

**ITEM 12- Information**  
December 15, 2010

**Briefing on Light Rail and Streetcar Projects and Proposals for the  
Washington Region**

**Staff**

**Recommendation:**

Receive briefing on an overview of light rail and streetcar projects in the 2010 CLRP and proposals for additional systems.

**Issues:**

None

**Background:**

At the November 17 meeting, the TPB requested a briefing on light rail and streetcar projects in the region.

# National Capital Region Transportation Planning Board

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## MEMORANDUM

**TO:** Transportation Planning Board

**FROM:** Eric Randall  
Senior Transportation Engineer

**SUBJECT:** Overview of Light Rail & Streetcar Projects and Proposals in the Washington Region

**DATE:** December 15, 2010

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### Background

At the November 17, 2010 Transportation Planning Board (TPB) meeting, Chairman Snyder requested a regional overview of light rail and streetcar projects in the constrained long-range transportation plan (CLRP) and proposals for additional systems be developed for presentation at the December TPB meeting. This memorandum provides a description and status report on current light rail and streetcar projects included in the CLRP and other regional proposals and concepts put forward.

Light rail transit is often defined as multiple-vehicle trains operating on exclusive right-of-way, while streetcars are considered to be single vehicles operating in mixed right-of-way (ROW) with general street traffic, both powered via overhead catenary. Since in practice most regional plans for light rail and streetcar projects include segments of both mixed and exclusive ROW operation, the distinction between "light rail" and "streetcar" is not always clear.

Light rail and streetcar projects and proposals are being developed by local jurisdictions in the Washington region to provide dedicated, high-quality surface transit services within activity centers and along activity corridors. These projects and proposals are closely integrated with land use development plans and may include land use zoning changes to permit concentrated density and mixed-use development. Light rail and streetcar systems could provide citizens with the local accessibility and mobility that constitute a significant part of the attraction of living in activity centers or near major corridors. They could complement Metrorail and commuter rail services that provide longer distance rail transportation, acting as feeder or collector/distributor transit services.

### Projects Included in 2010 Constrained Long Range Plan (CLRP)

<b>1. DC Streetcar (Initial Phase / Phase One)</b>	<b>Sponsor: District DOT</b>	
First Date in CLRP: 2006	Construction Starts: 2009	Service Starts: 2012

The District of Columbia has begun construction of a streetcar system within the city, with the initial phase of 6.8 miles included in the 2010 CLRP. Two separate segments are under construction, totaling 2.5 miles in length, along H St./Benning Rd. and in Anacostia. An additional 4.3 miles were added in the 2010 CLRP, including an extension from H St to Union Station, an extension from Anacostia



Metro Station to Good Hope Road, and an extension to Benning Road Metro Station. Two other extensions were also added to the CLRP for study. In addition, the K Street Transitway is also in the CLRP (first added in 2003 as a busway), which could at some point be funded as a streetcar segment.

Length	6.8 miles
Weekday Ridership	33,400 (2030)
Capital Cost	\$42 million (2009)

The streetcars will share the street with automobile traffic, operating in mixed right-of-way (ROW), and will run every 10 minutes during peak and off-peak periods.

**2. Purple Line** **Sponsor: Maryland Transit Administration**  
 First Date in CLRP: 2008      Construction Starts: 2014      Service Starts: 2018

This light rail system would provide high-capacity transit along a 16-mile corridor that extends from the western limit of Metrorail's Red Line in Bethesda to the New Carrollton Metro Station in Prince George's County. It incorporates the former Georgetown Branch Purple Line western segment (Bethesda to Silver Spring) and the Purple Line eastern segment (Silver Spring to New Carrollton) project, providing a circumferential rail line connecting four branches of the Metrorail transit system. A Draft Environmental Impact Statement (DEIS) has been completed, and the MTA has requested permission from the FTA to start the Preliminary Engineering Phase. The MTA expects the FTA to respond by March 2011 on whether the project is eligible for federal funding for the preliminary engineering work. A final Record of Decision from the FTA is anticipated by September 2012, following which an application for federal New Starts funding would be made for between 50% and 60% of the project's capital costs.

Length	16 miles
Weekday Ridership	37,000 (2018)
	68,000 (2030)
Capital Cost	\$1.517 billion (2009)

The light rail line would have segments of dedicated track (exclusive ROW), but would operate in mixed ROW through Silver Spring, Takoma/Langley Park and likely the U-Md/College Park area, depending upon final alignment. Trains are proposed to run every 6 minutes during the peak.

**3. Corridor Cities Transitway (CCT)** **Sponsor: Maryland Transit Administration**  
 First Date in CLRP: 2009      Construction Starts: 2016      Service Starts: 2020

The Corridor Cities Transitway (CCT) is being evaluated as part of the I-270/US 15 Multi-Modal Corridor Study by the Maryland Transit Administration and the Maryland State Highway Administration. The transit portion of the multi-modal study extends from the Shady Grove Metro station to the COMSAT facility in Montgomery County, and would be either a light rail transit or bus rapid transit (BRT) line along a 13 to 15-mile corridor from the Shady Grove Metrorail station in Rockville through Quince Orchard, Gaithersburg, and Germantown to just south of Clarksburg. The Maryland Transit Administration will be holding a public hearing on the study on December 15, part of the development of a Supplemental Environmental Assessment (EA) that will lead to identifying a Locally Preferred Alternative (LPA) in the next several months. The MTA expects to obtain a final Record of Decision from the FTA by September 2012 (at the same time as the Purple Line and Baltimore Red Line).



Length	13-15 miles
Weekday Ridership	24,000 to 42,000
Capital Cost	\$900 million to \$1.1 billion (2007)

Light rail is estimated to cost approximately \$1 billion, while the BRT alternative is estimated at about \$500 million, according to the state's most recently released analysis. The Montgomery County Council has endorsed light rail for the corridor.

**4. Columbia Pike Streetcar**

**Sponsors: Arlington and Fairfax Counties, VA**

First Date in CLRP: 2008      Construction Starts: 2013      Service Starts: 2016

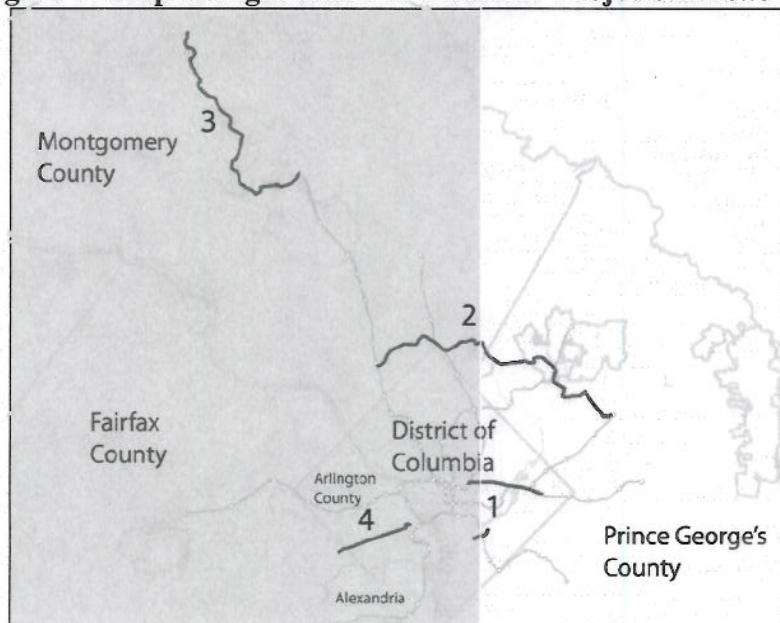
This is a joint project between Arlington and Fairfax Counties to construct a 4.7 mile streetcar on Columbia Pike, between Skyline and Pentagon City. The counties have begun the Federal environmental process. The proposed schedule by the Pike Transit Initiative calls for completion of an Environmental Assessment and identification of a Locally Preferred Alternative by mid-2011, followed by an application for FTA New Starts funding.

Arlington County's six-year capital plan fully commits its share of the Columbia Pike Streetcar using a combination of funding sources, while Fairfax County's financing plan is under development. Planners expect to compete for \$50 million of federal funds, with the rest coming from state and local sources.

Length	4.7 miles
Weekday Ridership	TBD. (15,000 current bus riders in corridor, the highest in Virginia.)
Capital Cost	\$135 million (2010)

The streetcars will share the street with automobile traffic (mixed ROW) and will run every 6 minutes during the peak. Average operating speed is estimated at 12 mph.

**Figure 1: Map of Light Rail and Streetcar Projects in 2010 CLRP**



1. DC Streetcar (Initial Phase)
2. Purple Line
3. Corridor Cities Transitway
4. Columbia Pike Streetcar

## Light Rail / Streetcar Proposals

Two additional proposals for light rail / streetcar systems have undergone significant study:

**A. DC Streetcar (Remainder of Phase One, Phases Two and Three)      Sponsor: District DOT**  
Study in CLRP      Construction Starts: 2015      Completed System : 2020

Beyond the initial part of phase one of the DC Streetcar now in the CLRP (see 1 above), the District of Columbia has proposed development of an additional 30 miles in their *Transit Future System Plan*. The remainder of Phase One would include service along K Street NW, 14 Street NW, lower Georgia Avenue, Martin Luther King, JR Avenue, and M Street SE/11<sup>th</sup> Street Bridge, connecting the initial operating segments. The subsequent phase would add extensions along Georgia Avenue, Rhode Island Avenue, Florida Avenue/U Street, and to Congress Heights and Georgetown. Phase Three would build a Minnesota Avenue line, 7<sup>th</sup> Street line, and Columbia Road/Michigan Avenue line.

Length	30 miles (Total 37 miles)
Weekday Ridership	Total: 147,000
Capital Cost	\$1.457 billion (2009)

Funding sources are proposed as being 25% local funds, 25% Federal funds, 18% local-impact property taxes and 32% from parking fees. Initial environmental impact statements and assessments to compete for federal funding are being developed.

**B. Crystal City – Potomac Yard Corridor Transit /      Sponsors: Arlington and Alexandria, VA**  
**Crystal City Streetcar**  
Study in CLRP      Construction Starts: 2014      Service Starts: 2017

The Crystal City – Potomac Yard Corridor runs from Crystal City in Arlington County to the Braddock Road Metrorail Station in the City of Alexandria, passing through the Potomac Yard development. Construction should begin next year on a dedicated Transitway for Bus Rapid Transit (BRT) along the corridor (included in the CLRP in 2008).

It has been proposed that the BRT system be subsequently replaced by a streetcar, at least within the portion of the corridor within Arlington County. The Crystal City Streetcar would run from Pentagon City through Crystal City and into Potomac Yards. It is anticipated that it would connect and be interoperable with the Colombia Pike Streetcar (see 4 above), it and will be the next focus of planning efforts to prepare it for formal federal environmental review.

Arlington County's six-year capital plan identifies funds for the initial phase of the Crystal City Streetcar, while the City of Alexandria's financing plan is under development. Both jurisdictions are working together on a NEPA environmental review for the proposal.

Length	5 miles
Weekday Ridership	TBD
Capital Cost	\$ TBD



## **Additional Concepts for Light Rail and Streetcar Expansion**

A number of additional light rail and streetcar alignments have been proposed in the metropolitan Washington area, including:

- Streetcar across the 14<sup>th</sup> Street Bridge, connecting DC and Arlington, VA
- Streetcar on Duke Street in Alexandria, VA.
- Streetcar on VA-7/Leesburg Pike, from Bailey's Crossroads to Tysons Corner.
- Continuing the Purple Line from New Carrollton around through Prince George's County to southern Green Line stations, National Harbor, and/or across the Woodrow Wilson Bridge to Alexandria, VA.
- Extend DC Streetcar to the north to Silver Spring or to College Park along US-1 (to connect to the Purple Line), or south to National Harbor.

## **System Planning and Implementation Considerations**

As the initial segments of the DC Streetcar near completion and as other projects advance towards construction, there are some near-term issues to be considered by the region. In particular, the integration of fare payment is important: will streetcars be under the honor payment / proof-of-payment method, or require the driver to monitor fare payment? What will be the rules for transfers between bus, light rail and Metrorail?

The projects, proposals, and concepts for light rail and streetcar in the region offer the potential for a significant network of these systems being developed. Considerations and challenges include:

### **1. Funding and Capital Costs**

The combined total capital cost for the complete DC Streetcar system, the Purple Line, the CCT as a light rail service, and Columbia Pike Streetcar is approximately \$4.2 billion. Financing plans call for funding of approximately 60% from local, state, or regional sources, with roughly 40% (\$1.8 billion) being funded by the federal government. All of these projects or proposals would compete for federal New Starts funds over the next decade, in total requesting over 12% of total FTA New Starts money through 2020 (based on past allocations of approximately \$1.5 billion annually nationwide). Regardless of any changes that may be made to the transit component of the federal surface transportation bill in the pending reauthorization, this is an ambitious share of the national total, especially given additional competing projects in the region (e.g., Crystal City Streetcar), other parts of Maryland and Virginia (e.g., Baltimore, Hampton Roads), and funding for WMATA.

Financing from state, local, and regional sources would be necessary to fund the greater part of the capital costs. Potential sources of funding include: tax-increments on commercial and residential property, parking fees, developer contributions, general funds, and bond issues. Local jurisdictions would be responsible for covering any cost overruns or additional costs for projects, as well as most operating costs for the light rail and streetcar services.

### **2. Integration with Bus Services**

The Potomac Yard Transitway in Virginia is moving forward as a Bus Rapid Transit (BRT) project, while light rail on the Corridor Cities Transitway in Maryland is still being evaluated against a BRT alternative. Experience with BRT, to be built as part of the region's TIGER project, and limited-stop bus services will provide a basis for evaluating light rail and streetcar proposals relative to BRT.



Light rail and streetcar systems are expected to generate new ridership for transit, offering high-quality transit service and supporting attractive, mixed-use development in activity centers and along major activity corridors. Some riders would come from existing bus services, which may reduce the need for current levels of bus service in some corridors. Much of the bus service would need to be retained, however, to serve longer-distance and other markets not conveniently served by the light rail and streetcar systems.

### 3. Impacts on Roadway Traffic

All of the planned and proposed systems for the region would operate over segments of both exclusive and mixed ROW. While light rail systems on exclusive ROW may reach 45 mph, average operating speeds for rail in mixed ROW are typically closer to those of bus systems (i.e., 8 to 10 mph on urban streets, 12 to 15 mph in suburban locations). The same traffic signals as automobile traffic must be adhered to, and locations and facilities are required for safe and convenient passenger boarding/alighting.

The impact of mixed ROW operation, with the attendant safety and operational concerns, may have significant impacts on roadway traffic, depending upon such design parameters as median-running or curb-running alignments. In addition, any traffic signal priority or pre-emption for transit – rail or bus – takes time from current signal cycles and the competing needs of parallel and intersecting vehicle traffic and pedestrian crossings.

### 4. Light Rail / Streetcar Connectivity

A fully built DC Streetcar could eventually be extended to connect with the Purple Line in Maryland and/or to the Colombia Pike / Crystal City Streetcar system in Arlington. There are significant operating issues related to how the different systems could connect to each other. Interoperability considerations including the following:

- Vehicle Interoperability (e.g., length, size, weight, power requirements)
- Track/Station Interoperability (e.g., gauge, clearance, station platform height)
- Technology/ITS Interoperability (e.g., communications, passenger information, fare systems)

Other long-range issues to consider include opportunities for joint procurement and the option of combined storage and garage facilities. WMATA is conducting a *Light Rail and Streetcar Interoperability Study* to be completed in 2011 that will evaluate some of these system connection issues. The purpose of the study is to facilitate regional coordination among the project sponsors and jurisdictions. The study will identify opportunities for system interface and integration among local light rail and streetcar projects to achieve capital cost savings, maintenance and operations efficiencies, flexibility to support a future regional network, and customer convenience.