

## APTA Streetcar Subcommittee

### Draft Minutes- Working Group Meeting 1/19/11, Charlotte, N.C.

#### Guideline Document “Introduction of Modern Streetcar Vehicles in North America”

##### Attendees:

John Aurelius- Gannet Fleming	Richard Lerew- Kinkisharyo / RTC
George Berger- City of Charlotte	Eric Madison- DDOT
Stephen Bonina- Interfleet	Joel McNeil- Brookville Equipment
Tim Borchers- City Rail Solutions	David Murphy- CATS
Ken Boyd- URS	Richard Palmieri- Siemens
Dave Dobbs- Light Rail Now!	Pankai Pandit- Vossloh Kiepe
Jacques Drouin- Bomabardier	Tim Richards- City of Charlotte
Tom Furmaniak- LTK	Jim Schantz- Seashore Trolley Museum
Jim Graebner- CH2M Hill	Martin Schroeder-APTA
Paul Grether- MARTA	Eric Sitiko- Portland Streetcar
Xavier Guirand- Siemens	John Smatlak- RPR Consulting
Lyndon Henry- Capital Metro	Ben Taylor- Kimley Horn
Azania Herron- CATS	Antonio Torcia- Breda
Rich Krisak- MARTA	Veronica Wallace- Charlotte DOT
Bryan Leaird- CATS	Tonia Wimberly- City of Charlotte

In the first part of the meeting the group reviewed the Powerpoint presentation that is being maintained as an introduction / status update for the guideline project. The presentation attempts to summarize the major issues being addressed in the effort and highlights open questions. A pdf copy is attached which includes the revisions discussed at the meeting.

The group next reviewed the responses contained in the recently completed Carbuilder Survey. In the spreadsheet portion of the survey, a total of 10 vehicles are to be detailed. To add to the usefulness of the data compilation on the different vehicles, it was decided to add a graphic representation of each vehicle using the format developed in TCRP Report 2. Much progress has been made in running gear design for 100 percent low floor streetcars since Report 2 was issued in 1995. In order to adequately cover the new vehicles, it will also be necessary to add to the list of “wheelset and drive arrangement” types shown in Report 2. In addition to the photographs of the vehicle that the carbuilders have already been asked to supply, they will also be asked to supply a photo of the running gear used on the vehicles they detailed in their survey responses. The subcommittee will also request feedback from the carbuilders on which are the most commonly ordered vehicle widths for EU systems.

A lengthy discussion on the vehicle / platform interface issue was conducted, covering a range of issues from the differences in approach to accessibility between the EU and North America, vehicle width, the continuing trend towards heavier motorized wheelchairs, and best practices for platform construction. The group discussed the systems approach required to implement “fully level” boarding, and the fact that it is much more demanding on infrastructure than “nearly level” boarding. Carbuilder representatives in attendance stated that they would find value in a common understanding on the dividing line between infrastructure (rail and platform) tolerances and vehicle tolerances in this

equation. Rich Krisak volunteered to put together an initial summary of best practice issues for platform design and construction.

The subject of track design criteria for 100 percent low floor streetcars was discussed. It was noted that Alstom recently supplied a document summarizing its track design criteria recommendations for use with 100 percent LF vehicles. The group thought it would be helpful if all of the carbuilders would submit their version of this type of document so that the Subcommittee can compare them. A formal request will be passed along to the carbuilders for same.

Martin Schroeder discussed the importance of close coordination with related APTA efforts in the area of track standards, specifically the APTA Track, Noise and Vibration Technical Forum. That group's next meeting is in Salt Lake City April 28-29. The concept of possibly holding a joint meeting was also discussed. John Smatlak will follow up with TN&VTF co-chair Hugh Fuller and keep APTA in the loop.

The group reviewed the draft Braking Rates comparison spreadsheet which is being developed to compare braking rates being specified for streetcar / tramway and light rail vehicles, including some historical benchmarks. Several issues were acknowledged in the ongoing compilation of this data, primarily the challenge of making a true "apples to apples" comparison between different standards, due to different ways of specifying the braking rates, (e.g. measured from first actuation of control or from start of braking, loaded versus unloaded, loaded to what standard, different dividing points between "low" and "high" emergency braking rates). Discussion was also held on the theory and regulatory history behind locking out slip/slide control during emergency braking. The perceived need for a comprehensive US braking rate standard was discussed. Concepts for possible approaches were discussed. The most comprehensive braking standard currently in use in other parts of the world is EN 13452. Martin Schroeder will follow up with information on who headed up the braking section of the recently completed draft APTA Light Rail Vehicle Procurement Standard so that the Subcommittee can seek their input on where the braking rates they specified were sourced from.

The group discussed Fire Safety standards applicable to modern streetcars and the differences between the EU and US regulatory approaches. The proposed EU standard (prEN 45545) uses categories that differentiate between operating environments, including tunnel versus surface-only operation. NFPA 130 takes a "one size fits all" approach. The question was asked why surface streetcars and buses shouldn't have similar fire safety regulatory requirements? Fire safety standard compliance has been identified as a major cost factor in adopting existing modern streetcar designs for US operation. Martin Schroeder stated that APTA will consider taking on a comparison between the NFPA 130 and prEN 45545.

The group discussed issues surrounding cab layout and to what extent this topic should be specifically addressed in the Guideline. The importance of agreement within the industry on what anthropometric population data should be used in establishing cab ergonomics was discussed. The group felt that specifying 5-95 percentile is a reasonable approach and going beyond that would have major cost impacts. The group discussed the importance of an agency paying close attention to the operator ergonomics of any vehicle they are buying, and the issues related to getting operations input on cab design. Also discussed was the importance of forward visibility in a vehicle whose operating environment is exclusively street-running, even more so than an LRV with occasional street running. In general it was felt that the unique aspects of the streetcar operating environment need to be appropriately stressed in the Guideline document.

The group discussed numerous aspects of the Power Supply topic, updating the outline for this section. The parallel example of wayside power was discussed. This technology is now going through an extended vetting process within the industry. A short list of major issues on the Power Supply topic was distilled out of the discussion:

- The technology of wireless systems is evolving rapidly
- It would be useful to distinguish between a “wireless” system and vehicles which have “off-wire capability”
- A further distinction could be made based on on-board energy storage (e.g. super-caps and batteries) vs. infrastructure-based solutions (e.g. a power source embedded in the trackway)
- It is important to stress operational balance in system design. Operational limitations must be well understood (e.g. what happens with a battery streetcar during a line blockage)
- Decision makers need to better understand the trade-offs involved with wireless operation, such as the realities of implementing solutions based on proprietary designs including component obsolescence issues.

The group also discussed other issues that commonly come up in the planning and design for modern streetcar projects and what would be the best way for the industry to address these. These included issues relating to a city government planning and designing a streetcar project instead of a transit agency (may be more need for streetcar system “basics”), the impacts of streetcar operations on traffic, bicycles versus streetcars, and the visual impacts of overhead trolley wire. The Guideline PM stressed his concern about “scope creep” and the importance of keeping the Guideline effort well focused.

A request was made to consider the addition of video or teleconferencing capabilities for all future working group meetings

Thanks are extended to the City of Charlotte for graciously providing the meeting room, to Interfleet for sponsoring the morning coffee and to LTK for sponsoring lunch.

Respectfully Submitted,

John Smatlak

Project Manager