:

1. **Streetcars:** Inspections and preventive maintenance of the streetcars occur at regular intervals. Preventive maintenance is defined as those maintenance tasks performed to minimize the possibility of future equipment failure, reduce or minimize wear rates, replace consumable parts, and satisfy warranty requirements. A basic preventive maintenance program combined with rugged design of the cars ensures high reliability and availability. Recommended levels of cleaning, inspection and preventive maintenance are:
  - **Daily Inspection and Service (after Revenue Operation):** Check safety-related systems, correct defects found and those reported by car operators, sweep interior, wash exterior and remove graffiti.
  - **30-day Preventive Maintenance:** Inspect for wear and damage: friction brake systems, resistors, lights, traction motors and auxiliary motors, brushes, pantograph shoes, control functions, door operator, liquid levels; perform lubrication; change filters; wash seats, windows and floors.
  - **90-day Preventive Maintenance:** Perform 30-day work; inspect, lubricate and adjust as appropriate: brake actuators, air or hydraulic valves, door mechanisms; inspect wheels for profile and wear.
  - **180-day Preventive Maintenance:** Perform 30- and 90-day work; inspect and adjust controls, brake resistors; inspect suspension; detail wash all interior surfaces, clean light fixture lenses or lamps, wash roof, clean underside of car.
  - **360-day Preventive Maintenance:** Perform 30-, 90-, and 180-day work; inspect and service: traction motor brushes, communicators, bearings, gearboxes (lubricate), truck/carbody connections and journal bearings.

Heavy overhaul-type work is planned approximately every fifth year, and will include: traction motors, gearboxes, control groups, trucks, door mechanisms, brake actuators, air compressor, and air comfort systems (if used). If spare units can be obtained, the streetcar shop will perform unit change-outs, with actual rebuilding done by vendors.



2. **Trackwork:** The track structure will be observed by the car operator as they traverse the line. Based on these inspections and good maintenance practices, the following work should be completed on a weekly basis:

- Correct defects found by inspections
- Adjust, repair and lubricate switches
- Clean flangeways, track drains and general track area as needed
- Replace failed rail bonds and rail connections
- Patch paving

If routine maintenance is performed faithfully, the track structure should not require replacement during the likely life of the project, except for high-wear curved rail and switch components.

3. **Traction Power:** The Traction Electrification System (TES) consists of three major sub-systems: power supply substations converting commercial AC to DC; the OCS composed of poles, wires and fittings; and the streetcar tracks, functioning as the return circuit.

- a. **Substation Inspections and Maintenance:** A visual inspection and general housekeeping of the substation(s), inside and outside, will be performed weekly. If an indication of a single diode failure or diode fuse opening per leg is noted, this will be scheduled for repair at a time when it is convenient to take the substation off-line. If more than one such failure or "open" exists, the substation will be immediately taken off-line and repaired. Causes of failures will always be investigated.

An annual functional check should be performed on all devices, switches and breakers. Electrical insulation tests will be made, the condition of the ground mat checked, and the unit thoroughly cleaned. Contact tips will be checked and dressed, or if necessary, replaced. Substation batteries will be checked, cleaned and serviced.

- b. **Overhead Line Inspection and Maintenance:** Car operators will visually recognize overhead line defects and improper power system operations, and should report these so corrective actions can be taken. A thorough visual inspection will be made monthly by a maintainer.

The streetcar wire generally should have a long life in the range of 50 years. Nonetheless, a detailed yearly inspection will be performed to include checking the integrity and tightness of all hardware and fittings, checking insulators mechanically and cleaning them as required, checking section insulators for damage, checking freedom of movement of bracket arm, and checking streetcar wire running surface condition, alignment and height. The electrical integrity of the overhead line insulation also will be tested annually.

After a major overhead line problem, such as a downed streetcar wire or a line pole damaged or moved by a collision, ingenuity and familiarity with general overhead design requirements will be needed to rig temporary overhead in order to permit resumption of streetcar operations until permanent repairs can be made. In such cases, the height and alignment of the streetcar wire beyond the immediate area of the problem will also be checked.



- c. **Return Circuit:** A weekly visual inspection of the return circuit will be carried out as part of the track inspection. This will include checking for frayed cables and broken connections to rails and special work. A detailed mechanical and electrical inspection will be performed yearly. Cable condition, bolted connection tightness, weld integrity and general electrical continuity will be checked.

In case of derailment, the integrity of the return circuit should be checked before resumption of streetcar operation.

### **STREETCAR MAINTENANCE FACILITY: Maintenance & Office Equipment**

#### **Maintenance Equipment**

- Bridge Crane
- Portable Jacks
- Shop Air Compressor
- Metal Muncher
- Grinder
- Drill Press
- Metal Lathe
- Special Mechanical Hand Tools
- Portable Power Tools
- Portable Lift Table
- Electric Welding Equipment
- Torch Welding Equipment
- Ladders and Step Stools
- Electrical / Electronic Test Equipment
- Mechanical Test Equipment
- Janitorial Equipment
- Two-way Radios
- Fork Lift (Hand)
- Fork Lift (Motorized for Trucks)

#### **Office Equipment**

- Storage Shelves
- Parts Drawers
- Metal Storage Rack
- Furniture
- Computers
- Refuse Containers





## Operating Projections

The annual service hours are projected to be 25,792 when the H St/ Benning Rd segment is fully operational with four trains in 2013. The Operation and Maintenance contract is projected to be initiated in 2011 with service to begin in 2012 and the first full year of service to be 2013. The system, with four lines operational, is projected to grow to 37 operating vehicles and over 290,000 operating hours annually by 2019. See Appendix B for detailed operating assumptions. Estimates on Phase I, II and III are included.



## Appendix B

### Draft DC Streetcar Operating Assumptions

This outline of operating assumptions is based upon Phase I of DC's Transit Future System Plan submitted to District Council. The Plan is subject to the finance plan for the streetcar system which is in development and scheduled to be completed later this year. The specific projections are based on the hours of operation listed below with 10 minute headways, stopping approximately every 1,500 feet. Some lines overlap and may not require all cars to run on overlapping segments. Vehicle counts include spares at a rate of 20% of operating fleet.

	Hours of Operation	Daily Total	Weekly Total
Monday - Thursday	6:00am - 12:00am	18	72
Friday	6:00am - 2:00am	20	20
Saturday	8:00am - 2:00am	18	18
Sunday	8:00am - 10:00pm	14	14
			124

The table below outlines operating lengths, trains and hours by line and by year. Total estimated annual hours are for the line color indicated only. FY 2012 assumes only six months of operations.

#### Phase I

Year	Segment Opening	Line	Total Line Length	New Track Construction	New Trains Required For Service	Spare Trains	Total System Trains	Estimated Annual Hours Per Line
FY 2012	H St/ Benning Rd	Red	2.02	2.02	2	1	3	6,448
FY 2013	H Street (new trains)	Red	2.02	0	2		5	25,792
FY 2014	Anacostia Initial Line	Blue	1.11	1.11	3	1	9	19,344
FY 2015	Benning Rd Extension	Red	3.81	1.79	3	1	13	45,136
FY 2015	K Street	Red	6.20	2.39	4		17	70,928
FY 2015	M Street	Blue	3.48	2.37	4	1	22	45,136
FY 2016	8th St	Yellow	4.63	1.64	9	2	33	58,032
FY 2017	St Elizabeth's	Yellow	5.24	0.61	0		33	58,032
FY 2017	14th St	Orange	1.55	1.55	3	1	37	19,344
FY 2018	Lower Georgia	Orange	2.94	1.39	2		39	32,240
FY 2019	7th Street	Orange	5.68	2.74	5	1	45	64,480
<b>Total</b>			<b>17.86</b>		<b>37</b>	<b>8</b>	<b>45</b>	

The table below outlines projected number of streetcars per line, total fleet size including spare vehicles and total estimated annual hours for the entire system.

Year	Streetcars Required Per Line				Total Vehicles Operating	Total Fleet Size	Estimated Annual Hours- System
	Red	Blue	Orange	Yellow			
FY 2012	2				2	3	6,448
FY 2013	4				4	5	25,792
FY 2014	4	3			7	5	45,136
FY 2015	11	7			18	22	90,272
FY 2016	11	7		9	27	33	174,096
FY 2017	11	7	3	9	30	37	193,440
FY 2018	11	7	5	9	32	39	225,680
FY 2019	11	7	10	9	37	45	290,160



Phase II and Phase III of the DC Streetcar System Plan are projected below. As with Phase I, the projections are based upon ten minute headways but do not account for overlapping lines which will reduce headways. Annual hours are projected per line. These projections are subject to the development of specific finance plans for each line.

#### Phase II

Segment	Line	Total Line Length	New Track Construction	New Trains Required For Service	Spare Trains	Total System Trains	Estimated Annual Hours Per Line
Georgia Avenue	Orange	8.81	3.13	6	2	53	103,168
Congress Heights	Yellow	6.32	1.08	2		55	70,928
Florida Avenue	Lime	4.22	1.97	8	2	65	51,584
U St/ Calvert St	Lime	5.74	1.52	2		67	64,480
Rhode Island South	Pink	3.69	1.24	7	2	76	45,136
Rhode Island North	Pink	5.68	1.99	3	1	80	64,480
Georgetown	Red	7.02	0.82	12	3	95	77,376

#### Phase III

Segment	Line	Total Line Length	New Track Construction	New Trains Required For Service	Spare Trains	Total System Trains	Estimated Annual Hours Per Line
Minnesota Ave	Green	4.53	3.28	8	2	105	51,584
Bolling AFB	Green	5.2	0.67	1		106	58,032
Columbia Road	Brown	1.77	1.17	4	2	112	25,792
Michigan Ave	Brown	4.5	2.73	4	1	117	51,584



## Appendix C:

# DC STREETCAR

## Operations and Maintenance RFI

### Questions for Vendors

DC Streetcar is preparing to solicit proposals for operations and maintenance of the DC Streetcar system. The contract provisions are being developed and comments are being requested on key provisions of the agreements. The following are a set of questions for which input is being sought from respondents to the RFI.

- **Duration:** District Department of Transportation (DDOT) prefers a longer term relationship with a private contractor with the ability to allow DDOT to periodically review the contract before extending. DDOT is considering a five year contract with options to extend for 5 years for 3 separate periods resulting in a potential 20 year contract. *Question: What are the advantages and disadvantages of this configuration? What are optional configurations?*
- **Scalability:** DC Streetcar anticipates rapid growth as the system is built. The first year of operation projects 25,000 revenue hours of services growing to over 200,000 revenue hours in FY 2018. *Question: What are the advantages and disadvantages in this expansion amount regarding, but not limited to: training, staffing, safety, quality of service, level of service?*
- **DC Circulator Contract:** DDOT has a Memorandum of Agreement with WMATA for overseeing the private contract for the DC Circulator. The contract continues to March 2013. DDOT intends to solicit a contract for the streetcar only with no relationship to this operating contract. *Question: What are the advantages and disadvantages of combining the O&M contracts of the DC Circulator with the DC Streetcar?*
- **Vehicle Ownership:** DDOT owns the existing three streetcars and is purchasing 2 standard streetcars and one streetcar with off-wire capability. The Operating Plan calls for the addition of 30-40 vehicles over the next five years. *Question: What are the advantages or disadvantages of the vendor owning and supplying vehicles for the DC Streetcar?*



- **Maintenance:** Streetcar vehicle maintenance is a specialized field requiring training and experience. A Vendor could directly supply vehicle maintenance as part of the contract or could subcontract to a manufacturer or other qualified entity. *Question: What are the advantages and disadvantages of the two approaches?*
- **Maintenance of Way:** The physical system requires specialized skills that are generally available in the community. Subcontracts for substation maintenance, overhead wire, switches and track are likely to be required. DDOT is considering an option that would make the Vendor responsible for the contracts but DDOT would reserve the option to approve the subcontract selection. *Question: Are their recommendations as to how to structure the contracts for specialized maintenance of way service?*
- **Utilities:** There is consideration to have the Vendor manage all utilities (bills). *Question: What are the advantages and disadvantages of this arrangement and are there other options.*
- **DDOT Provided Service:** Coordination is needed with DDOT direct and DDOT contracted services including snow removal, track and street cleaning, tree trimming. DDOT has separate contracts for signal control and maintenance in the system as well as a long term contract for maintenance of the shelters and platforms. *Question: Are there any issues associated with assuring coordination of the DDOT provided services?*
- **Method of Payment:** There is considerations to compensate the Vendor based upon revenue hours provided. The formula for payment includes the cost of operations, maintenance, training, administration, maintenance of way, and turnkey service provision. *Question: Suggestions are welcome for alternative methods of payment.*
- **Performance Metrics and Standards:** A set of detailed performance metrics will be included in the RFP including on-time performance, ridership, accident rates, cause of operation delay, and reliability of service. DDOT anticipates requiring monthly reports on benchmarks established in the contract with immediate response on safety issues. *Question: Are there performance metrics that are recommended to be included?*





- **Revenue Collection:** DDOT anticipates requiring the Vendor to participate in the fare collection verification system. The streetcar operator of the vehicle will not have interaction with the customer. *Question: What methods would be used to collect or verify fare payment?*
- **Operator Level of Design Review:** Vendor should be included in the development of plans for future operations where Vendor is expected to operate. *Question: Are there recommended procedures to be followed to assure effective participation by the Vendor in the development and planning for new lines or extension?*
- **Streetcar Vehicle Parts:** DDOT, in the RFP will be listing all parts and tools that will be made available to the Vendor at the start of the contract. After start of contract it will be the Vendors responsibility to maintain an adequate level of all parts and tools to ensure there is no down time due to being "out of stock". *Question: How will this be managed?*
- **Shop Equipment and Tools:** DDOT, in the RFP will list all equipment and tools that will be made available to the Vendor at the start of the contract. *Question: What equipment and tools will be needed to operate the system and what are the advantages and disadvantages of DDOT providing them vs. the Vendor? Or are there tools and equipment DDOT should provide and tools and equipment the Vendor should provide.*