

What's Good for the "Monumental" City Is Good for All the City: Why DC Should Adopt A Wireless Streetcar System

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Construction is underway in DC for a 37-mile streetcar system. While fundamental planning and routing questions still need to be addressed, there is one issue that is of unique significance to our City: *whether to adopt an older technology that uses overhead wires to power the system, or to adopt one of several newer technologies that do not require overhead wires.* Overhead wires would introduce an element on our streets that has been intentionally prohibited by law since 1889. As a result, Washington has one of the most wire-free streetscapes in the world.

We have one opportunity to build a first-class wireless system throughout the city. The good news is that we have different options to accomplish this worthy goal.

In January 2010, the City of Charlotte, NC sponsored a Streetcar Technology Showcase that focused on wireless streetcar technologies. While five of the six participating vendors were international companies, all of the exhibiting manufacturers have supplied streetcar/rail equipment to US customers and would be eligible to sell under the Buy America program. (Ansaldo Breda of Italy supplied 466 of our Metro cars and Tainelec/CAF of Spain supplied 192. Bombardier of Canada supplied Amtrak with the Acela equipment. The three remaining exhibitors have supplied equipment to streetcar and light rail systems in other US locales.)

Battery and ultra-capacitor technology is advancing rapidly. The latest version of Kawasaki's *Swimo* streetcar includes advanced proprietary metal hydride batteries that recharge 60 times faster than existing battery charging options and are being developed for a range of 6 miles. Ultra capacitors that can recharge in 20 seconds (made by Trainelec/CAF of Spain) and batteries that can run for 3 km (made by Kinki Sharyo of Japan), when used together, offer the possibility of recharging at the passenger stops with no need for overhead wires or other means to supply power between stops. In fact, the Trainelec/CAF system that will enter service this fall in Saragossa, Spain uses both batteries and ultra capacitors with the ability to capture and store braking energy to provide faster acceleration without requiring increased electric capacity.

Non-overhead power can also be supplied by conductors mounted on the surface of the street (Ansaldo Bredo is offering an improved version of the Alston system that was installed in Bordeaux in 2003). Non-overhead power can also be supplied from under the pavement and thus would be immune from weather and snowplows (*Primove*, by Bombardier). The Bombardier *Primove* System is an electric induction system. The power transfer is contact-less, with the electric power cable buried below the surface of the street and the electric pick-up installed below the streetcar. The 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.

Charlotte has commissioned an independent engineering study of alternative technologies; DC has not. DDOT needs to undertake a Streetcar Technology Assessment Study comparing all available streetcar technologies, conducted by an objective engineering firm, to determine the pros and cons of all propulsion systems and to compare first costs and operating

and maintenance costs before committing at least \$1.5 billion to an older technology. Further, a DDOT Public Streetcar Technology Showcase such as the one in Charlotte could engage the public in understanding new technologies and how they might be adopted here.

The Charlotte conference demonstrates that the District of Columbia can have an effective, 21st century non-overhead wire streetcar system. As such, it would be a showcase system, likely to attract the best of the streetcar suppliers as well as demonstration funding. Most importantly, residents and businesses in the reviving commercial areas of our great city would benefit from the same protected viewsheds that tourists enjoy in the “monumental” city.

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PHOTOS:

Streetcar overhead wires: Source:

<http://images.google.com/images?um=1&hl=en&client=safari&rls=en&tbs=isch:1&q=streetcar+wires+photos&sa=N&start=0&ndsp=21>



BELOW: Streetcar system without overhead wires: Bordeaux, France
(Photo credit: Lance Salonia)

