Sunshine Coast Council

Nambour Heritage Tramway

Discussion Paper No 2

Introduction

At the Ordinary Meeting of Council on 13 December 2012, Council resolved, inter alia, that a report, including an issues paper, be presented to Council regarding the development of the Nambour Tramway utilising the existing heritage listed sugar cane locomotive line.

This is the second of a series of Discussion Papers prepared to inform interested persons and organisations on the progress of investigations, and to invite contributions to the debate and to the final Issues Paper.

The resolution made reference to *community aspirations and limitations*. To this end the local councillor invited persons from the local business community and other organisations to form an interest group to canvass community opinions and to discuss and consider the options.

The Nambour Heritage Tramway Group was formed at a meeting on 13 March 2013. Paul Moriarty was elected as Chairperson and Michael Foley as Secretary.

Whilst the Council resolution referred to the utilisation of the *existing heritage listed sugar cane locomotive line*, it must be said at the outset that additional track and other infrastructure will need to be provided beyond the ends of the existing track to support the management, storage, maintenance and running of any rolling stock.

To determine the extent of this additional infrastructure requires consideration of a scenario, or a series of scenarios, particularly with respect to rolling stock. To a large extent, much of the track infrastructure including stations, storage and maintenance facilities, and traffic control will be common to all scenarios.

The variables considered in developing these scenarios include not only the rolling stock and other infrastructure but also the governance, and legal and financial liability of the managing parties.

This Document is for discussion only and is not Council Policy.

Previous issue (No 1)

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Legislative Authority

The Local Government Act gives a local authority its authority.

Generally, a local government has the power to do anything that is necessary or convenient for the good rule and local government of its local government area.

A local government may close a road (permanently or temporarily) to all traffic, or traffic of a particular class, if there is another road or route reasonably available for use by the traffic.

If a road is closed to traffic for a temporary purpose, the local government may permit the use of any part of the road (including for the erection of any structure during a fair for example), on the conditions the local government considers appropriate.

This could be applicable if council sought to temporarily close portions of road for the purposes of a fair or celebration say, of an historically, significant event linked to the sugar industry.

Legislative Requirements

General

The operation of trains or trams on the heritage-listed sugar cane track will be subject to a range of State Acts and Regulations. It is important to investigate thoroughly that there is the legislative authority to operate, and that all legal issues are identified.

The following list is not exhaustive, but represents the most applicable:

- *Queensland Heritage Act 1992*
  - *Queensland Heritage Regulation 2003*
- *Transport (Rail Safety) Act 2010.*
  - *Transport (Rail Safety) Regulation 2010.*
- *Rail Safety National Law (South Australia) Act 2012.*
- *Transport Operations (Road Use Management) Act 1995.*
- *Transport Operations (Road Use Management—Road Rules) Regulation 2009*
- *Transport Infrastructure Act 1994*
- *Local Government Act 2009*
- *Other Acts & Regulations applicable to development.*

Running passenger vehicles on unused cane tracks down the centre of a town is unique and does not appear to be specifically identified in legislation or regulation. The interpretation and application of existing legislation will require some discussion and debate, legal interpretation and advice.

It is clear that the *Transport (Rail Safety) Act & Regulations* apply in this case and, subject to the passage of further state law, the *Rail Safety National Laws* will apply in Queensland within 12 months.

The *Transport Operations (Road Use Management—Road Rules) Regulation 2009* provide road rules in Queensland under the *Transport Operations (Road Use Management) Act 1995* that are substantially uniform with road rules elsewhere in Australia. As part of this consistency they refer to trams and the specific rules applicable to trams travelling in the road carriageway (as in Melbourne, Bendigo, Adelaide and Sydney).

The Act defines a tram as "any conveyance or group of connected conveyances used or designed for use upon a tramway". A tramway is not defined.

Under the Queensland *Transport Infrastructure Act 1994*, the terms tram and tramway specifically refer to cane trams and cane tramways. There is however considerable reference to light rail and light rail transport infrastructure.

Queensland Heritage Act & Regulations

The object of this Act is to provide for the conservation of Queensland's cultural heritage for the benefit of the community and future generations. This is achieved by regulating, in conjunction with other legislation, development affecting the cultural heritage significance of Queensland heritage places.

It should be noted here that the legislation consistently uses the term ***place*** to define or identify land that is historically significant. It may be held on two or more titles and includes any ***features*** and their immediate surrounds that may be on the land. A feature may include a part or whole of a building or structure, an artefact including an archaeological artefact, a precinct, or a natural or landscape feature.

The Act promotes heritage agreements to encourage appropriate management of Queensland heritage places, and provides appropriate enforcement powers to help protect Queensland's cultural heritage. Heritage places are defined spatially and include objects within that defined space.

Under the Act, the local government is the *owner* for a road or other land under a local government's control. This would include the assets in the road reserve including the cane tracks. The exception would be the public utilities such as drainage, electricity, gas, sewerage, telecommunications or water.

The portion of roadway 1.5 metres either side of the centre of the cane tracks within the Howard Street and Mill Street road reserves, and the their intersection with Currie Street, is registered as a heritage place.

Entry in the Queensland Heritage Register does not exclude changes, additions or the construction of new works, provided the work does not detract from the heritage values of a place.

Owners of heritage places are not obliged to fully restore their property. However, owners are advised to maintain their place to ensure it is protected from serious or irreparable damage or deterioration. The tracks in Mill Street west of Currie Street show considerable wear and the concrete surround is crumbling. Maintenance of the surrounds will be required in the near future.

The registration of the two former mill cottages in Mill Street extends to the road centreline and therefore includes the footpath mounted, cane train warning sign in Mill Street.

Mill Street, west of Currie Street showing broken concrete surround.

Tracks pass through the William Street roundabout on Howard Street.

Heritage sign, Mill Street in "Off season" position.

Accreditation

Requires

- Safety Management Systems (SMS),
- SMS suitable and sufficient for their operations, and
- that the management, staff and contractors have the competency and capacity to implement those systems.

Four key areas

- Track & Infrastructure
- Rolling Stock
- Operation
- Management

Interface Agreements

The DTMR has developed a guidance manual under the requirements of the *Transport (Rail Safety) Act 2010*.

http://www.tmr.qld.gov.au/~/media/Safety/railsafety/GuidanceManual130911V5.pdf

A template interface agreement is provided on the DTMR website, viz:
http://www.tmr.qld.gov.au/~/media/Safety/railsafety/InterfaceAgreement190911V4.pdf

Transport (Rail Safety) Act 2010.

The conduct of rail operations within Queensland is subject to the *Transport (Rail Safety) Act 2010*. This Act is administered by the Department of Transport and Main Roads. This Act, together with the *Work Health and Safety Act* imposes duties and obligations on rail transport operators and workers including State owned entities.

The Act also requires for a system of accreditation to ensure that the rail operators have the competence and capacity to operate their system safely and to manage the risks associated with rail operations.

The Act does not apply to a railway that is operated solely within an amusement or theme park and does not operate on or across a road. Cane railways are also exempt from the Act which, by definition do not carry passengers or freight other than sugar cane products.

Further requirements in support of the Act are contained within the *Transport (Rail Safety) Regulation 2010*.

As of 1 September 2010, all Queensland rail infrastructure managers and road managers must enter into an interface agreement for road or rail crossings on public roads.

An interface agreement is a written agreement for managing risks in relation to rail or road crossings. As a minimum an interface agreement must include provisions for:

- implementation and maintaining measures to manage those risks,
- the evaluation, testing, and where appropriate, revision of those measures,
- the respective roles and responsibilities of each party to the agreement in relation to those measures,
- procedures by which each party to the agreement will monitor and determine whether the other party complies with its obligations under the agreement,
- a process for keeping the agreement under revision and how it will be conducted and implemented.

The definition for a crossing includes not only a railway level crossing but also pedestrian level crossing and a lane of a road on which trains move alongside road vehicles. This is particularly applicable to Howard Street and Mill Street.

An agreement will be required between the State (as road manager of the Currie Street intersection) and the rail manager.

A further agreement will be required between council (as road manager of Howard Street and Mill Street) and the rail manager if the rail manager is not council.

National Rail Safety Legislation and Regulations

The Council of Australian Governments decided on 7 December 2009 to implement a single National Rail Safety Regulator ('National Regulator') and a body of National Rail Safety Law ('National Law').

The Rail Safety Regulators' Panel (RSRP) consists of the Rail Safety Regulators from all States, the Northern Territory and New Zealand.

The key role of the RSRP is to provide advice to the Safety Standing Sub Committee (Safety SSC) and National Transport Commission (NTC) on rail safety regulatory issues to help enhance safety and regulatory outcomes consistent with the co regulatory framework.

The Panel has produced a publication *Safety Management System Guidance for Tourist and Heritage Rail Transport Operators – February 2010*. This guidance material outlines the legislative requirements and associated processes for Tourist and Heritage Rail Transport Operators in preparing their Safety Management Systems, as reflected in the National Model Rail Safety Legislation.

On 7 June 2012 the South Australian Government Gazette proclaimed the *Rail Safety National Law (South Australia) Act 2012*.

On 20th January 2013, the Office of the National Rail Safety Regulator (ONRSR) became the rail safety regulator for rail activities under the Rail Safety National Law (RSNL) in the jurisdictions of New South Wales, South Australia, Tasmania and the Northern Territory.

Subject to the passage of further state law, it is expected that Western Australia, Victoria, Queensland and the Australian Capital Territory will also be regulated by the ONRSR within 12 months.

The Executive Office and the Central Branch (SA, Tas, NT) are based in Adelaide with a Branch office established for New South Wales. Further Branch Offices will be established for Western Australia, Victoria and Queensland. Staff from DTMR will move to the Queensland Branch Office.

The Queensland *Transport (Rail Safety) Act 2010* and the *Rail Safety National Law Act* were developed in the same environment and with the same intent. In many cases the wording of the various clauses is the same.

The transition from the Queensland Regulations to the National Regulations should be seamless for almost all operators.

national rail safety regulator

Exemptions

The *Rail Safety National Law Act* provides for general exclusions in relation to various functions such as underground mining, slipways and overhead cranes.

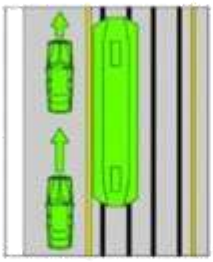
It also does not apply to private, non commercial, hobby railways operated only on private property to which members of the public do not have access.

Furthermore, it does not apply to railways not connected to an accredited railway and used as an amusement structure wholly within an amusement park, for example, *Dreamworld* on the Gold Coast.

The Ginger Factory at Yandina and the Big Pineapple at Woombye will now be required to attain accreditation for the operation of their tourist rail facilities.

Tram lane sign

End tram lane sign


Tram lane

Transport Operations (Road Use Management Act) 1995

This Act provides for the effective and efficient management of road use in the State. The Act establishes a scheme for the identification and performance of vehicles, drivers and road users. The scheme monitors compliance and manages non-performing vehicles, drivers and road users. It also manages traffic to improve safety.

Under this Act a local authority may install or remove official traffic signs on local roads in its area, notwithstanding that the State may override this and serve notice on a local authority to remove or install such sign. An official traffic sign must be installed in a way specified by the Manual of Uniform Traffic Control Devices (MUTCD).

In general terms, councils are limited to controlling the local road space and how it can be used (including parking). Refer also to *Local Government Act 2009* re temporarily or permanently closing a road to any class of traffic.

Transport Operations (Road Use Management—Road Rules) Regulation 2009

The object of this regulation is to provide road rules in Queensland that are substantially uniform with road rules elsewhere in Australia.

It is not the intent of this summary to reproduce the complete regulations relating to the operation of trams in the road but to highlight those that might influence the operation of trams on these particular tracks.

It is extremely important that it is quite clear to the other drivers that trams are operating in the area and that there are regulations that apply that may well be unique in Queensland. These regulations also apply to pedestrians most particularly those accessing or leaving the tram.

The definition of *vehicle* includes *tram,* even though currently trams or light rail are not a feature in the Queensland roadspace.

There are definitions also for:

tram lane the part of a road with tram tracks between a tram lane sign and an end tram lane sign, and marked on either side by a continuous yellow line parallel to the tracks. A driver of any vehicle may drive up to 50m in a tram lane to enter or leave the road.

tram tracks includes a rail designed for a light rail vehicle to run on.
tram stop means a place on a road at which there is a sign indicating that trams will stop to enable people to get on or off.

tramway the part of a road with tram tracks between a tramway sign and an end tramway sign, and marked on either side by 2 continuous yellow lines parallel to the tracks, or a structure such as a pedestrian refuge, traffic island or kerb.

A critical issue is the safety of pedestrians / passengers at tram stops. Whilst it may be desirable that passengers only alight from, or access the tram at the off-road stations at either end of the tram tracks, the contingency where tram stops may be created along the route must also be considered.

In general, if a tram stops then other traffic travelling alongside or behind in the same direction must also stop.

Even after stopping, a driver cannot drive past a tram if the tram doors are open, or a pedestrian is crossing the road between the tram and the left side of the road.

Transport Infrastructure Act 1994

The Transport Infrastructure Act provides for a strategic overview and integrated planning and management of the provision and operation of all transport infrastructure, from road to rail, from marine ports to airports, and to busways and light rail.

The key issue with respect to road infrastructure and this Act is the authority of the State to "declare" a road to be a State-controlled road.

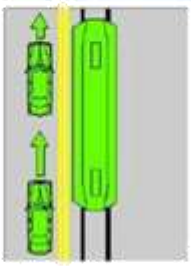
It also authorises the agreements that may be made between the State and local government for the joint funding of works on either the State or local road networks that contribute to the effectiveness and efficiency of the overall road network.

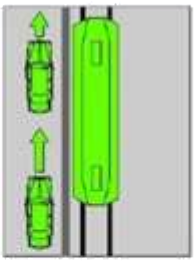
More specifically, with respect to this project, it requires a Transport Interface Agreement to be entered into between the road authority and the "light rail" entity to define the responsibilities of the parties involved.

See further information under *Transport (Rail Safety) Act 2010*.

Tramway sign

End tramway sign


Tramway with double yellow line


Tramway with separation kerb

Rail Transport Operations and Rail Infrastructure Management are separate functions and may be managed by different persons or entities.

The Applicant for accreditation need not necessarily be the owner of the Rolling Stock or Track Infrastructure and may be another person or entity.

A contract must exist between the owner of the rolling stock and the Operator, and the owner of the infrastructure and the Infrastructure Manager providing for the applicant to have effective management and control at the relevant time.

A safety performance report must be submitted to the regulatory body at least annually.

This report must include a description and assessment of the safety performance of the rail transport operator, any deficiencies or irregularities that may be relevant to rail safety, a description of initiatives undertaken in the reporting period (or the next reporting period) relating to rail safety, and any other performance indicator required under accreditation.

Further reports must be submitted about accidents or incidents related to rail safety within the prescribed period.

The fees payable to the regulator will depend on the scenario or scenarios adopted.

Governance

The *Transport (Rail Safety) Act 2010* and the *Transport (Rail Safety) Regulation 2010* refer to ***prescribed railway operations*** and make a clear distinction between the functions of the Rail Transport Operator and the Rail Infrastructure Manager, although a person or entity may be subject to rail safety duties in both capacities.

Furthermore, the Rolling Stock Operator need not necessarily be the owner of the rolling stock, however the Operator must have effective management and control of the rolling stock.

Similarly, the Rail Infrastructure Manager need not necessarily be the owner of the infrastructure however the Manager must have effective management and control of the infrastructure.

Two or more Rolling Stock Operators may operate on the same rail infrastructure but there needs to be an ***infrastructure arrangement*** applying to the safety risks arising, or potentially arising, from railway operations carried out by or on behalf of any of them. This would include the operator of a visiting locomotive invited to a Special Event, where an infrastructure arrangement would need to be negotiated with the current Rolling Stock Operator.

There are three governance structures that may apply:

- Council as Rail Infrastructure Manager & Rail Transport Operator
- Council as Rail Infrastructure Manager; contracted Rail Transport Operator
- Contracted Rail Infrastructure Manager & contracted Rail Transport Operator (Council as infrastructure owner).

The governance structure will be dependant to some extent on the scenarios that are adopted.

Notwithstanding which scenario is adopted, the latter structure where Council is neither the Infrastructure Manager nor the Transport Operator presents the widest range of issues to be addressed, including the contracts and interface agreements between Council, DTMR and the infrastructure and operator entities.

All documentation must be stored and made available to the regulatory body. This includes the safety responsibilities, accountabilities, authorities and interrelationships of persons who manage or verify rail safety work, the test results from scheduled maintenance programs, to the financial capacity or public risk insurance arrangements to meet potential accident liabilities arising from railway operations.

The ONRSR is moving to full cost recovery from the industry (current cost of regulator activities nationally is $35m, 39% recovered). Variable fees will be calculated on track kilometres managed (30%) and train kilometres travelled (70%).

Whilst the previous page focusses on the Governance requirements with respect to the *Transport (Rail Safety) Act 2010* and the *Transport (Rail Safety) Regulation 2010,* there are wider governance issues that need to be addressed.

An appropriate fiscal management structure is required by the Tramway Management entity to be able to :

- Enter into contractual arrangements to manage rail infrastructure and rolling stock.
- Obtain accreditation with ONRSR.
- Become a registered charity and be registered with the Australian Charities and Not-for-profits Commission (ACNC).
- Apply for, and receive Grants from the Federal and State governments, the Sunshine Coast Council and philanthropic organisations (e.g. service clubs).
- Gain the confidence of the business sector and receive sponsorship and contributions in kind.
- Gain the confidence of the general public and receive support through donations and voluntary assistance.

The appropriate management structure is also required to ensure all workers, whether paid or as volunteers have the appropriate skills to undertake the tasks required and receive on-going training and protective equipment.

On 1 January 2012, Queensland, the Australian Capital Territory, New South Wales, the Northern Territory and the Commonwealth harmonised their Work Health and Safety (WHS) laws protecting workers, including volunteers, in these jurisdictions with the same WHS laws.

WHS isn't just about the responsibilities of the employer with respect to a safe working environment and staff training.

It is also about the responsibilities of the employees, including volunteers, to ensure they are fit to undertake the assigned tasks.

Heritage tram and train operations need a large number of enthusiastic volunteers to function.

Volunteers in general will be retired persons who will, as time moves on, be facing increasing issues with respect to general mobility and mental alertness.

Working shifts need to be short and back-up staff available at all times.

Appropriate advice should be sought from legal and accounting professionals to prepare, discuss and negotiate the structure and responsibilities of the managing entities.

The three personal health issues of :

- **health and fitness;**
- **drugs and alcohol;**
- **fatigue risk management;**

are extremely important in operating a tram or train in what is essentially a road environment.

They assume greater importance when applied to a volunteer workforce whose average age will be much higher than that of the general workforce.

For staff operating with, or around machinery the overall Health & Fitness needs to be assessed in terms of mobility and mental alertness.

The term 'drugs' isn't just confined to illicit substances or 'performance enhancing ' substances that some athletes are using.

In this instance it is more likely to mean legitimately prescribed drugs which can cause drowsiness or other physical impairments.

There will be a "zero tolerance " to alcohol.

Regular voluntary health checks and certificates may need to be the norm for operating personnel.

Fatigue management should not only look at the length of the working shift but also the travel time at either end.

Volunteer rail enthusiasts may travel for several hours either side of their shift and this needs to be taken into account.

The object of accreditation is the safe operation of railway operations and the management of the risks associated with such operations. It is acknowledged that not all risk can be eliminated, but that risks need to be reduced so far as it is reasonably practicable.

For the definition of reasonably practicable refer to the ONRSR Guideline, Meaning of Duty to Ensure Safety *So Far As Is Reasonably Practicable.*

The Safety Management System shall provide sufficient detail appropriate to :

- **the scope and nature of the rail operations,**
- **the potential risks to persons by these operations,**
- **the operators duties.**

In addition to the systems and procedures required to eliminate or reduce risk, an assessment must include a **register of potential risks.**

This register shall consider for each potential risk the :

- likelihood of the risk eventuating.
- degree of harm as a result.
- reasonable knowledge of person(s) concerned.
- availability of ways to eliminate or reduce the risk.
- suitability of ways to eliminate or reduce the risk.
- cost to eliminate or reduce the risk.

Safety Management System

The matters (elements) that must be addressed in the safety management system are:

- safety policy;
- safety culture;
- governance and internal control arrangements;
- management responsibilities, accountabilities and authorities;
- regulatory compliance;
- document control arrangements and information management;
- review of the safety management system;
- safety performance measures;
- safety audit arrangements;
- corrective action;
- management of change;
- consultation;
- internal communication;
- training and instruction;
- risk management;
- human factors;
- procurement and contract management;
- general engineering and operational systems safety requirements;
- process control;
- asset management;
- safety interface coordination;
- management of notifiable occurrences;
- rail safety worker competence;
- security management;
- emergency management;
- health and fitness;
- drugs and alcohol;
- fatigue risk management;
- resource availability.

Each of the above topics are dealt with in detail in the *Transport (Rail Safety) Regulation 2010,* Schedule 1.

www.legislation.qld.gov.au/LEGISLTN/CURRENT/T/TrantRailR10.pdf

The Safety Management System is the most important document.

Appropriate professional, rail safety personnel should be engaged to prepare , discuss and negotiate the form and content of the SMS.

Financial Considerations

Liabilities

The operation of Heritage Railways around Australia invariably relies very heavily on volunteers. This can skew the financial model, hiding the real cost of the operation or the liability, if the labour component cannot be met by skilled volunteers.

This may then represent a financial risk.

This risk increases as the operational frequency is increased and there is a commitment, or implied commitment, to a regular service throughout the day using a single locomotive.

Regular maintenance must be then scheduled out of hours and breakdown maintenance assumes a priority that comes at a premium price. Alternatively the service is irregular and confidence of the patrons is undermined.

Later in this paper a range of Rolling Stock scenarios are considered.

Insurance, particularly Public Liability will be a major cost to all Scenarios.

Track and rolling stock maintenance will be a function of usage, whereas building and other facilities maintenance will be time dependant.

Income sources

Expenditure will fall into two broad categories:

- Capital,
- Recurrent.

Capital costs may be met by income from a range of sources including:

- Federal Grants
- State Grants
- Council Grants
- Other Grants
- Sponsorship
- Donations
- Other, including ticket sales and ongoing fundraising.

In general, grants are not given for ongoing, recurrent expenditure and this needs to be covered by sponsorship, donations, ticket sales and other fund raising activities.

Portland Cable Tram, Victoria

Portland, in the Glenelg Shire 360 km west of Melbourne, is the oldest European settlement in Victoria and has a population of some 10,000 residents out of a total Shire population of about 21, 240.

PORTLAND CABLE TRAMS INC. was established in 1996. and has in excess of 20,000 hours of voluntary community labour. The tramway carried its first paying passengers in February 2002.

The Tram links many of Portland's major tourism attractions.

The tram runs seven days a week, between 10am-4pm in summer and 10am-3pm in winter.

The Tramway is operated under the direction of a full time manager, and the services of a band of 60 volunteers on the roll .

The project has received funding from all three tiers of Government as well as significant donations from the Community in terms of cash, materials and time.

Specific donations included: the Community Support Fund Victoria and the Regional Solutions Programme totalling $1,275,000.

See

www.portlandcabletrams.com.au

Disclaimer.

This Document is for discussion only and is not Council Policy.

The consideration of these Scenarios does not in any way endorse or recommend these Scenarios individually or collectively as a course or courses of action, but allows consideration of the wide range of issues that may be encountered in any future Scenario.

"Not everything that counts can be counted, and not everything that can be counted counts."

(Sign hanging in Einstein's office at Princeton)

Scenarios

The scenarios considered in this Discussion Paper are seen to represent the gamut of options of rolling stock, track & infrastructure (including passenger and public facilities), and management and frequency of operation being considered by some members of the community.

It may well be that when the risk analysis applicable to a particular Scenario is undertaken in detail, then the requirements outlined here, in particular relating to track and infrastructure, may seem to be excessive, or alternatively, be deficient.

The obvious Scenario variations are type and form of the locomotive and the passenger rolling stock. This may lead to variations in the end of track facilities required, not only for storage and maintenance purposes, but also for staff and passenger amenity.

Given the heritage listing of the tram track and the houses at the former Moreton Mill site it is important that there are tangible links in the design of the rolling stock to the sugar industry and the particular role the Mill and the cane tram played in the development of Nambour.

These links may range from the celebration of milestone events to the colours and appearance of the rolling stock which will all contribute to the experience. We should however be pragmatic in the selection of locomotive power as replica locomotives taking advantage of modern power sources and technology will be more sustainable in the longer term.

None of these scenarios will make any measurable contribution to the overall *Public Transport* task and we should be wary about attributing value in this regard. The transport demand modelling doesn't stack up.

Scenarios may have different Governance and Financial Models but there will be overlap and these can best be represented in the form of a table for comparison.

These scenarios are not necessarily mutually exclusive and within any period of a year or so several scenarios may apply. Whilst there will probably be a common Rail Infrastructure Manager, the different rolling stock scenarios may have different Rolling Stock Managers. This will certainly apply if there are visiting locomotives using steam power.

Some people within the community see these scenarios being extended to a wider area. No attempt has been made in this Study to consider wider planning issues other than to provide end of track facilities necessary to directly support the use of the heritage listed track. This is in accordance with the Brief developed from the Council resolution.

Rolling Stock—Locomotive

Scenario 1

New, Vintage style, standalone tram, example manufactured by Gromaco Trolley Co, Iowa, USA. This example is powered by 30 lithium phosphate batteries. Would need special design to run on 620mm gauge (shown on Standard 1,435 mm gauge).

Alternate manufacturers Severn Lamb (UK), or possibly local manufacturer of a replica Brisbane "toast rack" tram with battery electric power train.

Estimated capital cost $800,000

Scenario 2

Photo from Moreton Mill. Diesel Locomotive on the right is "Petrie" which is now apparently out of service at the Bingera Mill, Bundaberg.

"Petrie" was manufactured by E M Baldwin, NSW in 1968.

Estimated capital cost $70,000, (without carriages).
Some costs may be offset by sponsorship and volunteer labour.

Scenario 3

Refurbished ex Moreton Mill Steam locomotive, example "Moreton" locomotive running at the Ginger Factory, Yandina, now diesel power.

Possible option is to use ex steam "Bli Bli" currently on a plinth at the Nambour & District Museum, refurbished to be diesel powered. "Bli Bli " was built by Fowler , UK in 1915. Decommissioned in 1967.

Estimated capital cost $80,000 , (without carriages)
Some costs may be offset by sponsorship and volunteer labour.

Scenario 4

Visiting steam powered locomotive running for Special Occasions or celebrations. Example BFC5 from Woodford Museum. "BFC5 Bundy Fowler #5" Bundaberg Foundry, 1952. Fowler design under licence.

Currently out of action. With volunteer labour will not be available till late 2014.

Estimated Capital Cost Nil, however weekend cost including transport at commercial rates would be in the order of $10,000.
Could be offset by sponsorship and volunteer labour.

Rolling Stock—Passenger carriages

Scenario 1

As a standalone tram no additional passenger rolling stock is required.

The example shown here was commissioned to run in Glendale, California. The 15.5 acre development contains 100 condominiums, 238 apartments, and more than 74 shops along with cafes and restaurants.

Scenarios 2, 3 & 4

Passenger rolling stock for these scenarios can essentially be the same design although the livery may be changed to reflect sponsorship or special events.

A particular issue is the scale of the carriages. The narrowness of the gauge makes it impractical to have an aisle with transverse seating either side. The Mapleton passenger carriages had longitudinal seating about a central aisle but had low passenger capacity.

Both the Ginger Train at Yandina, and the Pineapple Train at Woombye have transverse bench seats. This ensures that the passengers can experience the activities on either side of the track.

It is unlikely that these designs will be totally acceptable in the "road" environment and additional passenger constraint would be required to ensure that passengers do not inadvertently step into road traffic.

The Bally Hooley carriages in Port Douglas would appear to be more appropriate with transverse seating in pairs facing each other in a compartment. Each compartment has a door or gate.

From "The Newsport", Port Douglas & Mossman News First, 30 Jan 2012.

Budget 4 carriages at $25,000 = $100,000

Rolling Stock

Operation & Management

The primary purpose of accreditation is to attest that railway organisations have satisfied the Rail Safety Regulator (RSR) that they

- have established Safety Management Systems (SMS),
- that these systems are suitable and sufficient for their operations, and
- that they have the competency and capacity to implement those systems.

Sufficient funding would be required for the recurrent expenditure associated with annual training, maintenance and statutory reporting. Some of this expenditure may be offset by volunteer labour.

Scenario 1

Frequency / Hours: To a daily timetable.
Staff: Minimum 3 operational staff plus management.
Rolling Stock Management: would require some full time, paid staff to manage the workload.
Ongoing training programs would require "professional" trainers.

Scenarios 2 & 3

Frequency / Hours: Monthly, 10 times per annum.
Staff: 2 volunteer crews (min 5 persons), short shifts.
Rolling Stock Management: refresher training and briefing required before each shift and debriefing after shift as part of the SMS.

Both Scenarios may operate on the same shift with an interface arrangement if managed separately.

Scenario 4

Frequency / Hours: Special Event or Festival
Staff: From visiting organisation
Rolling Stock Management: By visiting Rolling Stock Manager with an interface arrangement with the other Rolling Stock Managers.

Important to have briefing and debriefing session with Rolling Stock Operators, Track and Infrastructure Managers and staff as part of the SMS

Turntable at Bally Hooley,

Port Douglas

Turntable at Wharf Street station,

Port Douglas

San Francisco turntable

Track & Infrastructure

General

The track within the road reserve has infill between the rails and the train wheels travel in "slots" inside the rails. Debris can accumulate in these "slots".

In each of the scenarios that have a locomotive with carriages, a risk analysis will require the locomotive to "pull" the carriages, not push. The heavier locomotive will offer more stability around curves and crush objects within the "slots" that might otherwise derail the lighter passenger carriages. The Mill always 'pulled' the cane trucks.

Pulling gives the greatest visibility in an pedestrian environment.

At the termini at either end the locomotive will need a passing loop to pass to the other end of the carriages.

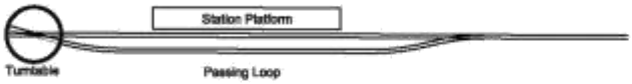
Locomotives, both steam and diesel can operate as effectively in either forward or reverse gear and there is no performance advantage one over the other. A diesel locomotive and a steam locomotive without a coal tender both offer greater visibility in reverse gear.

Aesthetically, it would be more appealing to have the locomotive in forward gear for both directions.

To pull in forward gear both ways would require a turntable at both the eastern and western ends. This may be problematical at the western, Mill site end where the site is constrained. Manoeuvring will need to be within a safe environment.

The photo top left shows the turntable at the southern end of the Bally Hooley train at Port Douglas

The middle photos show the platform, passing loop and turntable at the Marina Mirage, Wharf Street, Port Douglas.



As the Tram will be able to be driven from both ends there is no need for a turntable or loop at the ends of the track for that particular scenario.

Track & Infrastructure

Eastern Track Extension;

Bundaberg Sugar have considerable land holdings formerly used for the marshalling yards. The land has been on the market for some time. Some parcels are flood prone. The Draft Sunshine Coast Planning Scheme designates the land as Medium Density Residential.

For each scenario, and additionally for the passenger rolling stock, the requirement would be for a shed 18m x 6m, i.e. say 18m x 30m under cover if all scenarios are to be supported. Staff facilities required.

Additional land required for offloading rolling stock and turning around locomotives (turntable) and parking. Land requirement at least 2000 m^2 plus corridor access.

For the visiting steam locomotive, provision needs to be made for coal and water loading, and ash disposal facilities.

If the proposal is to run a tram (Scenario 1) from battery power re-charged from solar power then there needs to be sufficient roof and solar panel area at the eastern depot.

Western Track Extension:

West of the heritage – listed cottage in Mill Street (Lot 2) , there will be a portion of land between that parcel and the Mill Lane extension that is proposed to be incorporated into the heritage parcel.

There is to be a retaining wall along the road boundary. There has been some discussion whether this segment could be dedicated as road reserve and accommodate the eastern station.

There would appear to be insufficient land to include a passing loop and certainly not a turntable unless Lot 5 was also used.

West of the Coles Development there is land owned by QR, part of which is used for QR staff parking. It is not required for the future rail duplication. It should also be considered if the turntable and /or the passing loop is required.

Marshalling Yards:

Budget up to $1,000,000

At the eastern end rolling stock storage, workshop and staff facilities would be required.

At the western end the overall facilities would include a terminus / station and possibly could include a visitors information centre

Budget up to $800,000

Track & Infrastructure

Traffic control along track:

Programming of existing traffic signals at Sydney St / Ann St / Howard St (Council) and Currie St / Howard St (DTMR) will need to be amended to include "tram / train" input detection.

Note that the DTMR intersection previously operated with train detection, however if rewiring is required then the asbestos ducts and pits will also need to be replaced—cost $400,000.

Additional pits and ducts were installed at Sydney St / Ann St / Howard St intersection to provide for train detection however the Mill operation closed before the signals were commissioned. It is not known at this stage whether the "draw wires ' are accessible.

The roundabout at William St / Howard St will require some form of signal control, possibly an "all red" phase to allow the tram / train to pass safely through the roundabout.

At both the Marshalling Yards and former Mill Site the tram / train must cross part of the carriageway to enter a terminus or station site. As with the roundabout above this could use an amber / red signal phase to allow the tram / train to cross to the terminus with all red to road traffic.

Budget $500,000 without rewiring Currie St / Howard St traffic signals.

Track & Infrastructure

Operation & Management

General

Traffic signals throughout the Sunshine Coast on State and Council controlled roads are maintained under contract by RoadTek, a commercial business within Transport and Main Roads.

The additional traffic control elements identified on the previous page together with the associated train detection input will need to be similarly maintained.

Budget provision needs to be made for the inspection and maintenance of these signals. Visual, operational inspections may be carried out by volunteer staff , but electrical inspections will need qualified staff.

Regular , visual track inspection will be required.

Budget $ 8,000 pa across all scenarios.

The Rail Infrastructure Manager will need to ensure that there is a regular inspection regime to ensure the signals along the route are functioning correctly.

The Rolling Stock Operator will need clearance from the Infrastructure Manager before proceeding.

Scenario 1

If the proposal is to run from battery power recharged from solar power then there needs to be sufficient roof and solar panel area at the eastern depot.

Budget $ 5,000 pa for maintenance and back-up power.

As the Tram can be driven from both ends there is no need for a turntable or loop at the ends of the track.

A passing loop with points well clear of pedestrian areas is required at both ends.

Scenarios 2, 3 & 4

In each of these scenarios a risk analysis will require the locomotive to "pull" the carriages , not "push", as this offers the greater stability and less risk of derailing the carriages. It also gives the greatest visibility in a pedestrian environment.

The locomotive, will need a passing loop to pass to the other end of the carriages. And it is important that points are clear of pedestrian areas.

Budget $ 1,500 pa for points maintenance.

Additional funds required for turntable maintenance if installed.

To pull in forward gear both ways would require a turntable as well as a passing loop at both ends, however this offers no performance advantage.

In San Francisco, operation of the cable car turntable is an attraction in its own right.

Summary

Sequence; Governance of the proposal is the most critical issue to be addressed in the first instance. The most likely entity is probably in the form of a Trust and the appropriate legal and financial advice should be sought as to the most appropriate way forward.

The purchase of land to enable track infrastructure to be extended would be the first expenditure priority. None of the Scenarios can proceed until this is resolved. Scenario 2 could have the shortest lead time and be able to provide the earliest demonstration project. The carriage design and construction could proceed concurrently. Scenario 3 could then follow.

The visiting locomotive may be available in 2015.

Scenario 1 will depend to a large extent on the success of the other Scenarios. Given that it requires a one off design and construction the lead time with protracted negotiation could be in the order of 5+ years.

Governance, Track & Infrastructure, including land;

Capital Cost: $2,300,000, including land purchase, traffic control, extension of track, station facilities, storage & work shop facilities. (Note there will be non recurring costs associated with the preparation of the initial SMS).

Recurrent cost: Governance (including accreditation), insurance, maintenance, training. $25,000 pa

Scenario 1 - purpose built passenger tram (imported).

Capital Cost: $800,000

Recurrent cost : management salaries, vehicle maintenance, insurance, accreditation fees, consultant fees for review of SMS, additional track maintenance due to higher usage. $200,000 pa

Scenario 2 - purchase and refurbish ex Mill diesel loco.

Capital Cost: $60,000 for locomotive.

Recurrent cost : Maintenance and insurance $20,000 pa
Refurbishment and maintenance offset by sponsorship and volunteer labour.

Scenario 3 - refurbished ex Mill steam loco with diesel power.

Capital Cost: $80,000 for locomotive.

Recurrent cost : Maintenance and insurance $20,000 pa
Refurbishment and maintenance offset by sponsorship and volunteer labour.

Scenario 4 - visiting locomotive.

Capital Cost: Nil

Recurrent cost : Transport and Insurance budget $10,000 per event.
Transport costs may be offset by sponsorship.

Scenarios 2,3 & 4 - 4# purpose built passenger carriages.

Capital Cost: $100,000

Recurrent cost : maintenance and insurance $10,000 pa
Construction and maintenance offset by sponsorship and volunteer labour.