

# **BALLARAT TRAMWAY MUSEUM INC.**

(Association No: A0031809K)



## **Fleet & Infrastructure Conservation Policy**

**August 2012**

# Fleet & Infrastructure Conservation Policy

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Hyperlinks within the document correct as at 8-8-2012

# Fleet & Infrastructure Conservation Policy

## Introduction

Ballarat, a city founded on gold, saw the establishment of a horse tramway by the Ballarat Tramway Co. Ltd. in December 1887. The horse trams were largely replaced by electric trams in 1905 by the Electric Supply Co. of Victoria, who operated a power station as well as the trams in both Ballarat and Bendigo. The State Electricity Commission took over the power supply systems in 1934 and reluctantly operated the trams until September 1971. Museum trams commenced operations in Wendouree Parade in Dec. 1974. For a more detailed history of the Ballarat tramways see [www.btm.org.au](http://www.btm.org.au)

The Museum's depot and tramway track are located in the Botanical Gardens Reserve and Wendouree Parade. This area has been included on the Victorian Heritage Register, (VHR 2252), includes item B7 (Vintage Tramway Museum) and item F12 (tram tracks). See [http://vhd.heritage.vic.gov.au/vhd/heritagevic#detail\\_places;1761](http://vhd.heritage.vic.gov.au/vhd/heritagevic#detail_places;1761)

## 1.0 Aim

Provide a policy framework for the conservation of the Museum's tramcar fleet and associated infrastructure items to assist with Museum decision making and actions.

## 2.0 Purpose of Policy

The purpose of the Ballarat Tramway Museum (BTM) Fleet and Infrastructure Conservation Policy is to:

- Facilitate forming a set of guidelines and directions for future conservation work on the existing fleet of tramcars and infrastructure held by the Museum
- Provide guidelines for exhibition, standards, operational configurations and liveries
- Allow others not directly connected with the Museum to understand the background of the policy and actions of the Museum
- Establishment of a policy that enables past errors to be identified and rectified
- Provide for the guidelines for the conservation of the Museum's collection in general.

Infrastructure includes:

- Track
- Overhead (trolley wire, poles and supporting systems)
- Tram stops
- Signage

## 3.0 Guiding Principles

### 3.1 Conservation Policy – Existing Guidance Documents

The Museum adopted, in 1993, the Institute of Engineers [Engineering Heritage and Conservation Guidelines](#). These are based on the Burra Charter. These Guidelines were revised in 2009. Some important considerations from the [Burra Charter](#) are:

*Conservation means all the processes of looking after a place so as to retain its cultural significance. (Article 1.4)*

*The aim of conservation is to retain the cultural significance of a place (or object in our case) (Article 2.2)*

*Conservation is based on a respect for the existing fabric, use, associations and meanings. It requires a cautious approach of changing as much as necessary but as little as possible. (Article 3.1)*

*The policy for managing place must be based on an understanding of its cultural significance (Article 6.2)*

The Museum also references [FEDECRAIL's "Riga Charter"](#) as a guiding document that enables rail heritage to be enjoyed by future generations. A copy is appended to this document.

### 3.2 Museum Policy

The policy of the museum is set out in the objects of the Rules of the Association. The relevant objects are:

- i. To establish at Ballarat an authentic working tramway museum as a tourist, historical and educational attraction. (object b)
- ii. To acquire, conserve, exhibit and operate trams in a safe manner on the Ballarat tramway system and elsewhere. (object c)
- iii. To establish at Ballarat a transport museum and for that purpose to purchase take under trust or otherwise acquire any item of transport equipment or of tramway historical significance and to maintain, repair, preserve, exhibit and operate the same. (object f)

The general policy of the Museum has always been to make alterations or modifications to trams only after consideration by the Board.

### 3.3 Museum Collection Policy and Collection Significance Assessments

A Collection Policy with regard to its entire collection was adopted by the Museum in May 1992. This document has been reviewed a number of times since. Section 5.1 covered the tramcars and is repeated for background information in deriving this policy.

*The tramcars are the primary collection items of the Museum and generally form the operating section of the museum. While these form the largest single collection item in terms of physical size, they are the smallest numerically. The histories of the individual trams is reasonably well*

*documented. In the case of tramcars, it is the body number that is considered unique to that car, i.e. its essence, not its trucks or mechanical equipment, which was often swapped between trams.*

*The collection has a number of duplications. This is necessary from an operational viewpoint, where restoration or maintenance of a tram to operating condition can take a volunteer organisation such as ours; a number of years. It also allows the Museum to represent the various colour schemes that were used on the various trams. This adds to the visual impact of the collection and enables better interpretation of the story of Ballarat's trams.*

The Museum, in undertaking collection significance assessments, follows the accepted criteria such as that outlined in Significance 2.0, a guide to assessing the significance of collections, published by the Collections Council of Australia, 2009.

The primary criteria being:

- Historic
- Aesthetic/Technical
- Scientific
- Social

With the comparative or Supportive Criteria being

- Provenance
- Representativeness
- Rarity
- Condition, intactness and integrity
- Interpretative potential

After assessing the significance of an item it is possible, though subjective, to assign ratings of:

- Very High
- High
- Medium
- Low
- Very Low

When the BTM Conservation Policy was initially prepared in 1995, the Museum undertook an alternative significance assessment process on its tramcars – and derived the following basis.

**Essential** - BTM ownership, or under long term control and an essential tram in relation to the history of the tramways of Ballarat. They would not be loaned out, or only leave Ballarat on temporary transfer under the most stringent safeguards.

**Desirable** - Not necessarily owned by the BTM, but completes history of the Ballarat Tramways or useful to maintain or have as an operational part of the collection.

**Supplemental** - Owned by the BTM, but not needed to illustrate the history of the Ballarat Tramways, and/or in poor condition.'

For the basis of comparison,

- Essential – Very High or High
- Desirable – Medium
- Supplemental – Low or Very Low

The classification shown in the table of Section 4.3, is based on the 1992 categories as it simply expresses our tramcar collection and its standing within the Museum's Collection.

### 3.4 General Policy Considerations

There are a number of general considerations that must be given in formulating a conservation framework for a museum environment. In particular, for a museum that operates its tramcars using heritage infrastructure in a public street. At the present time the tramcars are operated in a relatively safe environment using the existing infrastructure of track, overhead, poles and tram stops etc. The infrastructure dates back to the electrification of the horse tram in 1905. These considerations are:

- Need for operating the tramway safely and in a manner that enables any Rail Safety Accreditation requirements to be met.
- Tramway operation in a street environment enables interpretation to the general public.
- Active service in roadway traffic presents specific hazards and problems.
- Only four of the tramcars held by the Museum began their operational lives in Ballarat. All of the others began their work in Melbourne. That is, they have a cultural significance beside that of Ballarat; although most have spent the majority of their working lives in Ballarat. Some of have spent more time in Museum Service than working for previous owners.
- In the past, a number of errors have been made in work undertaken by the Museum. As outlined in Section 2.0, the policy aims to assist in identifying and rectifying these for the future.
- Good records, including photographs of any work undertaken on the tramcars and associated infrastructure are maintained in order for future conservators to know and understand what work was done in the past and when.
- Commercial considerations have to be balanced against the conservation aspects. This is important to ensure that sufficient and secure financial resources are available to enable the tramcars and infrastructure to survive for future generations.
- That prior to the use of new materials and work practices, these continue to be assessed as to their long term suitability, stability and whether there is any possibility of destruction of past evidence of former methods, materials, etc.

### 3.5 Non-Operational Tramway elements of the Collection

The conservation of non-operational tramway elements of the collection (such as photographs, tickets, documents) will be undertaken to methods and practices recommended by publications such as [reCollections, 2000](#), published by Heritage Collections Council of Australia.

## 4.0 Policy Basis

### 4.1 Museum Objectives

The objective for the conservation and presentation for exhibition is derived from Rules of the Association and the Museum's Mission Statement. The Museum's Mission Statement states that we *continue the development of a working museum to preserve the style of Ballarat's former street tramways and trams for the public benefit.*

These objectives imply that the various trams are to be conserved and exhibited faithfully to convey the past operating practices and styles of Ballarat's street tramways.

This is in order to display and maintain their cultural significance. In this way, the operating history of each tramcar should be known and when joined with the various operators (i.e. BTCo, ESCo and SEC), a presentation style can be developed.

## 4.2 Display Themes

Section 4 of the BTM Collection Policy provides a collection theme:

*“the history of Ballarat's passenger tramways, its people, equipment, development and operation in relation to the history of Ballarat and the State Electricity Commission of Victoria.”*

***Ballarat Trams are Ballarat History*** would be a short form statement of this theme.

The basic principle behind our overall exhibition is to present at least one tramcar in each of the significant body configurations and its respective operator's colour scheme. However some tramcars, such as No. 40 are to remain in their final SEC configuration.

### a) Ballarat Tramway Operators

1887 - 1905 <sup>1</sup>	Ballaarat Tramway Company (BTCo Horse Trams)
1905 – 1934 <sup>2</sup>	Electric Supply Company of Victoria (ESCo)
1934 - 1971	State Electricity Commission of Victoria (SEC)
1971 – to date	Ballarat Tramway Preservation Society to 1994 and the Ballarat Tramway Museum to date.

### b) Tramcar Display Configurations

An outline of history of body configurations, styles and types in date form is as follows:

1887 -	Horse trams, some yellow and cream, others probably red and cream.
1905 -	Electric trams - Columbia red and white
1930 -	Indian red and gold
1930 -	Early ex MMTB trams (24-28) converted (stage 1) for one man operation; barrier rails screwed down, pane of glass removed and passageway cut through seat.
1931 -	Second batch of ex MMTB trams (16-20) panelled to waist rail level, part of driver's bulkhead removed with access through former driver's door. (Stage 2)
1935-38 -	All ex MMTB California combination cars converted to final form with longitudinal seats and stable doors at four corners. (Stage 3).
3/1935 -	No. 27, is the first tramcar painted in SEC colours of green and cream, with cream rocker panels.
1945 -	First ex Melbourne maximum traction bogie trams acquired.
4/1946 -	Cream rocker panels started to be painted over by green colour, and the green changed in colour. Last car repainted in 5/1950.

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<sup>1</sup> ESCo purchased the Horse Tram Co. in December 1902, and ran the horse trams until electrification in August 1905.

<sup>2</sup> SEC supervised ESCo's operations from 1931 to 30.6.34.

- 1952 - Four red tail lights, one in each lower corner of each apron fitted.
- 1956 - White reflective tape fitted to aprons and bumpers.
- 1961 - Dash canopy lighting fitted with four white lights and two red tail lights fitted to trams. Initially the white strip was painted within the canopy, but this was later (1965) extended half way down the aprons.

**c) Tramcar Body Styles**

The museum electric tramcar fleet consists of the following body styles:

1. Single Truck - straight sill, open combination (No. 12)
2. Single Truck - drop ends, open California combination (No. 26)
3. Single Truck - drop ends, modified California combination (Nos. 11, 13, 14, 18, 27, 28, 32 & 33).
4. Single Truck, straight sill, closed cross bench (No. 21/22) known as a Sebastopol type.
5. Maximum Traction truck bogie (Eight wheels), drop end and centre combination (modified and unmodified) Nos. 38, 39, 40.
6. Equal wheel truck bogie (Eight wheels), drop centre combination (Nos. 661 & 671). Excludes other W class tramcars owned by VicTrack and stored offsite.
7. Single truck, straight sill, work tram (rail groove and scrubbing) (No. 8)

**Definitions:**

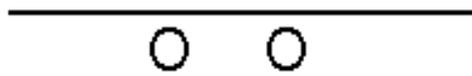
**Truck** – self-contained rectangular frame for the wheels, axles and motors detachable from the tram car. Four wheel trams have single trucks, eight wheel trams have two independent four wheel bogie trucks (or bogies).

**Single Truck** - four equal diameter wheels, two motored axles fixed to the underside of the tramcar.

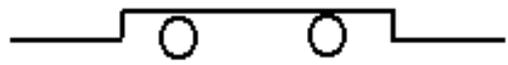
**Maximum Traction Truck** - Two large diameter wheels on one motored axle (Driving wheel) and two small diameter wheels on an un-motored axle, known as Pony wheels. The tram has only two motors.

**Equal Wheel truck** - four equal diameter wheels, on two motored axles, i.e., the tram has four motors.

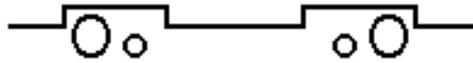
The following sketches give an outline of the floor shape of the tramcar.



**Single truck, straight sill**



**Single truck, drop ends**



**Bogie, drop ends & centre**  
"Maximum Traction"



**Bogie, drop centre**  
"Equal wheel"

#### 4.3 Current Status of the Tramcar Fleet

Table 1 illustrates the current status of the Museum's tramcar fleet. The classification is drawn from the Museum's Collection Policy and is presented in 'Date to Ballarat' order.

**TABLE 1**

<b>Car No.</b>	<b>First Ballarat Operator</b>	<b>Type</b>	<b>Classification</b>	<b>Date to Ballarat</b>	<b>Current Status</b>
1	BTCO	Horse car	Essential	1887	Reconstructed to original style, some minor work yet to be completed.
12	ESCo	Single Truck	Essential	1905	Undergoing Reconstruction. Conservation Plan prepared.
21	ESCo	Single Truck	To be considered	1913	Body would need very extensive work. Stored off site
22	ESCo	Single Truck	Essential	1913	Undergoing Reconstruction, Conservation Plan commenced.
26	ESCo	Single Truck	Essential	1930	Reconstructed to 1930 condition as a 'California combination' car, some minor work outstanding. In ESCo livery.
27	ESCo	Single Truck	Essential	1930	In service in 1935 livery of SEC.
28	ESCo	Single Truck	Desirable/ Essential?	1930	In service, ESCo livery.
18	ESCo	Single Truck	Desirable	1931	Owned by City of Ballarat. In service in early 1960's livery. Was acquired by Borough of Sebastopol from the SEC.
11	SEC	Single Truck	Desirable	1935	Missing motors, needs extensive body work, stored off site
32	SEC	Single Truck	Desirable	1935	Stored off site, needs extensive body and mechanical work.
33	SEC	Single Truck	Essential	1935	In service in late 1960's livery.
13	SEC	Single Truck	Desirable	1936	Owned by Lake Goldsmith. In service in late 1960's livery.
14	SEC	Single Truck	Desirable	1936	Owned by City of Ballarat. In service in late 1960's livery. Was acquired by the City of Ballarat from the SEC in 1971.
38	SEC	Max. traction bogie	Essential	1951	In service in early 1960's livery.
39	SEC	Max. traction bogie	Supplemental	1951	Converted to a display and souvenir sales centre. Display in early 1950's livery.
40	SEC	Max. traction bogie	Essential	1951	In service in 1960's livery. Official Last EC operated tram in Ballarat
8	<i>BTM</i>	<i>Single truck works car</i>	<i>Supplemental</i>	<i>1999</i>	<i>In service, repainted in MMTB Green and Cream.</i>
661	<i>BTPS</i>	<i>Equal wheel bogie</i>	<i>Supplemental</i>	<i>1976</i>	<i>In service in MMTB 1920's livery. Did not run in Ballarat under SEC.</i>
671	<i>BTPS</i>	<i>Equal wheel bogie</i>	<i>Supplemental</i>	<i>1976</i>	<i>In service in BTM created livery using an all over advertising livery. Did not run in Ballarat under SEC.</i>
924 865 998	<i>Not operated by the BTM</i>	<i>Equal wheel bogie</i>	<i>Supplemental</i>	<i>2010/11</i>	<i>Owned by VicTrack, currently allocated to BTM for possible future use. Ex Melbourne wide body sliding door tramcars. Stored undercover off site. Also located at offsite site in 2012 are two similar tramcars (951 and 908) which have been stripped for mechanical and other equipment. Body to disposed of at a suitable time.</i>

*(Trams acquired after closure of the SEC operated Ballarat tramway system in 1971 shown in italics)*

#### 4.4 General Policy Recommendation relative to Tramcar Fleet.

The following recommendations are made with regard to the policy.

- a) The trams be conserved in line with any written policy or planning document.
- b) The trams are accurately conserved to conform within an era of their previous working life in order to preserve Ballarat's street tramway history and maintain their cultural significance.
- c) Further research into the operating history of each tramcar to be carried out.
- d) Exhibition themes should be further developed. Each significant body configuration and livery should be presented where possible.
- e) That all physical and maintenance work on a tramcar is recorded and done in a manner that minimises the destruction or any significant alteration of past work, practices and/or styles.
- f) That where practicable, identical materials and work practices in securing these materials as used in their former operating days be followed in the future.
- g) Any use of new materials and methodologies that will alter the original characteristics of the tramcar are to be fully assessed prior to use. This does not apply to use of tools that are used to fix the materials into position.
- h) If there is consideration of an incorrect livery or modification to a tramcar that operated in Ballarat prior to 1971 for a commercial reason, then any work undertaken should be reversible in the future.<sup>3</sup>
- i) In the case of the tramcars that arrived in Ballarat after Sep. 1971, all modifications and applied liveries should be able to be reversed if required in the future.
- j) Repainting of tramcars that arrived after Sep. 1971 to an SEC or earlier style colour scheme is not considered to be good museum practice. Any proposal for this should be fully considered prior to implementation.
- k) Great care and full consideration shall be taken in any decision to duplicate or replicate any former Ballarat tram with another tramcar.<sup>4</sup>
- l) In any consideration for the modification of the operational equipment or bodies to the pre 1971 Ballarat trams in order to meet any regulatory standards that may apply, then any work undertaken should be reversible in the future. Consideration also should be given to conserving representative samples of each type to which no changes or minimal changes are made and that special operating conditions be applied to the tramcar/s.

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3. The Conversion of No. 39 as part of the depot display was done in manner that would make reconstruction in the future feasible. Major components have been stored under the body or at Bungaree. The body structure would need extensive work to make it available for service.

4. The only body type of ESCo tramcar the Museum does not have an example of is the Toastrack tramcars No. 19 and 20 of 1905. No remains of the these tramcars are known to exist. Any reconstruction of these trams in the future would be a total replication with some conjecture as to the nature of construction. The reuse of the number 19 or 20 would be acceptable provided it was displayed as a replica tram.

## **4.5 Infrastructure Items**

### **4.5.1 Presentation**

The presentation of the infrastructure in Wendouree Parade is to be kept as much as possible as the SEC operated tramway when finished in 1971, though the nature of the kerbing and gutters, parking and associated infrastructure has changed significantly since. These matters are outside our control. As the area is included within the Victorian Heritage Register, it is important that the presentation style is maintained. Changes may require a permit from Heritage Victoria.

### **4.5.2 Track**

Currently the track is based on rolled steel grooved rail of 1905 and 80lb/yard rail rolled for tram wheels with a 30lb/yard bolt on check of the 1930's laid on timber sleepers and filled with compacted stone to enable a tar seal or bituminous concrete finish. The 1905 rail is in places worn and commencing to become crystalline, particularly at the welded joints. The BTM has been repairing broken joints with grooved or non-grooved rail. Essential to keep a bitumen paved (not concrete) finish. It would be ideal during any relay of track to maintain a timber sleepered track, however this may not be cost effective – and significant works could be subject to a permit.

All sets of points are of the single blade type and these should be maintained if renewals are undertaken in particular at the crossing loop.

### **4.5.3 Poles**

Traditionally the tramway overhead support poles (owned by Powercor or BTM) have been timber, either round or dressed octagonal posts. Bracket arms are supported from the posts and signs are attached or painted onto the poles. It is considered important that the wooden pole infrastructure is maintained in the same style using either type of wooden pole.

### **4.5.4 Overhead**

The Significance Assessment of the BTM Collection identified the use of double trolley wire in museums on single line sections of track is relatively rare around the world. This was the SEC method of construction. The overhead style of suspending the copper trolley wire from bracket arms, brass fittings, hangers, span wire, egg insulators is to be maintained. More modern (post 1970's) style of hangers, ears, larger insulators and parafil rope are not to be used.

The wire rope used in the construction was a seven strand mild steel wire that could be terminated by hand twisting each strand of the wire around the full wire. This type of wire is no longer commercially available and the replacement high tensile wire cannot be finished in such a method but requires a power pressed clip to be placed around both wires. Considered, that as this is a small visual fitting, that this is acceptable for use.

The bracket arms were painted by the SEC a bright orange colour. This has been

replicated by the BTM in a number of replacement bracket arms. It was agreed with the City of Ballarat in 2010 to undertake a program (subject to funding being available) of painting all the bracket arms a dark red colour to replicate other structures in the park. At the same time, all the missing scroll work on the bracket arms would be replaced. The Museum has identified that some new materials would be needed to enable this to occur. It is considered ideal that this work be undertaken in the future – subject to resources.

#### **4.5.5 Signage at Tram stops**

The SEC primarily indicated tram stops by painting the adjacent poles with red and white stripes around the pole itself. They also used some enamelled “Hail Cars Here”. At this time, the Museum has used only the painted stripes around the poles to indicate either request or compulsory stops. This practice should be continued.

#### **4.5.6 Other Items**

Other items to be considered by the Museum as part of the tramway infrastructure are:

- a. Tram Shelters – style to be maintained of the SEC type wooden shelters in consultation with the City of Ballarat
- b. Road markings – to indicate loops and cut off marks for insulators in the overhead – small road markings. Note only large painted “X”s were used by the SEC to indicate loops, cut off marks were not used by the SEC, but have been used by the BTM to assist drivers.
- c. Tramway Signals – Forest City Signal system – would be ideal if these can be replicated.
- d. Interpretative signs – to be considered in conjunction with the City of Ballarat.

## **5.0 Tramcar Presentation Plan**

### **5.1 Presentation styles and colour schemes of the Tramcars**

The following presentation styles shown in Table 2 and colour schemes have been adopted (subject to Board approval). Many of the trams, e.g. 26 and 27 have already had a presentation style and livery applied previous to the preparation of this document. These are, at this time, generally treated as being a given. The reasons given in the Comments column is subject to further research, which could alter the result.

**TABLE 2**

<b>No.</b>	<b>Presentation Style</b>	<b>Comments - see also notes on following page</b>
1	BTCO original colours	As is. The tramcar was the first tram in Ballarat, and appears from photographs to have had a special colour scheme. The colours have been based on research and rubbing back the panels found on the tram. Further work to be done.
11	SEC 1950's (no dash canopy lights?) (stored offsite)	Can only be painted in SEC colours, as it came after the SEC take over in 1934. Interior has been painted pink and green, as was done to only four trams (11,21,39 and 42) by the SEC in the 1950?'s. Suggest paint exterior in the colour scheme of the time of the painting of the interior. A long term project.
12	ESCo original colours	See Conservation Plan for this tram
13	SEC as completed	As is
14	SEC as completed	As is.
18	SEC mid to late 1950's without extended white dash.	As is. Represents the mid-point in the fitting of dash canopy lights
22	ESCo as in 1913	See notes, Conservation Plan to be prepared
26	ESCo/SEC Red and yellow	As is, some further work to be done, see notes.
27	SEC 1935 green and yellow	As is.
28	ESCo/SEC red and cream in period of panelling in the drop ends.	Transition between 26 and 27 with closed ends, but early colour scheme. Note the body/door details are not correct – had smaller doors originally.
32	MMTB (No. 186)	Long term project - California combination tram along with 26? Stored off site.
33	SEC as finished	As is.
38	SEC mid to late 1950's without extended white dash.	As is. Represents the mid point in the fitting of dash canopy lights
39	SEC pre 1956	As is (check tail lights and reflective strips)
40	SEC as finished	As is, due to last official SEC operated tramcar status
8	MMTB Green and Cream	See notes.
661	Keep as is for present	See notes
671	Corporate Colour scheme	See notes

## **5.2 Tramcar Notes**

**No. 1** - Some minor work to be completed; bell cords, signs, bells, etc. and numbers should be in gold leaf. This tramcar has been nominated for inclusion on the Victorian Heritage Register.

**No. 11** - This tram is one of a few with a painted Parisian Tan and Winter Green interior. It is suggested to keep this and it does show one attempt at improving the appearance of the tramcar interiors for the public benefit. Interior to be repainted as present. The tram is fitted with wooden exterior panels as built; suggestion is to rub down to check on 1935 colours and lining arrangement. It is the only Ex MMTB tram to survive with original timber panels. As a result it is important evidence of earlier times. Replacement of these with steel panels may be necessary for continued operation. The removed wooden panels are to be stored to enable the conservation of the panels. Suggestion is to paint the tram exterior in the colour scheme that it had at the time of the interior being painted. Other fittings etc. would follow.

**No. 12** - See separate Conservation Plan for details

**No. 13** - Tramcar to be repainted in matching SEC dark green. Last repainted 1990, work commenced to repaint mid-2012.

**No. 14** - Tramcar repainted using traditional methods. Last repainted 1986.

**No. 18** - Tramcar due for a repaint and extensive mechanical and electrical work following its 100<sup>th</sup> Anniversary in 2013. Last repainted 1984.

**No. 22** - Subject to the preparation of Conservation Plan similar to that of No. 12.

**No. 26** - Tram colours proposed to remain basically as is unless further information comes to light. There is a need to review cab doors and windshields as they were supplied in Melbourne and the tram may have run in Ballarat with them. Also was gold leaf lining to the ceilings applied to these trams when they came from Melbourne? Further work to detail the tram required. Last repainted 1987.

**No. 27** – Tramcar repainted using traditional methods and colour matched to a “Pay as you enter” sign in the BTM collection of the era Body style correct. Last repainted 2010.

**No. 28** - Repainting of the tramcar into the ESCo colour scheme completed 2002. The tramcar body is not correct for its era as the first internal pillars from each end were relocated when the door configuration was altered. Converting the tram back to the correct pillar locations for its paint colour scheme would result in operational issues in Wendouree Parade. Determined to leave as is, but provide notes as to its body configuration. Last repainted 2002.

**No. 32** - The popularity with our passengers of tram 26 for both its colour scheme and body design can hardly be disputed. A strong case could be made for another conversion to an open ended configuration. However 32 did not arrive in Ballarat until 1935, and would probably have been converted directly to the current enclosed design (Ballarat SEC layout). One possibility is to convert it to back to a strict California combination, paint it in M&MTB colours and this could be a commercially viable option. This car requires a reasonable amount of body and mechanical work to return to service, but the structural condition is sound. Would be a long term project, so option to change direction remain. It is understood that the tram did operate in Ballarat in the proposed configuration for a short time prior to repainting. This would give two open California Combinations for summer work. Another possibility is 1930's SEC colours to go with 27.

**No. 33** - Tramcar repainted in 2012 – Green colour paint sprayed on rather than brush painting – pin-striping materials applied rather brush painting. Twin Lakes sign to be fitted to one end. Was the last SEC operated tram to be repainted by the BTM

**No. 38** - As for 18. Last repainted 1978.

**No. 39** - Check to be made as to actual finish re tail lights, reflective strips etc.

**No. 40** - Last official Ballarat tram in service. Tramcar repainted using traditional methods. Last repainted 2006.

**No. 661** - The 'as painted' (1983) condition of the M&MTB chocolate and cream is not historically correct for the tram. Such a livery decision to do this would not probably be taken today. Question is what livery to paint the tram. The car body needs some repair work as a result of an accident while in Melbourne some years ago. Some suggestions are:

- a) Leave as is.
- b) Repaint in a historically correct M&MTB livery.
- c) Our own corporate colour or all over advertising scheme.
- d) An all-over scheme designed by and done by a local artist or art students.
- e) Carry 'bolt-on' art works by local artists etc. Holes for this on the major side panel exist.

**Recommendation** at the time of preparation of this document is options a) and e). Note this is not an important priority project. The tramcar could do with body repairs and minor patching works.

**No. 671** - At the time of the initial policy preparation in 1995, the tram was prepared ready to be repainted in M&MTB 1950's livery. Analysis showed that the problems were similar to that 661 and similar suggestions applied except for a). These are:

- a) Not applicable
- b) Repaint in a historically correct M&MTB livery.
- c) Repaint in our own corporate colour or all over advertising scheme.
- d) An all-over scheme designed by and done by a local artist or art students.
- e) Carry 'bolt-on' art works by local artists etc. New holes for this purpose would be needed.

**Recommendation** during the finalisation of this document, was that option c) be adopted (Sep. 1995 Board meeting - item 7A, reflecting the City of Ballarat corporate colours.) This decision has subsequently been implemented, and the tram was launched on 4.12.95. It ran in this colour scheme until 2009 when it was repainted in an all-over livery for Pipers by the Lake. This contract was renewed in 2012 for a further three years.

**Scrubber Tram No. 8** – Ex MMTB/PTC No. 8W, originally known as MMTB No. 8. Following consideration, it was determined to repaint the tram back to the MMTB Green and cream colour scheme, but leaving the most of the 1961 strengthening modifications in position. Some additional equipment has been added to the tram to enable track maintenance work in Wendouree Parade.

### 5.3 Timescale Comparison for the Tramcar Fleet

The following list based on table 2 shows the various colour schemes over the years and how the trams would represent this.

BTCO - (1887 - 1905) - 1

ESCo colours schemes (1905 - 1935) - 12, 22, 26 and 28

SEC first colours (1935 - 1945) - 27

SEC second colours, (1945 - 60) pre dash canopy - 11 and 39

SEC small white dash - (1960 - 65) - 18, 38

SEC as finished (1965-71) - 13, 14, 33 and 40

## 6.0 Conservation Work Principles

### 6.1 Background

The physical conservation work on the Museum's tramcars and infrastructure in Wendouree Parade involves a number of aspects and these often result in compromises to achieve the final results. Some of these are:

- safety of the public and staff
- the use of the tramway leads to wear and deterioration in the various components, with the need to replace them, resulting in the loss of evidence of past practices
- better materials and products to protect, for example, tram roofs, than existed in their operational days
- that the tramcars have had an operating life of many years, including accidents, resulting in different repair techniques being adopted by workers, some of whose techniques were of a low standard
- work carried out by the museum in the past has not always been of a good standard and with some doubtful conservation practices
- the desire to have a first class job at the end of the conservation work can lead to over embellishment and sometimes falsification of the finished product
- the person undertaking the work has their own ideas, skills and principles that will affect the final product
- available financial and labour resources.

The proceedings of a seminar *Heritage Artefacts, hands on, hands off?* is an excellent publication that addresses many of the conservation issues. Some relevant quotations from a paper by Graham Clegg of Powerhouse Museum are:

- *'Museums are in the dual business of preserving information and telling the truth.'*
- *'An object's manufacturing history is told in its materials and construction methods. Its working story and history are contained in its degraded surfaces, its wear patterns, its modifications and repairs and each are as much as document as are words on paper.'*
- *'..the unjustified polishing of components and application of high gloss paint systems to what were once vehicles and machinery known for their poor or utilitarian finish.'*
- *'..we must ensure that in either conservation, restoration, or actual working, we preserve what information the object has to convey. To do so otherwise, either by over-restoration or embellishment, is to alter history, to tell lies to our visitors, and to falsify objects for future generations.'*

In many projects, people often state 'it has been restored to original condition!'. An impossibility for a 75+ year old tramcar if one takes that statement literally. What is original?

## **6.2 Undertaking the Conservation Work**

It is not the purpose of this document to set out a full set of rules of how work should be undertaken. Some guiding principles to work by and to be taken into consideration are:

1. Understand the object or piece you are working upon. What is its significance in the overall object and its functions? Has it safety problems? In other words, think before undertaking work and take the appropriate steps.
2. Do not alter the final appearance of an object unless absolutely essential. For example do not use TEK screws in work, i.e. keep to the correct materials and fastenings and the use of enamel paints, not acrylics.
3. Keep records of what you have done, especially if any work alters something. If parts are removed or scrapped due to wear etc, see whether they should be stored as archives for reference in the future.
4. It is not only the tramcars that are being conserved but their technology. If you add something to the object to strengthen it, or make a change to the way it operates, make sure that it can be differentiated as such in the future and has been reviewed as safe to use.
5. Be familiar with the appropriate methods, materials and use them to the best of your ability.
6. Talk to others with appropriate experience if you are uncertain on what you are doing or just to confirm that you are doing the right thing. Find out what other tramway museums have done about the problem.
7. If an object has safety problems, undertake a risk assessment and make appropriate decisions, for example replacement of asbestos, use of safety glass is virtually mandatory, but some items though they would not meet today's safety standards can be acceptable if appropriate procedures and protective measures are made. An example is the use of air-brakes on a tram that was not fitted with them.
8. Don't over embellish.
9. If a method of work can be improved, or better products are available to do something, check that it is suitable and not likely to result in more extensive deterioration in the future.
10. Keep all work faithful to the object's history and cause.
11. Paint colour matching - keep samples of all paint coatings on the trams, as a reference for future work.
12. Consider collecting original parts or samples that date from the builder, the Melbourne operators or the SEC.

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## Abbreviations

BTPS - Ballarat Tramway Preservation Society Ltd.  
BTM - Ballarat Tramway Museum Inc., successor to BTPS 1995.  
BTCo - Ballarat Tramway Co.  
ESCo - Electric Supply Co. of Victoria  
HTT - Hawthorn Tramway Trust  
Lake Goldsmith - Lake Goldsmith Steam Preservation Co-op  
M&MTB - Melbourne and Metropolitan Tramways Board  
SEC - State Electricity Commission of Victoria

## Appendices

1. FEDECRAIL Riga Charter 2005.

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## **Appendix – Fedecrail Riga Charter:**

### **Purpose**

The Riga Charter is a statement of principles which guide the conservation, restoration, maintenance and repair and use of historic railway equipment, which is being operated. It is hoped that this will help our members make wise decisions.

### **Definitions**

Heritage Railways referred to in this Charter, may also include historic or preserved railways, museum railways and tramways, working railway and tram museums and tourist railways, and may extend to heritage trains operating on the national network and other railways.

Railway Equipment referred to in this Charter may include buildings or infrastructure which form part of the railway ensemble.

Preservation is the process of keeping an object safe from harm and decomposition, by maintaining it properly so that its condition, quality and memory is retained.

Conservation is the process of stabilising the condition of an object without compromising the historical or material evidence in any way.

Restoration is the process of repairing or replacing missing parts in an attempt to regain an earlier state of the object. The restoration may increase the strength of the object before work started, and may generally go further than conservation. It should neither be invisible or glaringly obvious.

Repair is the process of adjustment or replacement of the components. The specified standard of mechanical condition is achieved irrespective of the historic integrity of parts that may be altered or discarded.

#### **Article 1**

Scientific and technical skills, together with the facilities needed to preserve and operate historic railway equipment, within a culture of safety, should be used to safeguard railway heritage.

#### **Article 2**

The aim of preserving and restoring historic railway items and associated working practices is to safeguard them, whether they are significant technological artefacts, evidence for transport history or a means of perpetuating traditional skills.

#### **Article 3**

Maintenance of all aspects of their equipment, and operation on a regular basis is essential for the survival of heritage railways. Operating historic and valuable railway equipment with traditional operating procedures, and presenting it to the public, is an important means of interpreting that material.

#### Article 4

Identifying socially useful purposes for historic railway items will help facilitate their preservation, but such use should involve the minimum change necessary, and such changes should be fully reversible.

#### Article 5

A heritage railway should reflect not only the importance of its own role as a transport system, but also when appropriate, its own historic origins and its impact on the community.

#### Article 6

The process of restoration is a highly specialised operation. Its aim is to preserve and reveal the aesthetic, functional and historic value of traditional railway equipment. It should be based on respect and an understanding wherever possible of the original designs and specifications.

#### Article 7

The original or historically correct materials and techniques should be used in the conservation of historic railway items, unless they can no longer be adopted for reasons of safety, legislation or availability. In such cases appropriate contemporary substitutes for such materials or techniques should be used.

#### Article 8

The restoration of a piece of historic railway equipment does not require that it must be restored to its original as built state. Some equipment acquires its historic importance later on in its working life. Restoration to any period should be executed only after thorough consideration of historic records, and available documentation covering the chosen period, after which a restoration plan should be written and adopted. Material that is replaced with new should be readily identified as such with a simple permanent marking system.

#### Article 9

Added mandatory safety equipment should if possible blend harmoniously with the conserved or restored item but the fact that it is an addition or alteration to the original make-up of the item should be clearly indicated.

#### Article 10

Any other necessary later modifications to the item that are introduced for whatever reason should be as sympathetic as possible to the make-up and appearance of the original item. Ideally any such modification should be reversible and any significant original parts removed should be retained for possible future re-use.

#### Article 11

Every stage in the conservation or restoration work on a historic railway item should be systematically planned and recorded. The resultant record of these processes retained for a minimum of the life of the item.

#### Article 12

All bodies involved in the repair, restoration, maintenance, conservation and operation of heritage railways and railway equipment, must make proper arrangements for the conservation of their records and archives.