CAPITOL HILL RESTORATION SOCIETY

COUNCIL OF THE DISTRICT OF COLUMBIA

Committee on Public Works and Transportation

DC Streetcar System Plan
H St. /Benning Rd. and Future Segments and Extensions

Statement of
Monte Edwards

On behalf of the
Capitol Hill Restoration Society

Wednesday, November 17, 2010

The Capitol Hill Restoration Society (CHRS) supports the proposed streetcar segment for H Street and Benning Road. In October 2010, DDOT submitted the *DC Streetcar System Plan: H St./Benning Rd. and Future Segments and Extensions* pursuant to the requirement of Bill 18-883, (signed by the Mayor August 6, 2010) that requires (1) a plan that addresses the visual effect of aerial wires on the character of any historic district, (2) an assessment of the feasibility of using non-aerial power as a means of propulsion for any extension of the streetcar system beyond H Street / Benning Road, as well as (3) periodic comprehensive assessments of advances in propulsion technology. The October 2010 Plan's discussion of propulsion technologies is brief and incomplete, leaving the reader with the erroneous conclusion that wireless technology is still untested, experimental and not worth further consideration.

Appendix F of the *DC Streetcar Plan*, October 2010 titled "Wireless Streetcar Vehicle Options," provides a brief overview of the leading streetcar manufacturers who offer some form of wireless propulsion technology with a description of advantages and disadvantages of each type of system. DDOT's descriptions leave the reader with the erroneous conclusion that wireless technology is still untested, experimental and not worth further consideration. Because of the brevity of the manufacturer descriptions in Appendix F, I have prepared the following comments to provide a more comprehensive and updated description of some of the technologies. *We urge DDOT to revise its*

4/29/2010 assessment to incorporate these changes and to issue a new report that compares all capital and life cycle costs associated with the most promising system for consideration in DC.

ALSTOM (Bordeaux)

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

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

BOMBARDIER

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

Update information and add to "Advantages:"

Bombardier manufactures two systems:

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

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

The field test in Bautzen, Germany has successfully concluded. Bombardier will install a

PRIMEMOVE /MITRAC streetcar system in a soon-to-be-announced German city in 2010.

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

KINKISHARYO

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

Update information and add to "Advantages:"

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

KAWASAKI

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

Update information and add to "Advantages":

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

SIEMENS

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

Update information and add to "Advantages":

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

UNITED STREETCAR, LLC.

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

Update information and add to "Disadvantages":

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

CAF/TRAINELEC

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

Correct the information:

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

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

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

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

Our City deserves a 21st Century streetcar system, likely to attract the best of the streetcar suppliers as well as substantial Congressional funding. With that as our ultimate goal, CHRS urges the Council to give greater proportional weight to those technologies that are capable of operating without wires than DDOT has provided in its October Report.

I will be glad to answer any questions you may have.