



# Streetcar Subcommittee Meeting Minutes

APTA Offices  
1666 K Street, NW, 11th floor, Washington DC  
Saturday January 11, 2014  
12:00 Noon – 4:00 PM

*T. R. Hickey*                      *Chair*  
*Paul Grether*                    *Vice Chair*  
*James Schantz*                 *Secretary*

## MINUTES OF MEETING

### 1. Welcome & Introductions

Tom Hickey

Chairman Hickey called the meeting to order at 12:10 PM, having allowed extra time for participants to arrive, given the heavy rain that was delaying flights. There were a total of 64 attendees. Attendees introduced themselves and explained their interest in the subcommittee. A significant number asked to be added to the membership roster and were requested to confirm that interest in an email to Charles Joseph (cjoseph@apta.com).

### 2. Previous meeting minutes

James Schantz

Minutes of the September 2013 Chicago meeting were distributed in advance of the meeting by Charles Joseph. No corrections were offered and members voted to approve the minutes.

### 3. Work Program Activities

#### • 13<sup>th</sup> National LRT & Streetcar Conf. in 2015

Charles Joseph

APTA will sponsor the conference jointly with TRB in November 2015 in the northern New Jersey area near New York City. Current plans call for five technical and five planning sessions. Each session will have four presenters. In particular there will be a planning roundtable with experienced streetcar implementers participating. Business members interested in participating in the product showcase or sponsoring other events surrounding the meetings are encouraged to contact Charles Joseph.

#### • APTA Rail Conference in 2014

This year's annual rail conference will be held in Montreal from June 15 to June 18. There will be two streetcar sessions in the conference, one led by Jim Graebner and the other by Tom Hickey. The streetcar subcommittee will meet on Sunday, June 14, likely around 11:30 am. Tom Hickey is organizing a three hour technical tour for Wednesday, June 18. He is exploring the possibility of a longer tour on Saturday, June 13.

#### • Operation Without Overhead Wires

John Smatlak

John Smatlak presented a table he had developed as part of his work with the TRB Subcommittee on Light Rail Circulator Systems showing worldwide a list of projects that are actively using, building, or planning systems without trolley wire in part or in whole. The table divides the systems into those using ground level power supplies and those offering extended range off-wire capability using some type of energy storage system on the car. The table is included at the end of these minutes.

John further reported on the evaluation criteria for such systems presented at the UITP meetings in Salt Lake City recently. Their criteria are:

- Level of development
- Performance
- Recharge time (for storage based solutions)
- Energy efficiency

- Environment and safety
- Impact on infrastructure and vehicles
- Procurement issues
- Capital and operational costs and benefits

There was a brief discussion of adding this issue—which is of great interest to those planning streetcar systems—to the subcommittee’s work program.

- **NFPA updates** John Smatlak  
John Smatlak reported on latest developments related to the applicability of the NFPA 130 Fire Safety standards to modern low floor streetcars, especially the issue of floor burn-through resistance which may be less critical for low floor cars as they have few components under the floor. Car builders have responded to a questionnaire sent to them to collect their views on the issue. Their comments will be incorporated in the next iteration of the white paper being developed on this subject.

- **Access Board Coordination** Paul Grether  
Paul Grether reported on coordination with the US Access Board on the applicability of accessibility standards (in particular level boarding requirements) to streetcars. The Access Board is an independent organization not part of the FTA or any other government agency and has heavy representation from the disabled community. It has been focused on issues surrounding accessibility to light rail and commuter rail trains. They recently empaneled an advisory group, the Rail Vehicles Access Advisory Committee (RVAAC), to develop recommendations in the area. Despite considerable effort, APTA was not granted membership on the RVAAC but streetcar subcommittee members will be working in the RVAAC subcommittees that will draft the recommendations. Paul Grether and Charles Joseph attended the initial organizational and work meeting of the RVAAC.

The group’s main focus is on the major issues they see in the commuter rail and intercity rail worlds. Streetcar related issues include bridge plates and level boarding which the RVAAC has agreed to add to their agenda. Not many of their members have experience in this area, so the opportunity exists for streetcar subcommittee positions to be heard.

The white paper on level boarding prepared by John Smatlak has been a useful resource and will be presented at the next meeting. The paper can be found at <http://www.heritagetrolley.org/images/StreetcarLevelBoardingBackgroundMemoDraftRev3-11-13.pdf>.

The RVAAC will also be considering issues such as signage, support for the hearing impaired, and availability on vehicles of space and special features to accommodate wheelchairs.

- **Streetcar White Paper** Tom Furmaniak  
Tom Furmaniak reported on the project to develop a document for people new to the field describing the difference between streetcars and light rail. An initial draft was circulated to some attendees at Railvolution in Seattle but was felt to be too detailed, so a decision was made to develop a simplified version, the initial draft of which is now being circulated to subcommittee officers and some others. The goal is to have it completed by the meeting this summer in Montreal.

#### 4 Next Meetings

- **Cincinnati, Ohio – Spring 2014** timeframe

Paul Grether reported on the possibility of holding a joint FTA/APTA meeting in Cincinnati some time before the Montreal meeting in June. The FTA has tentatively approved this concept but is doing some related research before confirming.

- **Montreal, June 15, 2014**

As mentioned above, a meeting of the subcommittee will be held on Sunday, June 15 prior to the beginning of the Rail Conference (June 15 to 18).

## 5 Project Updates

Tom Hickey

### Washington DC Streetcar

Ron Garoffa of HDR Engineering reported on the streetcar project in Washington. The first of the three Inekon cars was recently moved to the H Street/Benning Road line and testing is beginning. Track and overhead are essentially complete. Car barn construction is underway. Opening is planned for midyear 2014. The first of two cars from United Streetcar is scheduled to ship in the coming weeks.

The DDOT is about to issue an RFQ for teams that would bid on a Design, Build, Operate and Maintain program for the 22 mile priority streetcar system the District is planning.

After the formal meeting was adjourned Ron and colleagues led the subcommittee on a tour of the H-Street/Benning line. Unfortunately, the planned walking tour was rained out, so the tour was by bus.

### Cincinnati

Paul Grether reported on the intense period from the election of an anti-streetcar mayor last November up through the city council vote several weeks ago in which the council voted by a veto-proof majority to continue the project. Estimated costs to cancel the project were essentially the same as the cost to complete construction. After a local nonprofit led a campaign to secure pledges to cover much of the line's operating costs over a 10-year period, several councilors changed their position and voted in favor of completing the line.

Construction has resumed and delivery of cars is planned to begin in March 2015 with revenue service planned for the third quarter of 2016. The difficulty of construction downtown given many utility line conflicts is the reason for the lengthy construction period.

### Seattle First Hill

John Aurelius reported that as of August construction was well advanced along the route. The car barn building was being enclosed. Seven cars are on order from Inekon to be assembled in the Seattle area and will feature battery operation on the predominantly downhill direction of the route.

### Atlanta

Atlanta Streetcar Executive Director Tim Borchers reported on the progress of the 2.7 mile line to be operated by Siemens' streetcar version of their S-70 light rail car. Track construction is complete and most line poles are in place. The first car is due to ship in January and the tentative startup date is May of this year.

## 6. Adjourn

Chairman Hickey adjourned the meeting at 1:58 after which participants headed to Union Station for the bus tour of the H-Street/Benning line.

*prepared by Jim Schantz*

City	Year operational	Length (of non-wire segments)	Supplier	Prototype	Under Contract	Revenue Service	Notes 1	Notes 2
<b>Ground Level Power Supply</b>								
Bordeaux, France	2007	14 km total segments of 44 km system	Alstom			X	Alstom APS ground contact system	
Naples, Italy	2010	0.6 km test track	Breda	X			"Tramwave" ground contact system	
Angers, France	2011	1.5 km segment	Alstom			X	Alstom APS ground contact system	
Reims, France	2011	2 km segment	Alstom			X	Alstom APS ground contact system	
Augsburg, Germany	2011	0.8 km test track	Bombardier	X			Inductive system "Primove"	Also trials with buses
Orleans, France	2012	2 km segment	Alstom			X	Alstom APS ground contact system	
Tours, France	2013	1.8 km segment	Alstom			X	Alstom APS ground contact system	
Dubai, UAE	2014	10 km (full system)	Alstom		X		Alstom APS ground contact system	11 vehicles
Zhuhai, China	2015	8.7 km (full system?)	Breda		X		"Tramwave" ground contact system	Tramwave technology also licensed to CNR Dalian / GRC Taiwan 2012
Cuennca, Ecuador	2016	segment (need length)	Alstom		X		Alstom APS ground contact system	14 vehicles
<b>Extended Range Off-Wire</b>								
Nice, France	2007	0.9 km total line segments	Alstom			X	Ni-MH battery	20 vehicles
Seville, Spain	2011	0.6 km line segment of 2.2 km line	CAF			X	"ACR" Battery / supercap.	7 vehicles
Zaragoza, Spain	2013	2 km off-wire segment of 12.8 km line, charging at stops	CAF			X	"ACR" Battery / supercap.	21 vehicles
Shenyang, China	2013	Off-wire sections, lengths not known	CNR Changchun			X	Supercap	30 vehicles using Voith drive technology. First 3 of 6 lines opened 2013.
Dallas, Texas	2014	1.6 km of 2.6 km line	Brookville		X		Battery (Li-Ion)	Dallas Oak Cliff streetcar, 2 vehicles
Kaohsiung, Taiwan	2014	22 km, 36 stops. Charging at stops	CAF		X		"ACR" Battery / supercap.	9 vehicles
Nanjing, China	2014	Total 17 km. OCS only at stops and acceleration points	CSR Puzhen		X		Battery (Li-Ion)	15 vehicles using licensed Bombardier technology.
Seattle, WA	2014	4 km Seattle First-Hill streetcar will have OCS on uphill track only	Inekon		X		Battery (Li-Ion)	6 vehicles
Guangzhou, China	2014	First 7.7 km segment of Haizhu circle line, 10 stops. Off-wire operation except at stops?	CSR ZELC		X		Supercap	7 vehicles using licensed Siemens technology.
Doha, Qatar	2015	11.5 km, 25 stations. Charging at stations	Siemens		X		Battery (Ni-MH) / supercap	19 vehicles,

City	Year operational	Length (of non-wire segments)	Supplier	Prototype	Under Contract	Revenue Service	Notes 1	Notes 2
Santos, Brazil	2015	11 km line, 0.4 km off-wire vehicle range	Vossloh		X		Battery	22 vehicles
Detroit, MI	2016	segments (length tbd) of 5.1 km line	tbd (selection process underway)		X		tbd	6 vehicles
Granada, Spain	tbd	4 segments totaling 4.95 km of 15.9 km line	CAF		X		"ACR" Battery / supercap.	13 vehicles
Budapest, Hungary	tbd	BKK plans to remove wire on Kossuth ter, surrounding the Parliament building.	CAF		X		"ACR" Battery / supercap.	Budapest 2013 order includes 25 32-36m long cars capable of off-wire operation. BKK plans to remove wire on Kossuth ter, surrounding the Parliament building.
<b>Demonstrator Vehicles</b>								
Kawasaki	2007			X			Battery (Ni-MH)	Demonstrator vehicle completed 2007, trialed in Sapporo, Japan
RTRI Japan	2007			X			Battery (Li-Ion)	Prototype vehicle completed 2007, trialed in Sapporo, Japan 2007-08
Kinkisharyo	2011			X			Battery (Li-Ion)	Demonstrator vehicle operated in several US cities 2011
Stadler	2011			X			Battery (Li-Ion)	Extended range off-wire prototype installation using Battery (Li-Ion) in Germany
Hyundai Rotem / KRRRI	2012			X			Battery (Li-Ion)	Prototype vehicle developed 2007-2012 with Korea Railroad Research Institute
Brazil	2015	prototype vehicle	Bom Sinal		in dev	X	Battery	Prototype vehicle in development, due 2015
<b>Onboard ESS for Energy Savings</b>								
section to be added								

Notes:

Proposed DDOT Streetcar, Washington DC, to have off-wire segments on future lines

FEVE Hydrogen fuel cell prototype vehicle (retrofit to existing tram) was to begin trials in 2011

Fuel generator / electric hybrids not covered in this compilation, including prototype gen/supercap heritage trolley car in Savannah, Georgia