Issues of Heritage Trams in the Streets

A Christchurch perspective

Dave Hinman September 2018

Success Factors

Determination that this was to be a heritage themed tourist operation as a central city circulator – hop on/ hop off as well as city tour.
Infrastructure designed as authentic copy of ChCh heritage



Had some battles with the regulator (new regime, only heavy rail experience – no real perception of trams in streets).

Example of open sides and steps issues – fear of collisions, people falling out etc.



Vehicles - restored and well presented – in good operating condition fit for *daily* operation (unlike most heritage trams in a museum situation).

Safety glass throughout, rewiring, crack testing, and .. Some basic features to suit modern traffic conditions added, including low voltage circuits for some lighting and comms.



Limited disabled access – only one wheel chair lift on the circuit initially – and this agreed with the disabled community.







Keeping the hoist clear can be an issue!

A second added on the extension – but demand appears to be limited

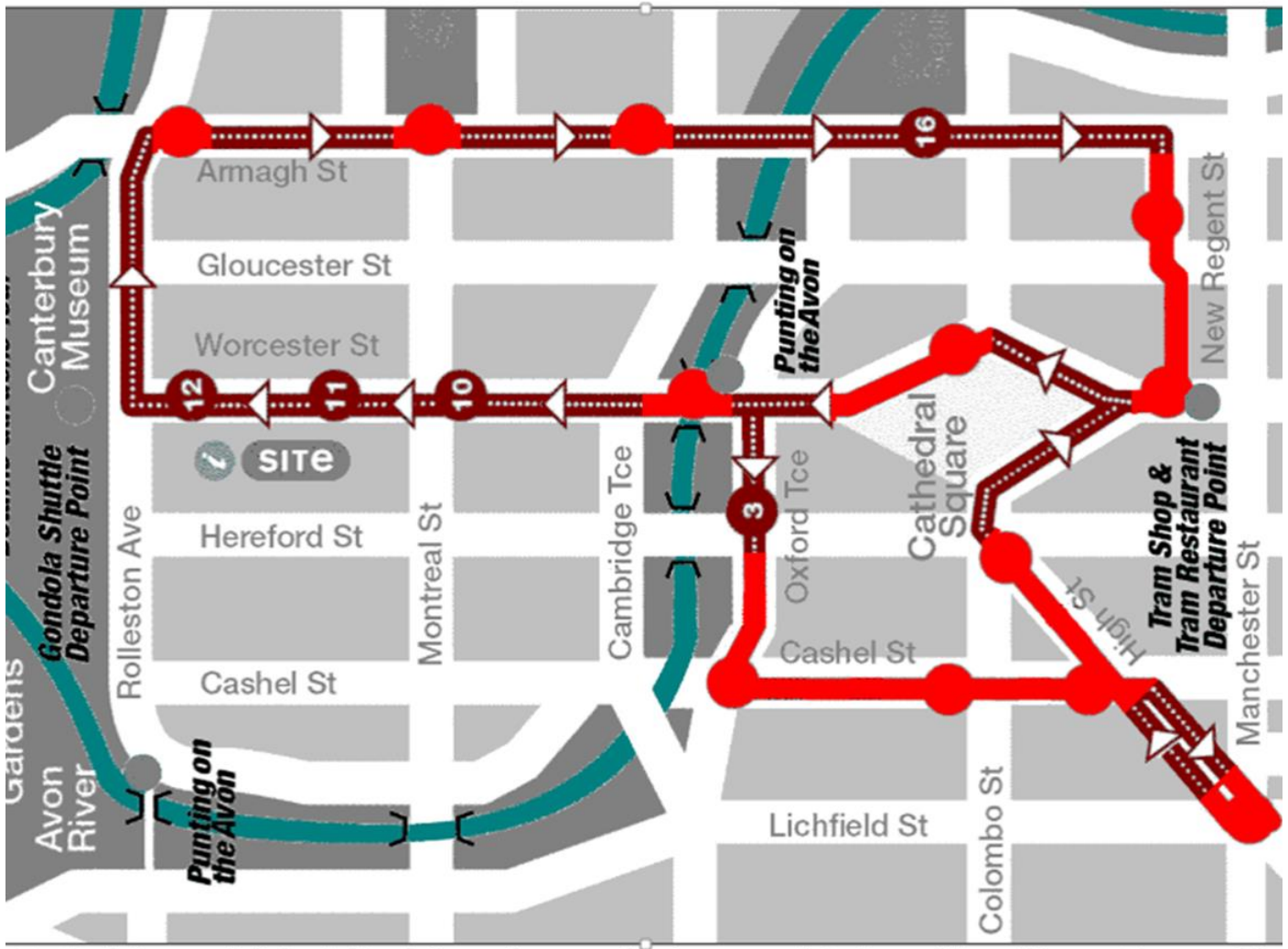




Heritage tram experts worked alongside traffic engineers, transport planners, urban designers - very careful route selection based on perceived need and purpose.

Connecting central city attractions – generally avoided very busy streets.

Acceptance that slow moving tram works in a pedestrian environment, (10Km speed limits) and also acts as a traffic calmer. In central city where max speed is now 30k/h.



Bright red highlights shared Zones (8 km/hr Max Speed)

Strong tourism, retailer and local council support (they own the infrastructure, licence the operator and collect a fee) - iconic status achieved quite quickly.





Prime Minister opens tram extension (and has a drive) in 2015

Recognition of the need for ongoing relationships – mutual liaison and support from local tramway museum (Ferrymead) and also Sydney Tramway Museum.

This includes acknowledging expertise in tram repairs and maintenance and further tram supply.



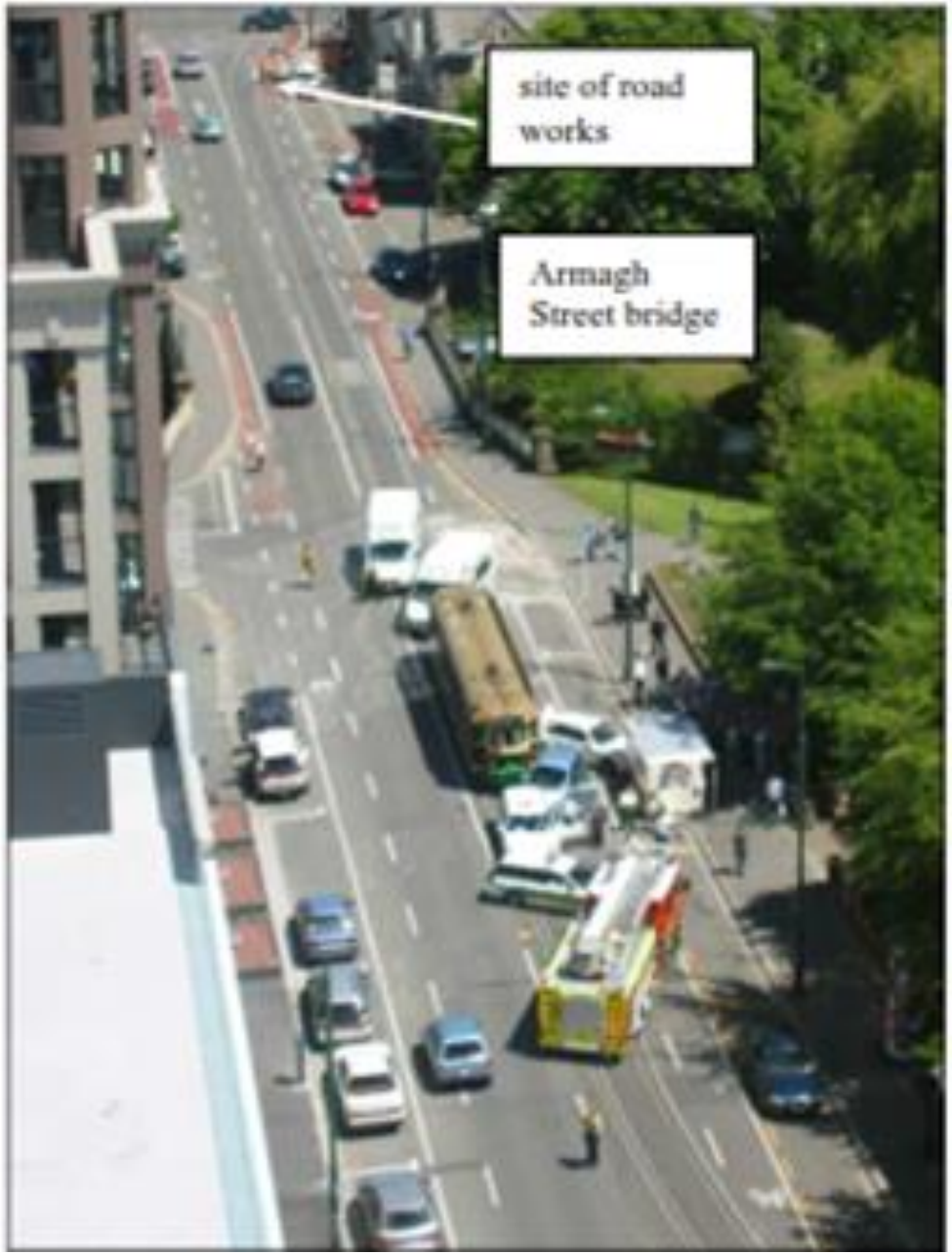
Truck manufacture at Ferrymead – for Sydney Tramway Museum

Good safety record - only one instance of TAIC involvement – 244 brake failure in 2006 - cars damaged, but no injuries!

RAILWAYOCCURRENCE REPORT

06-112 **Report 06-112, loss of airbrakes and collision, Tram 244,**

November 2006 Christchurch



New challenges met head-on, including after the earthquakes - work site access issue – battle fought and won (so far - with community support).

Access adjacent to and through building sites has been an added attraction, and is not unduly difficult – controlled, covered, fixed path



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On going central city pressure for tram to halt while building works proceed (eg Cathedral)



Cathedral forecourt tidy up has begun – issue of how much space needed beyond their site has still to be agreed!

Earthquakes have been an opportunity as well as a threat.

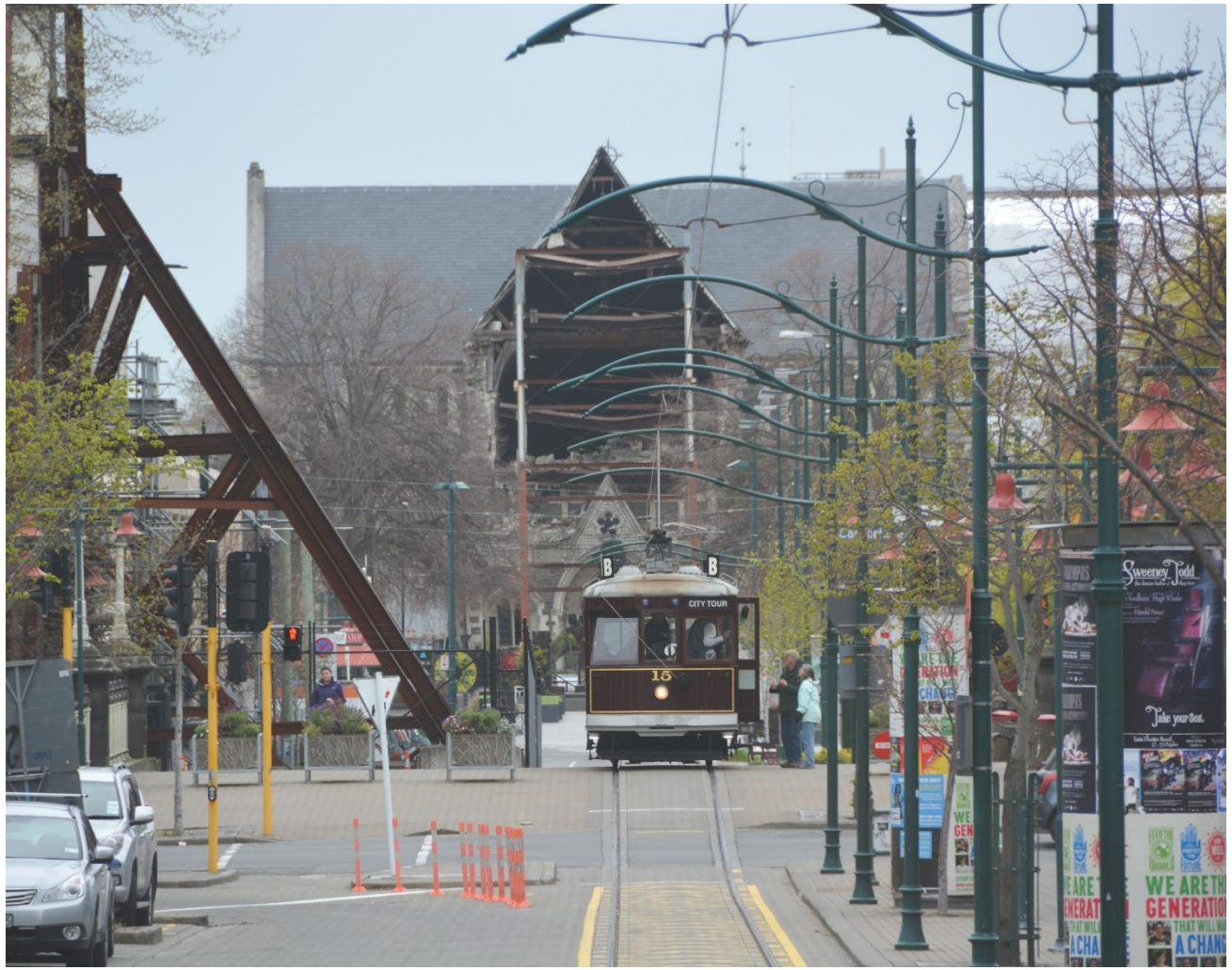
Threat that tramway not a priority, not worth retaining, don't fit a new, modern city.

Opportunity to re- restore, do further improvements including modernising some features (eg LED lighting) as well as extending the line – tram a promoter of urban regeneration.



Tramway operators have always focussed on heritage theme.

Post-earthquake, with the loss of much built heritage, the trams are a positive reminder of both the distant (50+ years) and recent (post quake) past.



Other modern features of ChCh Tramway:

Driver control of signals, points & doors, Cathedral Jn.

All trams are fitted with a 24-volt system for marker lights, tail lights, indicators, radios, etc. Battery to ensure that these systems still operate if the power fails or the trolley pole leaves the wire.



Future threat of automation and driverless vehicles? - all vehicles could be affected, should there be a future law change limiting use of vehicles with drivers.





Junction of Worcester Bld and Oxford Tce - driver remotely changes points, signal shows direction, wheel counters.

Support for future light rail by decision to use modern overhead on extension (was to be part, pre quake, but changed to all as so much old had gone.

Not very likely that LR will use much of the city circuit because travels through very slow streets, but option is there.

More likely that tram will be an historic oddity (and therefore very popular) like San Francisco cable car system.



Trolley poles v Pantographs

Poles should not be an issue if overhead is well constructed and maintained and in Christchurch slow speeds also reduce risks of de-wiring.

Drivers also at less risk in quiet or no traffic streets. New loop is modern “elastic” K&M and used by poles.



Post earthquake re-opening issues – “some over zealous, extremely safety conscious risk averse officials” re. tram travelling in both directions on single line required massive cross hatching – in case someone wasn’t aware tram might be coming “backwards”.

Yellow now mostly removed – at considerable expense!



And the future?

Need to be aware of overseas trends/decisions etc will heritage go out of favour?

The time is not far away when nobody still alive will remember these trams in “real life”.



Need to be ever vigilant of needs for safety and remain accident free - a bad accident could destroy good will and popularity/support.

Any obvious serious dangers should be mitigated eg. update wiring etc, adding circuit breaker if missing (done for W2 No. 244 following Memphis fires!)





Future non-evasive change may be acceptable if reversible for when cars eventually become museum pieces again.

But of course their history has continued -maybe changes should be retained as part of the tram's ongoing history/development?



Brill 178 has now had more years operating on the current tourist tramway than when in original CTB service.

Need to recognise tram will wear out and most of it will require repair if not replacement at some stage.

Risk of loss of skills, spare parts etc lessened if strong relationships maintained with tram museum fraternity.



178 – major roof repairs at Ferrymead Tramway 2018

Continue to work with Council and advisers to ensure that significance of tram and how it fits into modernising city streets remains an important consideration.

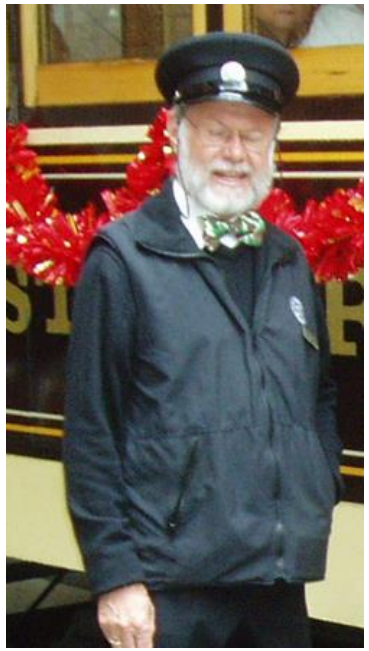
Contrast between Christchurch and Dockline (Auckland.)



Track extension options – an example of this

Advanced age of many tram drivers – annual medical checks to ensure they are in good health.

Greater need in the future for better dead man control ? Use of Electro-Pneumatic button a safety feature since 1995.





Fares compared to “normal” PT are high – this is off set by an annual pass system,but price does put some off and is criticised by some locals.

Future answer may be some subsidy as for other public transport?

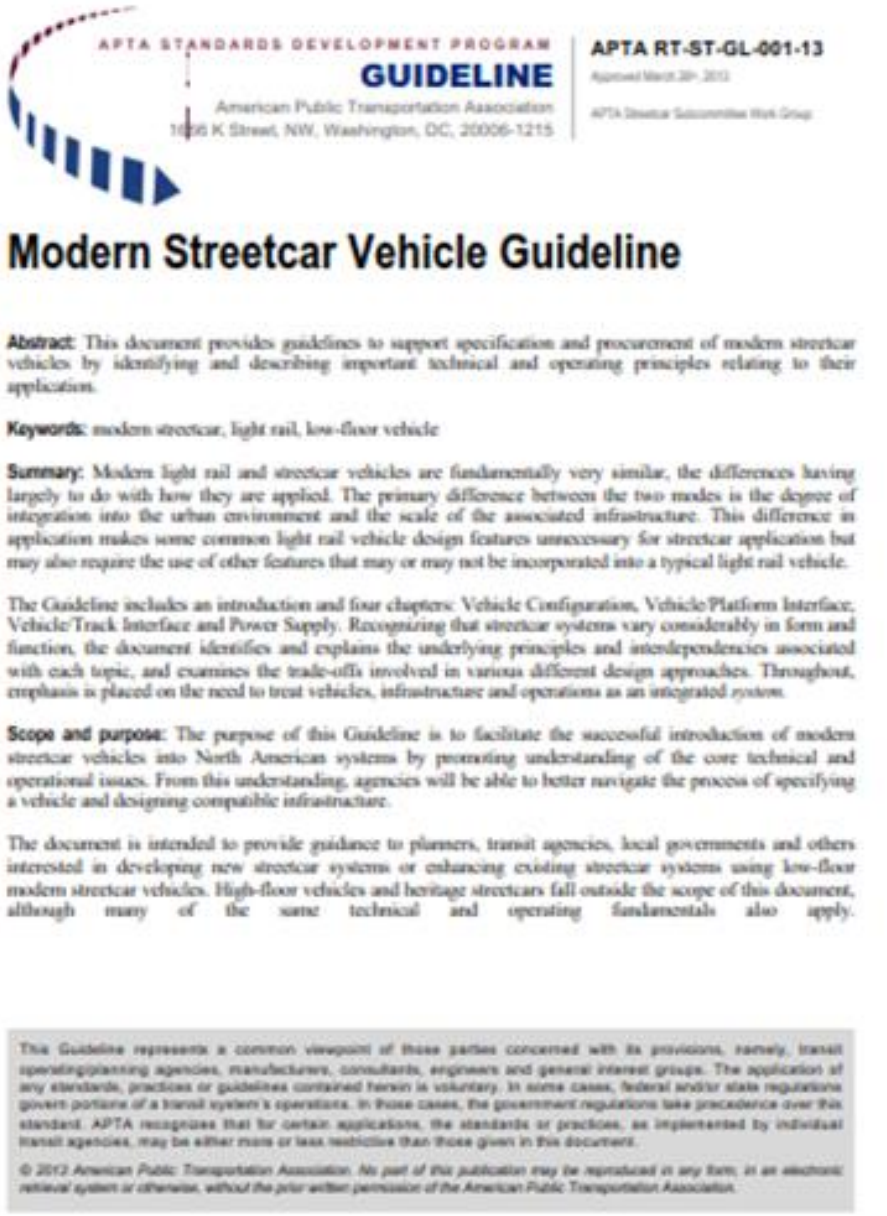


Purchase a Christchurch Tram & Gondola Annual Pass and enjoy unlimited rides on both iconic attractions for a whole year!
The **Annual Pass** allows the cardholder to ride the historic Christchurch Tram and use the iconic Christchurch Gondola for one year from the date of purchase, and also entitles you to **great discounts** at our other top attractions.
With so much to see and do, the Annual Pass is perfect for those who love to enjoy and explore Christchurch!

Adult $NZ 65 **Child** $NZ 29
Family of 5 $NZ 139

Compared to the risk profiles of some other heritage vehicles – eg aircraft and racing cars, the slow pace of trams and their well designed working environment suggests there should be less concern about possible dire consequences.





APTA STANDARDS DEVELOPMENT PROGRAM

GUIDELINE

American Public Transportation Association
1666 K Street, NW, Washington, DC, 20006-1215

APTA RT-ST-GL-001-13

Approved March 28th, 2013

APTA Streetcar Subcommittee Work Group

Modern Streetcar Vehicle Guideline

Abstract: This document provides guidelines to support specification and procurement of modern streetcar vehicles by identifying and describing important technical and operating principles relating to their application.

Keywords: modern streetcar, light rail, low-floor vehicle

Summary: Modern light rail and streetcar vehicles are fundamentally very similar, the differences having largely to do with how they are applied. The primary difference between the two modes is the degree of integration into the urban environment and the scale of the associated infrastructure. This difference in application makes some common light rail vehicle design features unnecessary for streetcar application but may also require the use of other features that may or may not be incorporated into a typical light rail vehicle.

The Guideline includes an introduction and four chapters: Vehicle Configuration, Vehicle/Platform Interface, Vehicle/Track Interface and Power Supply. Recognizing that streetcar systems vary considerably in form and function, the document identifies and explains the underlying principles and interdependencies associated with each topic, and examines the trade-offs involved in various different design approaches. Throughout, emphasis is placed on the need to treat vehicles, infrastructure and operations as an integrated *system*.

Scope and purpose: The purpose of this Guideline is to facilitate the successful introduction of modern streetcar vehicles into North American systems by promoting understanding of the core technical and operational issues. From this understanding, agencies will be able to better navigate the process of specifying a vehicle and designing compatible infrastructure.

The document is intended to provide guidance to planners, transit agencies, local governments and others interested in developing new streetcar systems or enhancing existing streetcar systems using low-floor modern streetcar vehicles. High-floor vehicles and heritage streetcars fall outside the scope of this document, although many of the same technical and operating fundamentals also apply.

This Guideline represents a common viewpoint of those parties concerned with its provisions, namely, transit operating/planning agencies, manufacturers, consultants, engineers and general interest groups. The application of any standards, practices or guidelines contained herein is voluntary. In some cases, federal and/or state regulations govern portions of a transit system's operations. In those cases, the government regulations take precedence over this standard. APTA recognizes that for certain applications, the standards or practices, as implemented by individual transit agencies, may be either more or less restrictive than those given in this document.

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Relevance to heritage trams in streets?

While this may be the U.S. benchmark for modern light rail systems it would be unrealistic to expect tramways operating heritage vehicles to be able to comply with many of the suggested guidelines.

“The purpose of this guideline is to facilitate the successful introduction of modern street car vehicles into North American Systems by promoting understanding of the core technical and operational issues… the document is intended to provide guidance to planners, transit agencies and others interested in developing new… or enhancing existing street car systems using low floor modern streetcar vehicles”.

Some value in getting an understanding of the safety issues of concern, but most of the guidelines could not ne initiated without substantial change to the heritage features of heritage trams.

But…. There is another APTA publication

“Vintage and Heritage Trolley Vehicle Equipment”
(Revised edition 2017)

http://www.heritagetrolley.org/images/APTA_RT-SCS-S-001-05_Rev_1.pdf

“While the rail transit industry has been steadily generating consensus standards covering many technical aspects of its present generation of equipment, these standards do not make provision for the unique vehicles found in heritage trolley operations. For this reason, the APTA Streetcar Subcommittee developed this document to establish appropriate standards for equipping and operating heritage trolley vehicles in an urban public transit environment.

This *Standard* is based on the “Historical Streetcar” section of the California Public Utilities Commission General Order 143-B, with many additional criteria added in order to create a more comprehensive standard.”

APTA STANDARDS DEVELOPMENT PROGRAM

STANDARD

American Public Transportation Association
1300 I Street, NW, Washington, DC, 20005

APTA RT-SCS-S-001-05 Rev 1
First Published June 20, 2005
First Revision April 7, 2017

APTA Streetcar Subcommittee Working Group

Vintage and Heritage Trolley Vehicle Equipment

Abstract: This *Standard* establishes minimum requirements for equipping vintage and heritage trolley vehicles, also referred to as vintage trolleys or historic streetcars, for operation on urban heritage trolley systems.

Keywords: heritage trolley, historic streetcar, replica trolley, vintage trolley

Summary: This *Standard* includes programs and procedures that are to be established and documented in the vintage and heritage trolley system's System Safety Program Plan (SSPP), as well as equipment-related criteria that are to be documented as part of the vehicle safety certification process.

Scope and purpose: This *Standard* is applicable to all vintage and heritage trolleys operating in an urban public transit environment. It is not intended for application to railway museums/trolley museums, which may operate similar "heritage" or "vintage" equipment, unless they run in an urban public transit environment. Although a museum has the same obligation to conduct safe operations, there are also significant differences in the nature of a museum operating environment versus that of an urban public transit environment.

The purpose of this document is to provide APTA member transit systems and other vintage and heritage trolley operators with minimum standards for equipping and operating vintage and heritage trolley vehicles.

This *Rail Standard* represents a common viewpoint of those parties concerned with its provisions, namely, transit operating/planning agencies, manufacturers, consultants, engineers and general interest groups. The application of any standards, practices or guidelines contained herein is voluntary. In some cases, federal and/or state regulations govern portions of a transit system's operations. In those cases, the government regulations take precedence over this standard. NATSA (North America Transit Services Association) and its parent organization APTA recognizes that for certain applications, the standards or practices, as implemented by individual transit agencies, may be either more or less restrictive than those given in this document.

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APTA Standards Development Program
Lead the Way

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