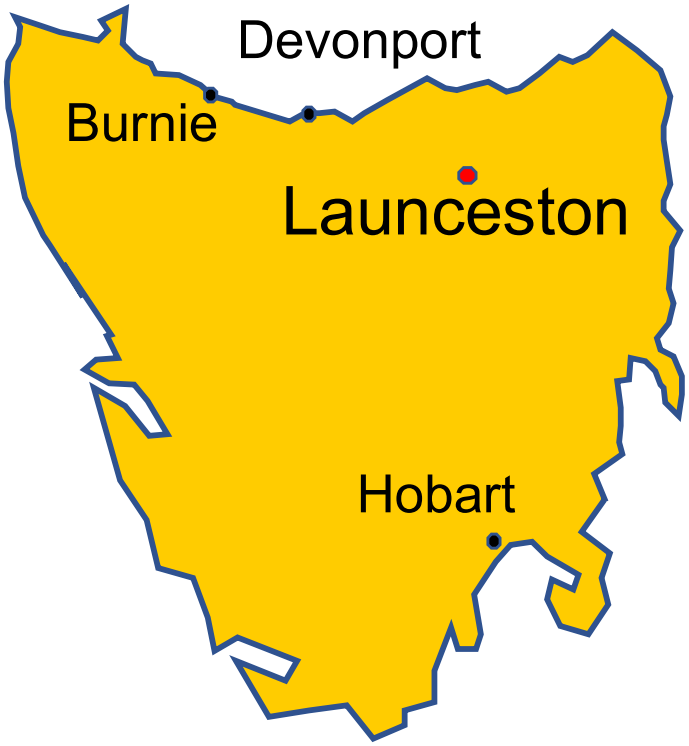
COTMA CONFERENCE 2023



TRACKWORK REHABILITATION AT THE LAUNCESTON TRAMWAY MUSEUM, TASMANIA

Andrew MacKenzie and Tony Weston,
Launceston Tramway Museum Society



- Launceston is the second city in the state of Tasmania after the capital Hobart.
- Electric trams were introduced to Hobart in 1893, one of the earliest electric tram systems in Australia.
- Electric trams were introduced by the City of Launceston in 1911, and this was one of the last electric tram systems to be opened in Australia, prior the recent tramway renaissance.
- Both systems used 1,067 mm (3 ft 6 in) gauge tracks.



Spurling Postcard, Michael Leslie collection

- Tram No 12, one of 14 single-truck trams constructed locally by J&T Gunn, at the corner of Brisbane and Charles Streets.
- Until 1927 another 12 similar single-truck trams were built by the Launceston Municipal Tramways at the Inveresk depot and workshops.

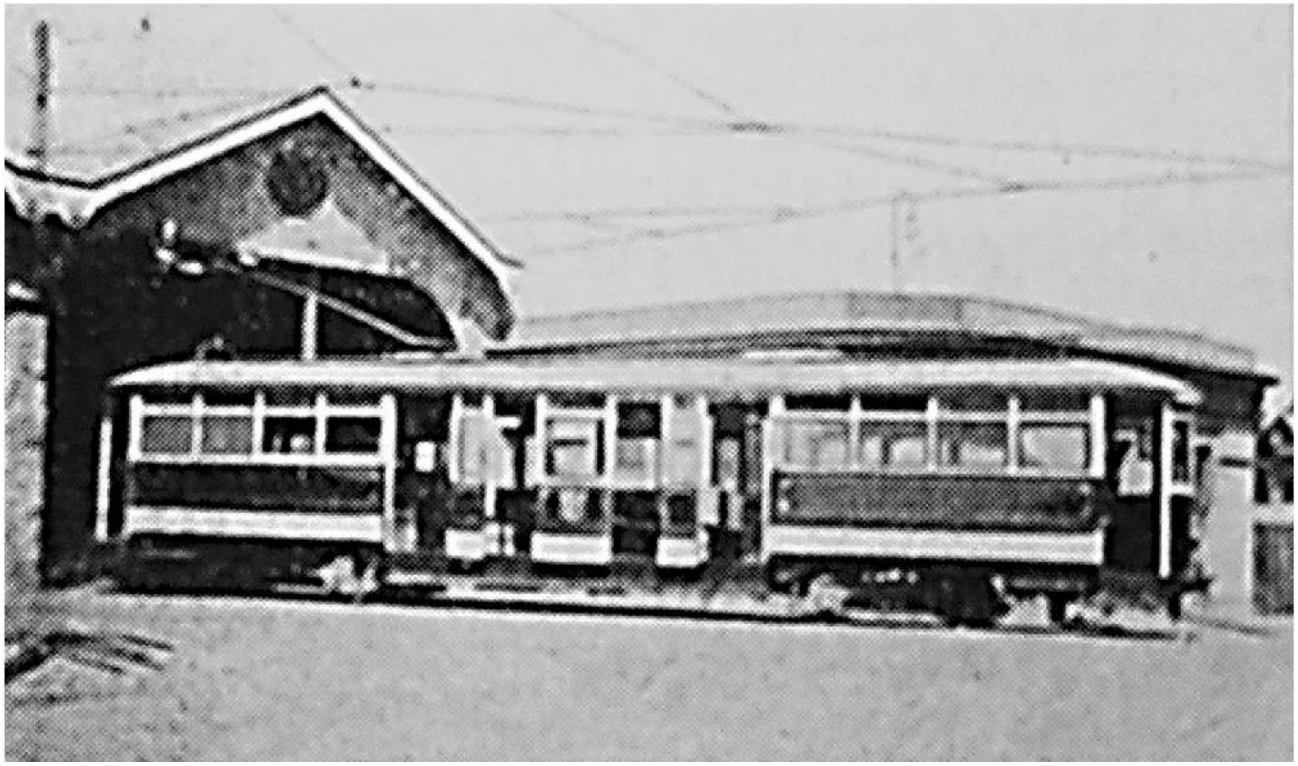


- Exactly one hundred years after the opening in August 1911, tram No 1, partially restored at the Launceston Tramway Museum was back at the city centre.
- It has now been almost fully restored, with only the fitting of controllers and cables required.



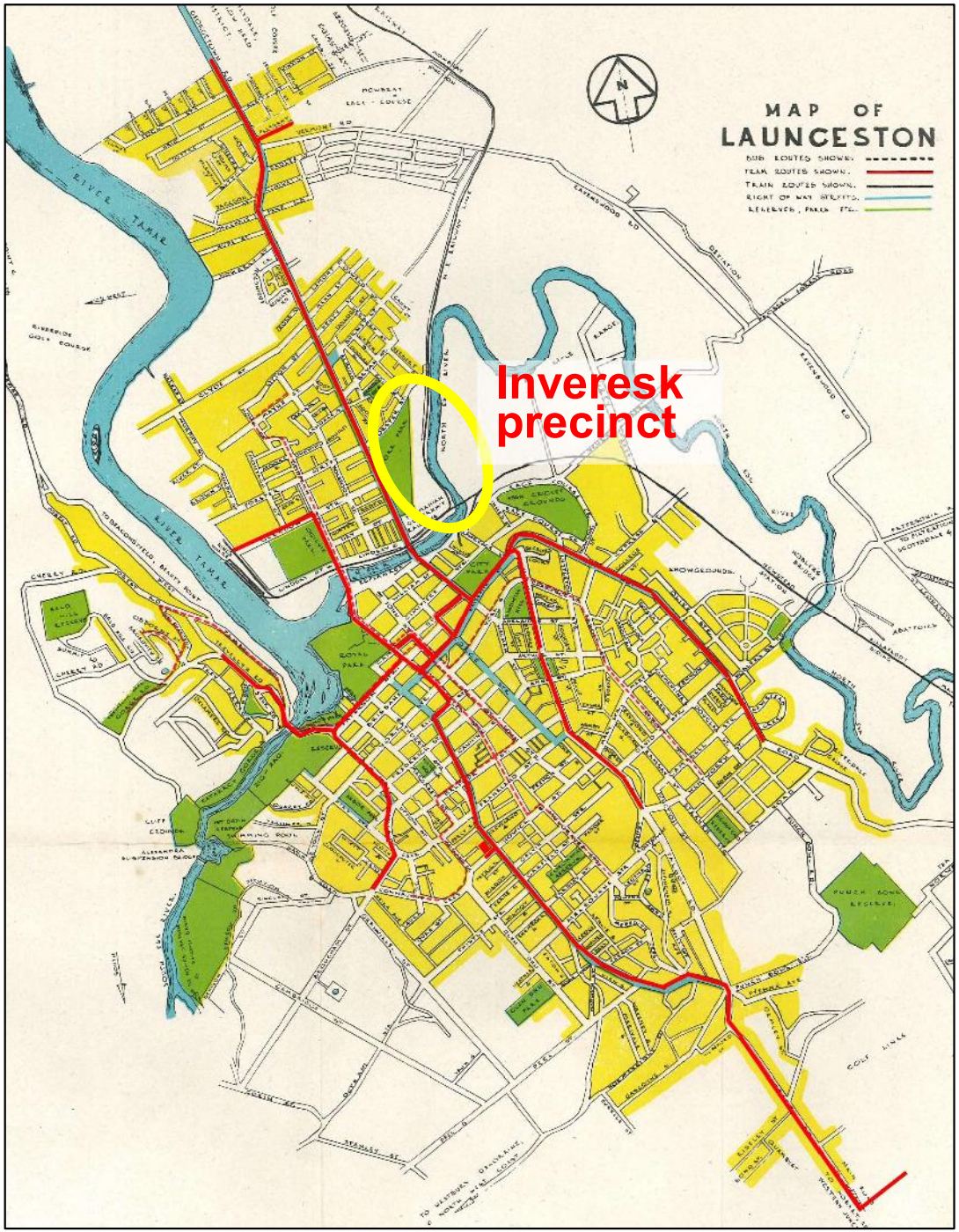
Melbourne Tram Museum collection

- The LMT constructed three drop-centre bogie trams with air brakes, Nos 27-29, which entered service in 1930.
- Launceston Tramway Museum tram No 29 is shown in the Launceston city centre.



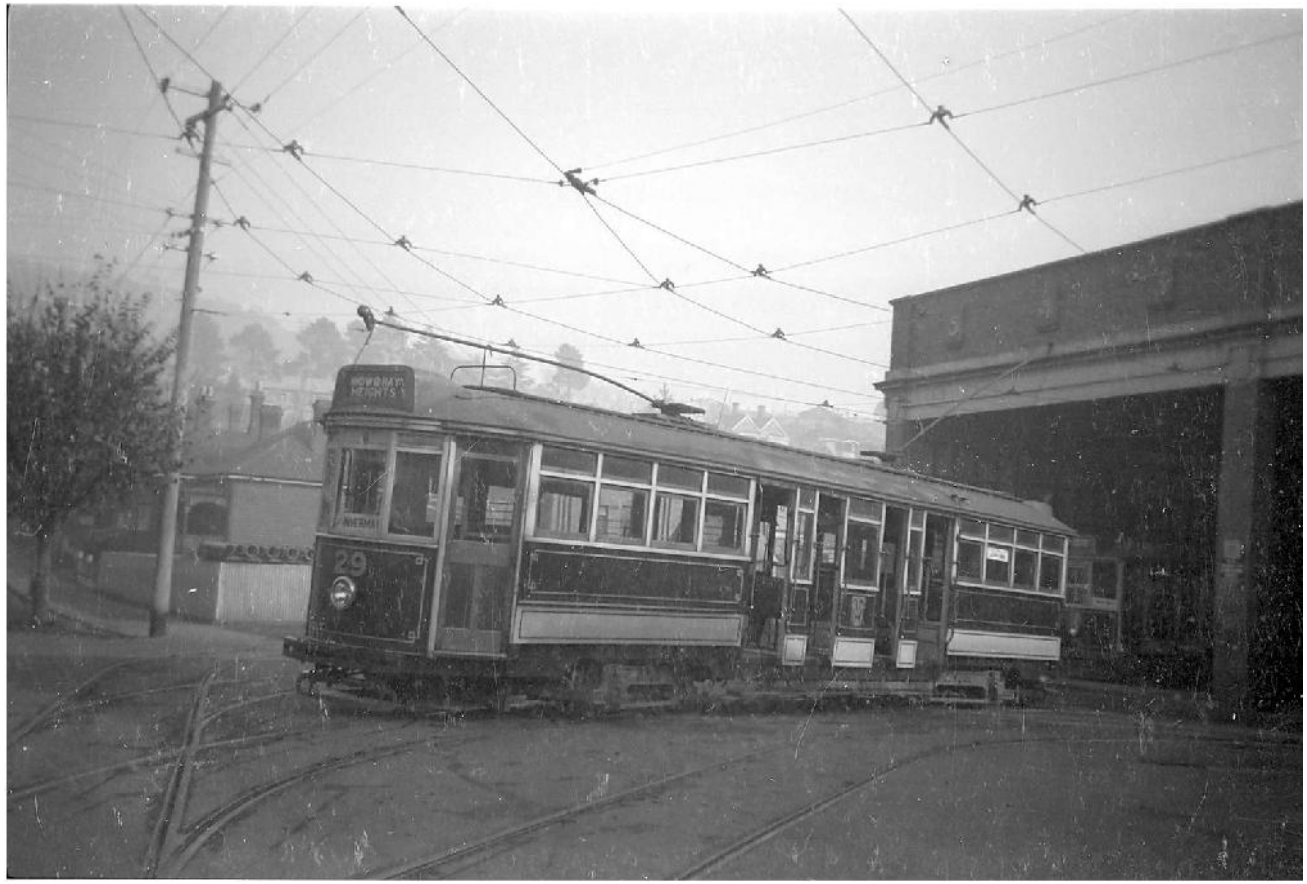
The Tramway Record 1931

- One of the drop-centre bogie cars outside the Inveresk depot.
- The Inveresk depot was replaced by the Howick Street depot in 1932 after a major flood in 1929.
- Major railway workshops had been established by the Tasmanian Government Railways (TGR) close to the depot site in 1922.



Tourist brochure from the 1940s

- Map of Launceston in the 1940s showing the tram lines in red, and the extent of the built up urban area in yellow.
- The site of the Launceston Tramway Museum in the Inveresk precinct is highlighted in bright yellow.



Melbourne Tram Museum collection

- Tram No 29 at the Howick Street depot.
- The last trams ran in 1952 and trolleybuses eventually replaced trams on most routes.
- The trolleybuses were replaced by petrol buses in 1968



- In 2023 Metro Tasmania provides public transport by bus in Launceston, as well as Hobart and Burnie.
- Metro uses the former tram and trolleybus Howick Street depot.
- Remaining tram tracks are visible at the front of the depot.



- The former Inveresk depot has survived to the present day, although with some extensions
- A portion is leased to the Launceston Tramway Museum Society by the City of Launceston as a museum and workshop.



- In 1993 Marcus Hall was inspired to restore bogie tram No 29 after finding its body on a farm in north-west Tasmania.
- The Launceston Tramway Museum Society was founded in 1995.
- The body of the tram was moved to the former railway workshops at Inveresk for restoration, and then to the former Inveresk tram depot nearby.



- The Launceston Tramway Museum was officially opened in September 2006.
- It has a collection of single-truck trams Nos 1, 8, 23 and 26, and bogie tram No 29. which is currently operating.
- The museum is currently open from Tuesday to Saturday inclusive.



- The exhibit “29 stories” in the museum explains the individual specifications and histories of Launceston trams.
- The histories include further use after sale of the bodies, and preservation for some.

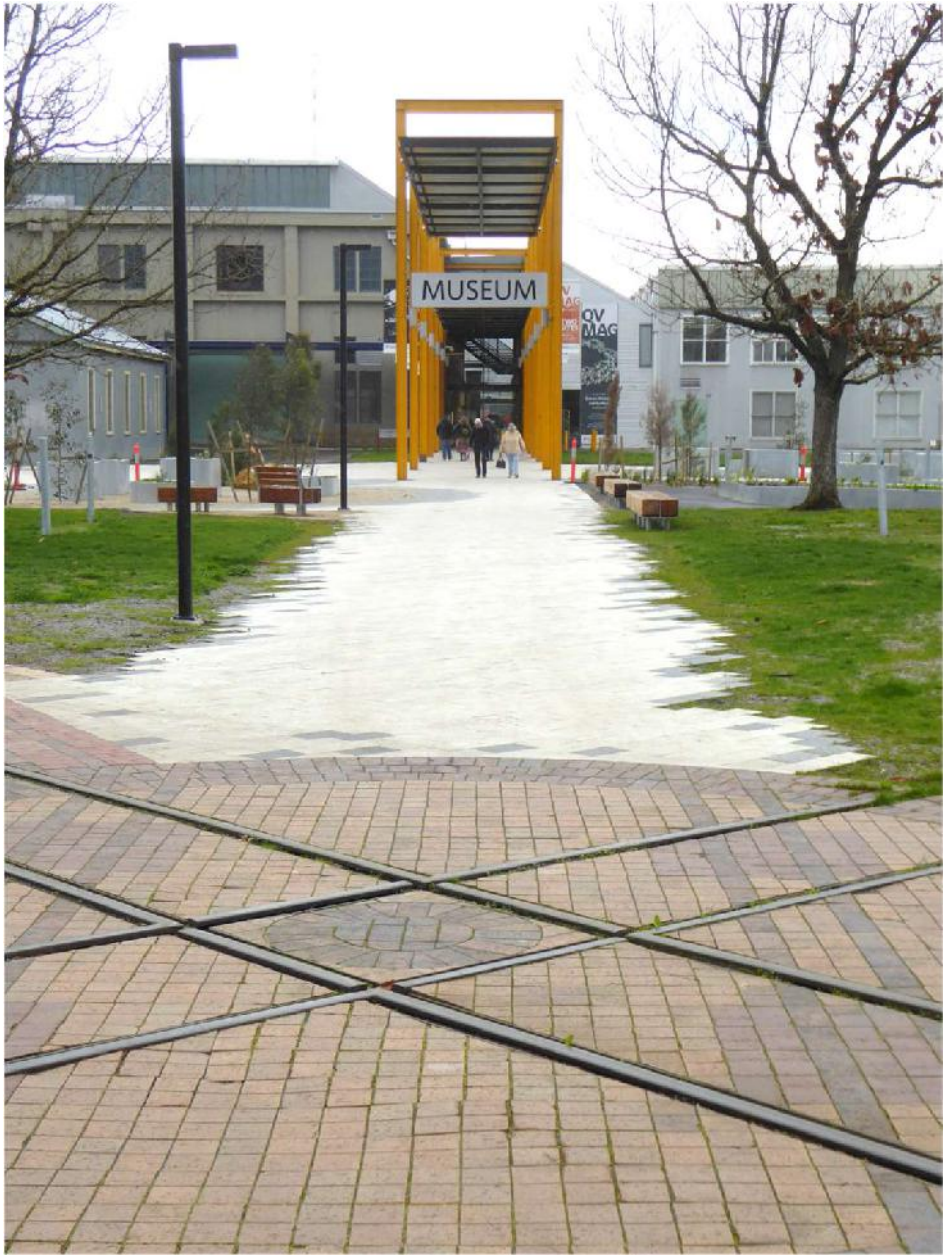


Photo: Brad Bale

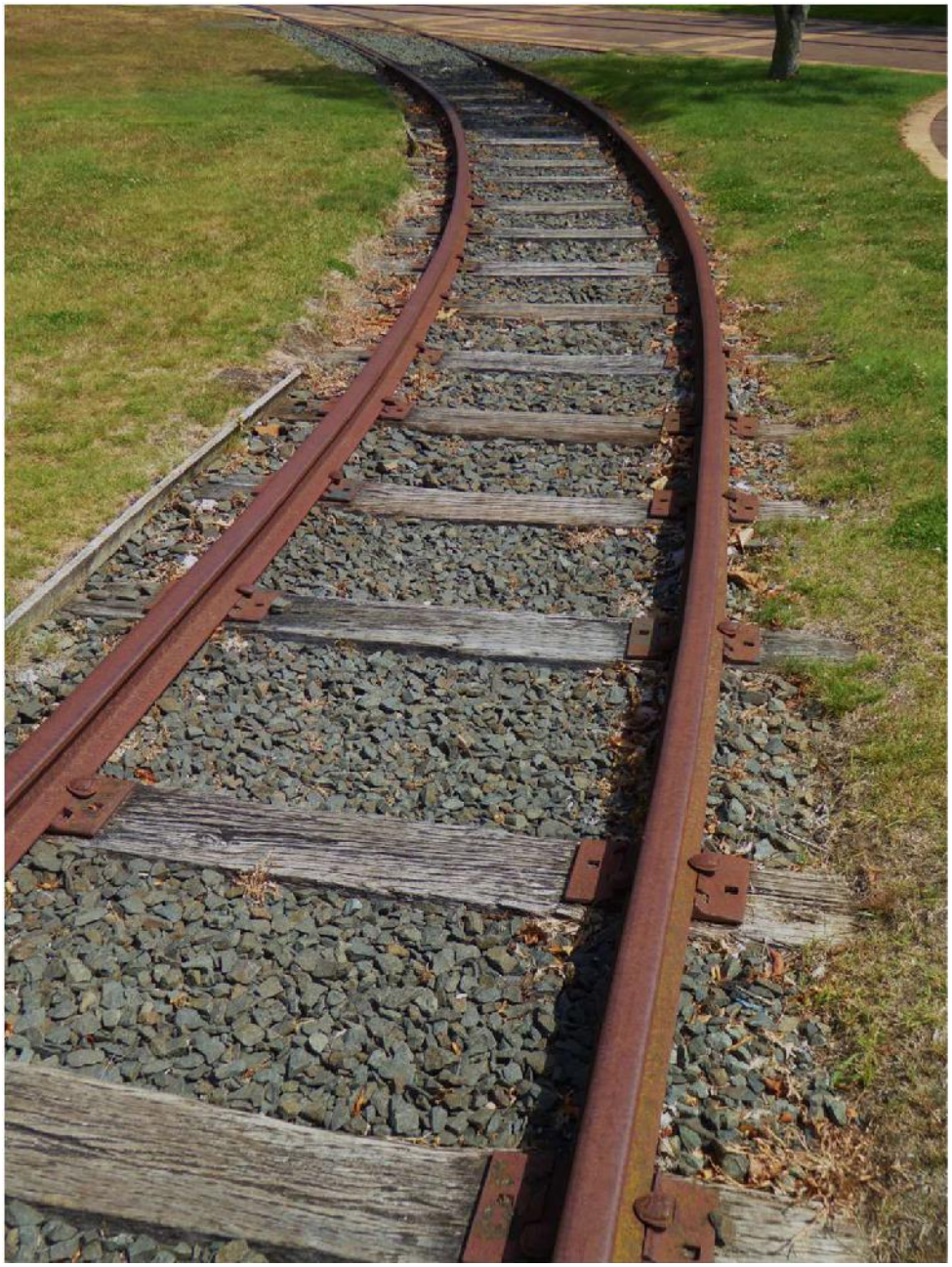
- The museum tramway does not have overhead wiring and instead a mobile generator is towed by tram No 29.
- A lead-acid battery trolley is proposed to replace the generator.
- Launceston has very occasional snowfalls.



- Plan of the 1.6 km of track currently used by the Launceston Tramway Museum.
- This consists of the spine and the back track.
- It is 1,067 mm (3 ft 6 in) gauge laid with 31 kg/m (60 lb/yard) rail.
- Separate portions of the track are now owned by the City of Launceston and the University of Tasmania (UTas).
- There are neighbouring educational, cultural and sporting facilities.



- The large former Tasmanian Government Railway workshops near the tramway museum now house the museum section of the Queen Victoria Museum and Art Gallery.
- This is the largest regional museum in Australia.
- It was opened in 2002 following redevelopment commenced in 1998.



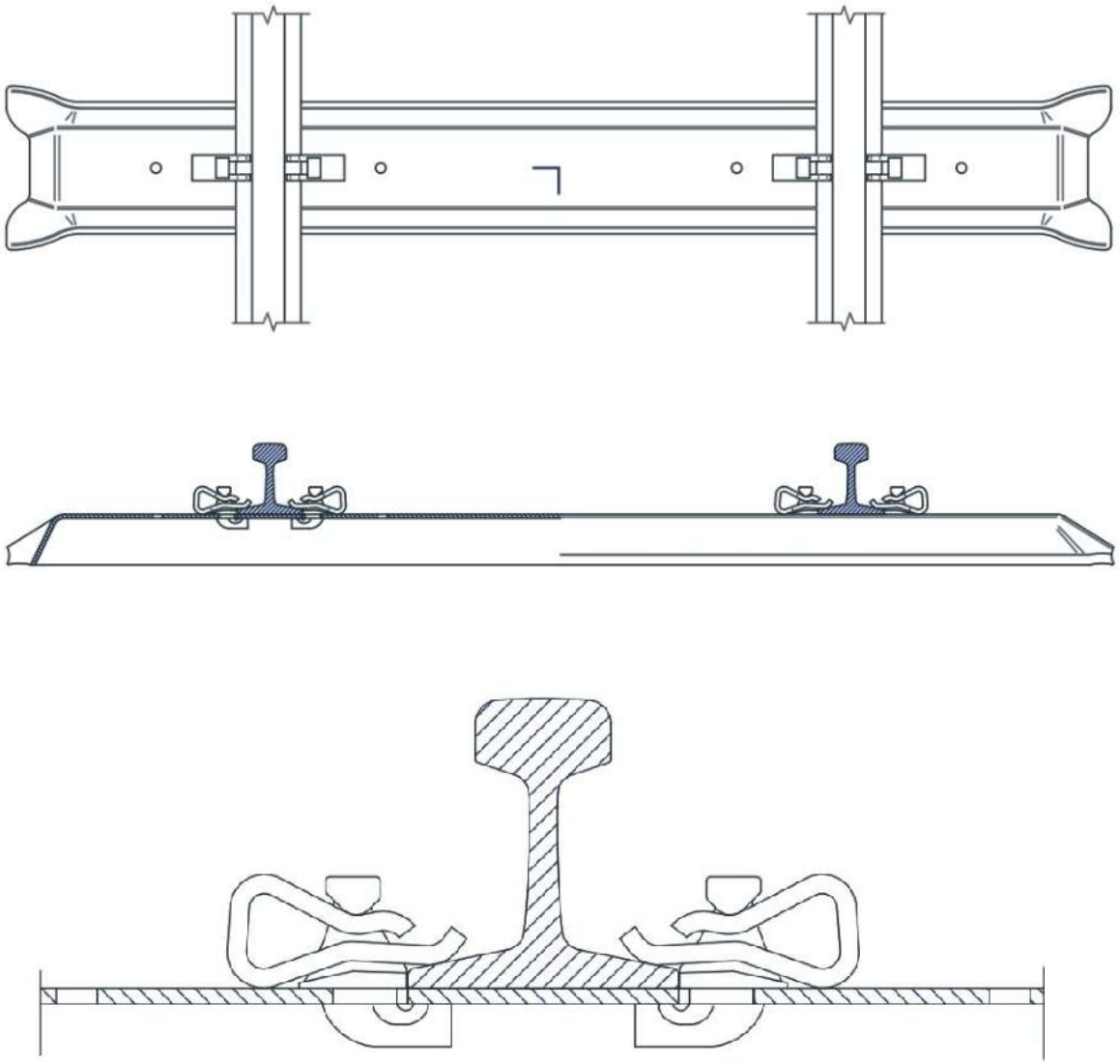
- The back track was completely equipped with timber sleepers in various states of repair.
- This was either on ballast or on ballast under asphalt in roadways or car parks.
- Replacement of individual sleepers or complete replacement of all sleepers were considered.





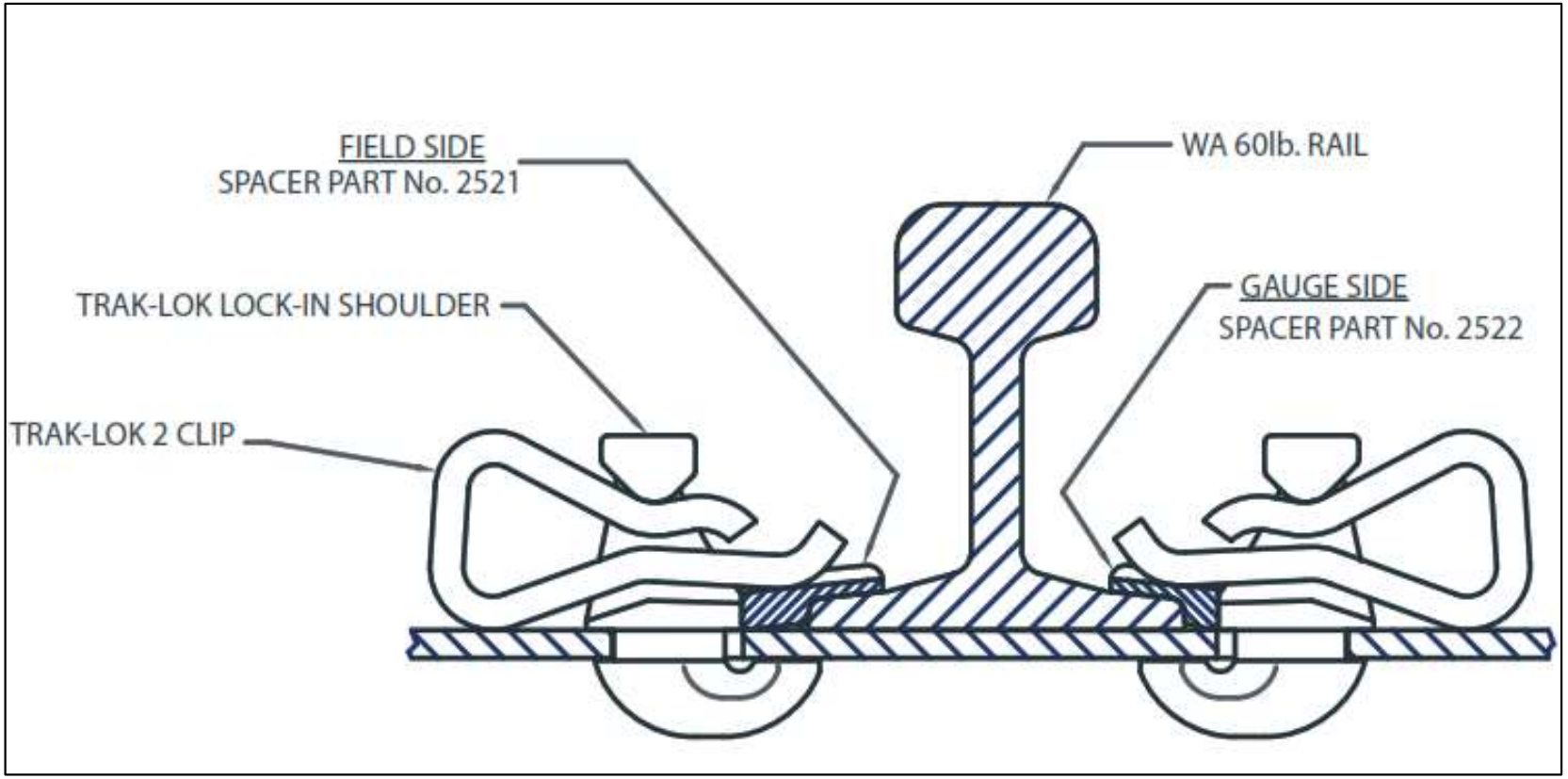
Photo: Graeme Davis

- The initial work on a portion of the back track (highlighted in yellow) in 2016 consisted of replacing every third timber sleeper with steel.
- These were purchased from OneSteel (later Liberty) using funds from the Philip Archer Museums Trust.
- This trust generously supports the restoration and maintenance of wheeled transport by the Queen Victoria Museum and Art Gallery and the Launceston Tramway Museum.



- Details of the steel sleeper and clip arrangement for the non-insulated Liberty (formerly OneSteel) Trak-Lok system.
- There is also deep end spade style of sleeper.
- The Launceston Tramway Museum track has both styles of sleeper .

Drawings: Liberty Rail Track Material Catalogue 2022, with permission



Drawing: Liberty Rail Track Material Catalogue 2022, with permission

- Details of the Trak-Lok components on either side of the rail.
- Lock in shoulders connecting with underside of the sleeper.
- Spacers to adjust for the rail profile and where necessary an increase in gauge on curves.
- Clips to lock-in the complete assembly.



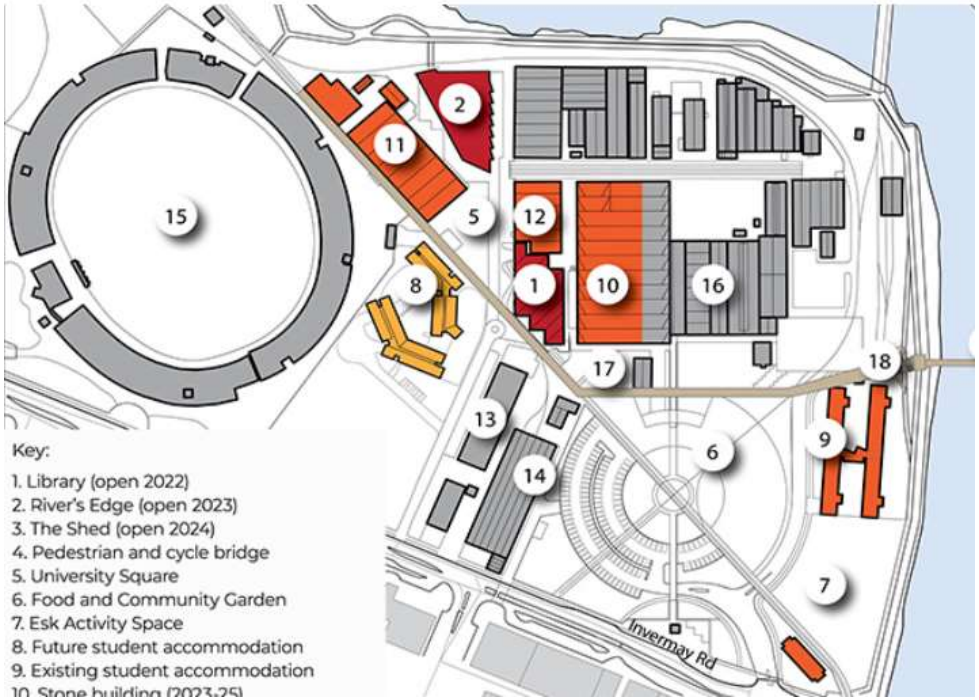
Photo: Graeme Davis

- With the availability of used steel sleepers donated by the Tasmanian Railway (TasRail) sections of track were subsequently removed and all the timber sleepers replaced.
- Local contractor Killa Earthworx was used on this and subsequent work.



Photo: Graeme Davis

- Sections of track were laid on a compacted sub-base and new 50 mm blue metal ballast.



Plan: University of Tasmania, with permission

- In 2017 the Commonwealth Government, University of Tasmania, (UTas), Tasmania Government and City of Launceston released a plan to move the northern campus of the University of Tasmania at Newnham to the Inveresk precinct following an earlier transfer of some faculties.
- This prompted the LTMS to accelerate the plans for trackwork rehabilitation in close co-operation with UTas and the various UTas contractors.





- The northern end of the spine (highlighted in yellow) at the turntable was original TGR track with wooden sleepers covered by asphalt for the use as a car park.
- The timber sleepers had started to rot and this section of track was condemned.



Photo: Graeme Davis

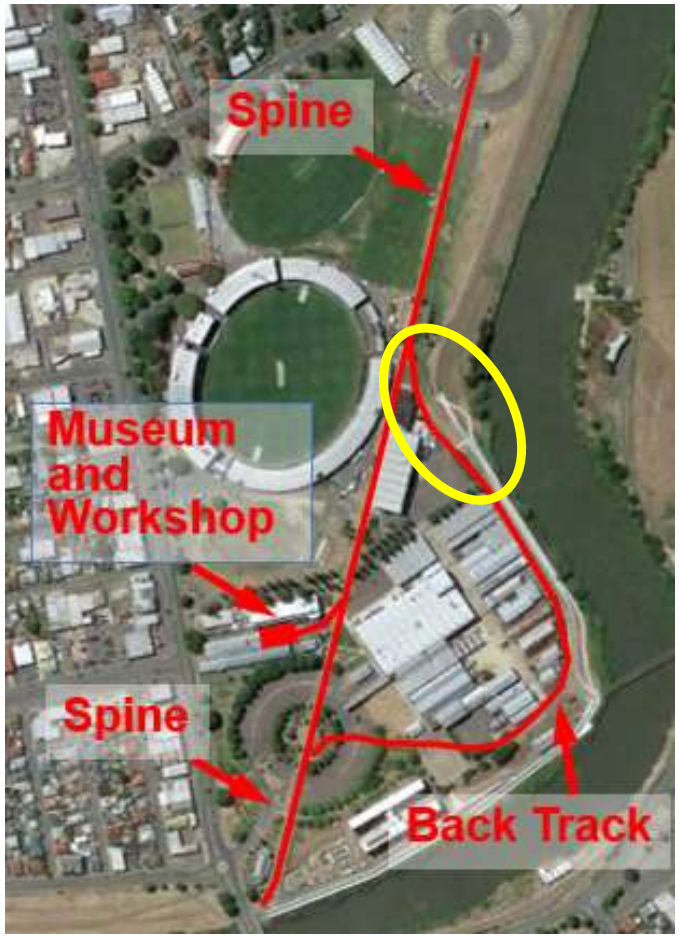
- The original plan was to leave the rails in situ while the ballast and sleepers were placed progressively.
- However this plan was changed to moving the rails to one side with a small excavator, and removal of the old ballast.
- Drainage pipe, new ballast, and steel sleepers were installed, and the rails replaced.



- After the track had been laid the site was handed over to the UTas contractors, Pro-Dig.
- This work involved the construction of an expanded car park including covering the steel sleepers with geo fabric, and placing asphalt or welded mesh reinforcement and concrete to the top of rail level.
- In the background is a tribute to the original roundhouse buildings.
- UTas paid for all the work above sleeper level.



Photo: Graeme Davis



- Immediately following work at the northern end of the spine attention turned to the northern end of the back track (highlighted in yellow).
- This was re-sleepered with new ballast and the rails left in-situ during the process.



- The Mayor of Launceston, Albert Van Zetten officially opened the rehabilitated back track in October 2019.
- Restored tram No 1 is in the background awaiting final commissioning.





- The southern section of the back track (highlighted in yellow) included two points with a curve of about seven metre radius on each.
- These were just negotiable with the 1.4 m (4 ft 6 in) wheelbase bogies on tram No 29 but not with the 2.1 m (7 ft) wheelbase single truck on the still to be commissioned tram No 1.



Photo: Geoff Dyer

- One set of points was to be replaced and the other removed entirely.
- The concrete supporting the points connecting the spine with the back track was broken up.
- This was initially performed with a rock breaker on a three tonne excavator.
- When this was too slow a 13 tonne excavator with a larger breaker was brought in.
- A frog was obtained from the Launceston and North Eastern Railway and rails for a curve with a minimum radius of 18 m was bent by the Don River railway.
- The rails were welded to steel angle section or upturned lengths of rail.

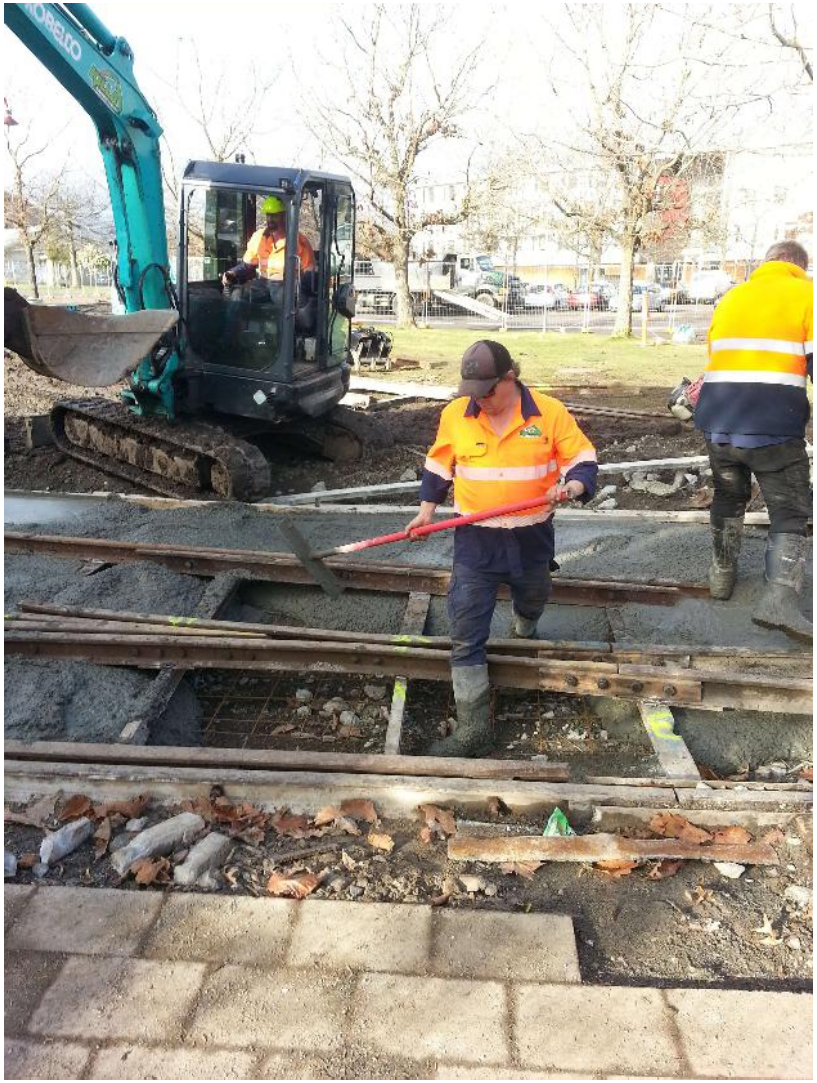




Photo: Geoff Dyer

- Reinforcing mesh was placed below the rails
- The 25 MPa concrete was poured to the level of the bottom of the rails.



- Sand was placed on top of the concrete and the pavers previously removed were cut as required and set to top of rail level.
- The remaining track with ballast on the back track was concreted by the contractor Baker Group as part of a community garden area.



Plan: Google Earth/Tony Weston

- New timber sleepers were purchased and installed on the workshop access track (highlighted in yellow) where there are two sets of points and the steel sleepers were not suitable.
- Track reconstruction was completed in 2021 with only one minor injury, and at a total cost to the LTMS of A$200,000 financed by the Philip Archer Museums Trust.
- Only the blue section of track is remaining to be rehabilitated in the future depending on the potential for work in the area by the City of Launceston.



- The northern terminus of the spine is at the one hundred year old turntable previously serving the Tasmanian Government Railways roundhouse, and surrounds now hosting an expanded car park.



- Tram No 29 passing the striking wedge-shaped River's Edge building housing the UTas humanities faculties and administration.



- Tram No 29 passing the community garden, showing the concrete covering the steel sleepers and ballast to the top of rail level.
- The grooves were formed using timber placed before the concrete pour.



- Tram No 29 turning from the back track over the new points to the spine.
- Single truck tram No 1 will be able to negotiate this curve when commissioned.



A big thank you to:

- Philip Archer Museums Trust
- Volunteers and members of the Launceston Tramway Museum Society
- City of Launceston
- University of Tasmania (UTas)
- Tasmanian Railway (TasRail)
- Queen Victoria Art Gallery and Museum
- Killa Earthworx
- Kellara Transport
- Liberty (formerly OneSteel)
- Boral
- Don River Railway
- Launceston and North Eastern Railway
- Pro-Dig
- Voss Construction
- Fairbrother
- Baker Group
- Rare Innovation

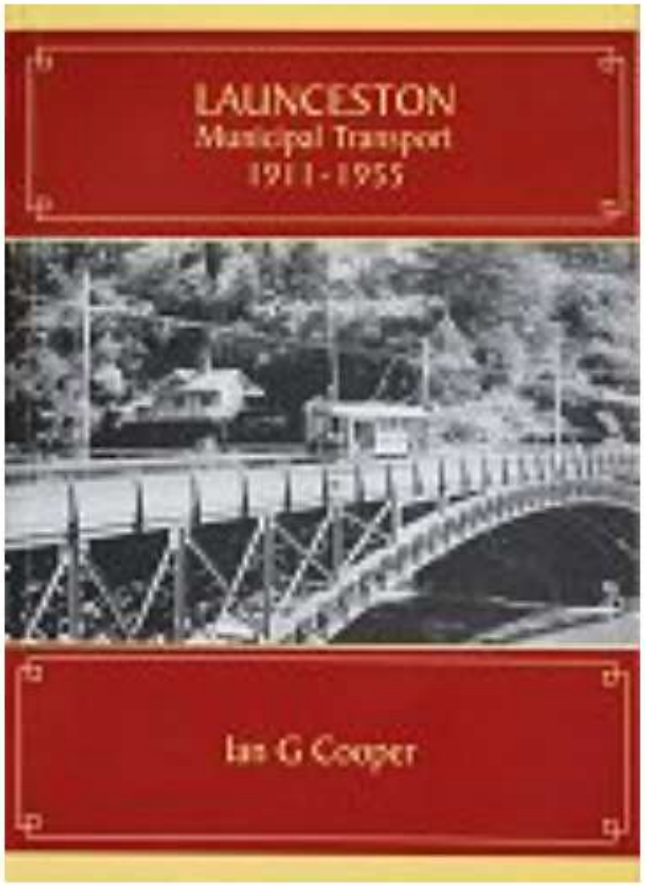


Image: Melbourne Tram Museum website

- Historical notes were sourced from Ian Cooper's book, *Launceston Municipal Transport, 1911-1955*, Transit Australia Publishing, Sydney, 2006

Questions



launcestontramwaymuseum.org.au