Boyne Burnett Inland Rail Trail

Final Report

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EXECUTIVE SUMMARY

Gladstone Regional Council and North Burnett Regional Council commissioned Mike Halliburton Associates to prepare a Feasibility Study for a possible rail trail from Taragoola to Reids Creek. This commitment is part of the Councils' work with the Boyne Burnett Inland Rail Trail Inc to champion the development of the rail corridor and represent the expectations of the community. The Department of Transport and Main Roads funded the project and the two Councils oversaw the preparation of the report.

The proposed Boyne Burnett Inland Rail Trail would be developed effectively on two disused railway corridors between Taragoola (Calliope) and Reids Creek (Gayndah). These railway corridors are the Gladstone to Monto corridor (though the study area starts at Taragoola) corridor and the Monto to Gayndah corridor (though the study area ends at Reids Creek). The railway corridors (together) cover a distance of some 270.75 kilometres – conversion to a rail trail would make this the longest rail trail in Australia.

The study was commissioned to ascertain whether it is a worthwhile project, and whether the trail will deliver the anticipated and desired benefits.

In November 2018, an Interim Report addressing key issues associated with developing a rail trail along the entire corridor was submitted to both Councils which provided direction for the remainder of the investigation. (*The Interim Report included a discussion on rail trails in general, provided an assessment of the corridor by section, and canvassed a number of issues and opportunities in significant detail. This Final Report provides only a summary of the key issues and opportunities)*. The Interim Report concluded with two recommendations based on consideration of the corridor assessment, issues and opportunities:

- Gladstone Regional Council and North Burnett Regional Council review the Interim Report.
- The Councils determine to proceed with more detailed planning for the three identified candidate rail trails - Futters Creek Bridge to Ubobo, Builyan to Kalpowar, and Mundubbera to Mt Debateable (including a trail to the stone pitched embankments east of Mt Debateable siding). This planning will verify trail development requirements and focus on key infrastructure identified as necessary for rail trail development. A decision to proceed to this stage does not commit either Council (or the Department of Transport and Main Roads) to the development of the three trails.

The Interim Report and recommendations were accepted by both Councils. While the Interim Report was approved by officers of Gladstone Regional Council, North Burnett Regional Council formally resolved (at its meeting of 30 November) as follows:

That:

1. *North Burnett Regional Council receive the Interim Report;*
2. *The Council agree to proceed with a more detailed planning for the identified candidate rail trails within the North Burnett Region - Builyan to Kalpowar, and Mundubbera to Mt Debateable (including a trail to the stone pitched embankments east of Mt Debateable siding) as this is still within the original funding of the project grant and will be at no*

addition cost to Council. The planning is to verify trail development requirements and focus on key infrastructure identified as necessary for rail trail development;

3. *It is noted that a decision to proceed to this stage does not commit Council (or the Department of Transport and Main Roads) to the development of the identified candidate trails; and*
4. *Council will not fund any potential capital and maintenance cost associated identified in the Burnett Boyne Inland Rail Trail Interim Report*

The historic and heritage listed bridges between Mundubbera and Gayndah are a major factor influencing the attractiveness of this section of disused railway corridor for development of a standalone rail trail.

The Interim Report recommended the development of three shorter trails along the corridor in recognition of market and cost realities. Consequently, this report focusses on the development of the three individual rail trails. It may be possible or desirable in the future to develop further trails along the corridor (perhaps even the long trail) but there is no clear business case for developing a long trail presently. Retaining the rail corridor in public ownership would be necessary for future development of a long trail.

This Feasibility Study (focussing primarily on the three shorter trails) seeks to answer a number of critical questions:

- *Is there a viable trail route (is a trail route physically possible)?*
- *Are there alternative uses for the corridor that will provide more value to the community? Are these alternative uses viable?*
- *Will the rail trail provide a quality user experience (terrain / landscape / history)?*
- *Is there a market for the proposed trail (local people and visitors who will be attracted to use it)?*

- *Will the rail trail create any unmanageable or unmitigated impacts on adjoining landholders' farming practices and lifestyles?*
- *Are the local government and key stakeholders supportive of the concept?*
- *Are there supportive/strong advocates (in the community)?*
- *Is there a supportive community?*
- *Would the trail be value for money?*
- *Is there a commitment to the ongoing maintenance of the trail ("friends of …" group or support network)?*
- *Will the trail provide a unique experience?*
- *Is there a demonstrated benefit to trail users and, especially, the host communities?*

The feasibility statement set out in Section 8 answers these questions. Generally, the answer to most of these questions is "Yes".

WHAT IS A RAIL TRAIL?

A rail trail is a multi-use recreation trail running on a disused rail corridor (public land) for non-motorised recreation. There are over 100 established rail trails in Australia, the majority of which are in Victoria. South Australia, Western Australia, Queensland, Tasmania, NSW and the Northern Territory also have rail trails albeit a small number in each state. A number are under consideration in Queensland.

The six tunnels between Many Peaks and Kalpowar would be a unique feature of the proposed rail trail and a major attraction for potential visitors.

ISSUES

There are a range of issues involved when considering a rail trail project. These issues were considered extensively in the Interim Report. In summary the issues are:

- **Tenure and land ownership**. The two railway corridors remain in public ownership. However, field investigations reveal two apparent tenure anomalies (neither of which are major but which do have some impact on trail design should a trail proceed). These are near the Dirnbir siding and at the Mundubbera aerodrome. The issue of the Dirnbir siding is no longer relevant to the recommended trail route. The other issue at the western end is the different tenure arrangements for the corridor currently. North Burnett Regional Council has a licence with DTMR for a section of the rail corridor to the Mundubbera Railway Station. There is a sub-lease with the Mundubbera Enterprise Association for the Railway Station and a smaller section of the corridor (Bauer Street to Orton Street). The Burnett River Rail Trail group has a 2 year access licence from Red Gully Bridge to Reids Creek. This is not a major issue if both parties agree that the trail should proceed. There are other licences and sub-leases along the corridor outside the immediate area of interest (in terms of developing the Burnett River Bridges Trail).
- **A long trail versus a series of shorter rail trails.** If fully developed along its entire length, the proposed Boyne Burnett Inland Rail Trail would be a rail trail of 270.75 kilometres – the longest rail trail in Australia. Whilst this has some appeal (simply being the longest may attract some particular usage), the case has been made that developing a series of shorter trails provides a better experience for a wider range of users (and provides for a cheaper project to both build and maintain). The low number of long rail trails in Australia may suggest that demand for such a product is relatively low, though it is hard to make a decisive comment as demand data does not exist. This report focusses on the three shorter trails.

The old railway stations at Mundubbera (above) and at Gayndah have been preserved and restored, thanks to the hard work of local heritage groups.

- **Landholder issues.** Adjacent landholders are traditionally – and understandably – apprehensive about trails close to their properties. It is important that these concerns are seriously addressed before any trail conversion takes place. Many landholders resent having things imposed on them or feeling as if they have no say in what is happening around them. Many landholders are resistant to change of any sort, let alone one they perceive will have detrimental impacts on their lifestyle as well as on their farming operations. If conversely, adjacent landholders who understand and support the reasons behind a trail, and who see that the trail is going to be well organised and efficiently managed, will prove to be extremely valuable partners in years to come.
- **Bridges: River and creek crossings (and overhead bridges).** Bridges are one of the most obvious reminders of the heritage value of disused railways, one of the most significant attractions of trails along disused railways and also one of the costliest items in the development of trails on former railways. Bridges on this corridor cross standing water, cross waterways that have water in them at certain times and cross roads and stock access points. A number of the existing bridges have been preserved while a number have been left in place pending the completion of the rail trail study.

Many of the bridges traverse steep and deep creek valleys. Retention of the bridges is far preferable to construction of a lower level crossing.

- **Fencing.** There may be a need for new boundary fencing both for insurance purposes and to reduce maintenance costs by allowing grazing of the "excess" corridor.
- **Aesthetics on the corridor.** In addition to the distance between replenishment points, much of the corridor between Kalpowar and Mundubbera runs alongside either Gladstone Monto Road or the Burnett Highway. This detracts from the user experience. The trails chosen avoid long lengths alongside major roads.
- **Distances and services on the corridor.** One-way trails (or out-and-back trails) need an anchor at both ends to be attractive to users. The best one-way trails (including many

rail trails) have natural terminuses in major centres or towns or pass through major towns. The proposed long trail does not offer this opportunity. This is particularly the case between Kalpowar and Mundubbera.

- **Costs – construction and maintenance.** Costs – both capital and maintenance – are a major consideration in any public infrastructure project. These need to be offset against a range of benefits – both economic and non-economic. Detailed costings are not part of this project, but the Councils and the State Government need to have some understanding of the possible construction and maintenance costs.

  Ongoing trail maintenance is a crucial component of an effective management program – yet it is often neglected until too late. Ongoing maintenance can be minimised by building a trail well in the first place. A well-constructed trail surface will last considerably longer than a poorly built trail (trail construction techniques are included in Appendix 1). Evidence of actual trail maintenance costs for individual items along a rail trail, or any trail for that matter, are scarce. It is difficult estimating the costs involved in maintaining a trail until every last bridge and other infrastructure items have been installed. There are numerous examples across Australia of volunteers making a major contribution to trail maintenance and reducing costs to the trail manager.

While the disused railway corridor provides spectacular vistas in numerous locations, several lengthy sections bisect farming areas and development of a trail will mean special measures will need to be put in place to allow farming to continue.

- **Stakeholder positions.** While management arrangements for Queensland rail trails are not set to a standard model, there is no doubt that Local Governments are and will be a key player in ongoing management. Both Gladstone Regional Council and North Burnett Regional Council have expressed general concerns about trail costs - both construction and maintenance (though maintenance costs appear to be a more significant concern). While both Council support this study, their continuing support for a rail trail (or series of rail trails) is partially dependent on the outcomes of the study and a clear articulation of costs and benefits. In response to the Interim Report, North Burnett Regional Council clearly stated its position with its formal resolution stating that Council will not fund any potential capital and maintenance cost associated identified in the Burnett Boyne Inland Rail Trail Interim Report. The community groups that have come forward prior to this study and in the course of the study have indicated a very strong support for the

proposal. The State Government (through its key agency the Department of Transport and Main Roads) has expressed formal position on the proposed rail trail beyond providing funding for the feasibility study.

- **Potential other uses of the corridor.** In recent years there has been a proposal to bring some form of tourist train back to the corridor (or at least to parts of the corridor particularly around the tunnels). A proposal by Monto Rail Adventures to develop a railway tourist attraction stalled after the proponent was not able to produce an acceptable feasibility and management plan for the Department of Transport and Main Roads.

  The other major potential use of the corridor is heavy rail as proposed in the document entitled *Building the future trade potential of the Wide Bay Burnett: Driving prosperity through greater infrastructure investment*. Unfortunately, there is very little detail about this proposal available which would allow an assessment of its impact on the rail trail proposal.

OPPORTUNITIES

Rail trails also provide several opportunities. There are a number of specific elements within the area encompassed by the proposed trail routes that provide opportunities and reasons for why a trail should be built.

- **Appealing landscapes and infrastructure.** The Boyne Burnett Inland Rail Trail would pass through some very attractive scenery. The journey alongside Lake Awoonga provides views of and over the lake and the nearby mountains which are quite enjoyable. There are great panoramic views afforded in sections, often due to very high and stunning embankments. This notably the case as the corridor proceeds through the Dawes Range, and along the Burnett River from Mundubbera towards Reids Creek. There are farming vistas through the Boyne Valley and between Kalpowar and Mundubbera (as well as providing near and far views of hilly countryside). Many bridges remain including significant and attractive bridges between Mundubbera and Reids Creek and at the northern end of the corridor in the vicinity of Lake Awoonga. Some of the railway stations remain and have been restored. The tunnels provide an outstanding

There are numerous locations where magnificent views of the surrounding landscape can be seen, including between Mundubbera and Gayndah where much of the corridor is alongside the Burnett River.

example of railway tunnels and the presence of 6 in a very short section is probably unmatched on an Australian rail trail. The hog's back sleepers, an unusual feature, add to the appeal of the tunnels.

- **Topography of the preferred route**. One of the major appeals of rail trails is the gentle gradient, suitable for all types of cyclists, and walkers (gradient is typically less of an issue for horse riders). This is the market that would be attracted to a rail trail.
- **Connections between towns.** Taking trail users through towns will provide new business opportunities for service providers. Presently, there are a relatively limited number of services that would appeal to trail users in many of the smaller settlements between Taragoola and Reids Creek. Development of the rail trail may provide a range of new business opportunities (or allow existing businesses to expand). The trail will make an actual connection between the towns and villages en route – one that reinforces historic connections.
- **Broadening the recreation offerings.** Provision of an additional off-road trail adds to the list of tourist offerings in the region and encourages visitors to stay a little longer to go for a pleasant walk or ride. A new nature-based attraction has the power to retain those visitors for longer, spending money and generating business opportunities. Utilising the Burnett River for canoe and kayak paddling both adds to the outdoor recreation offerings as well as providing an opportunity for a circular trail utilising the river and the rail trail in the southern section of the trail. Lake Awoonga offers a range of outdoor recreation experiences – boating, fishing, swimming, paddling, walking, photography. Boynedale Bush Camp offers accomodation right alongside the rail trail.

The Bush Camp at Boynedale, right alongside the disused railway corridor, is extremely popular. Development of a section of rail trail would enable visitors to cycle or walk to Ubobo and Nagoorin.

- **Community support.** While no formal consultation was carried out for this project, there does appear to be a ground swell of support from groups and individuals within the surrounding communities. It is also evident that there are strong advocates within the communities who have expressed a desire to get more involved in ensuring the proposed rail trail gets developed. A committed community-based group is an important element in a rail trail's success. This commitment can be tapped into to

ensure the rail trails succeeds should it proceed for ongoing maintenance and promotion. However, committed non-government groups should not be relied upon to take on the formal task of being the trail manager.

- **Attracting new visitors who spend money**. A trail such as the proposed Boyne Burnett Inland Rail Trail will provide a number of opportunities. A trail will bring additional tourists and keep them longer in the area. A trail will create opportunities to build on existing industries and enterprises of the area. Australians are increasingly looking for passive, non-organised recreation opportunities, often in natural or near-natural settings. Demand for this type of opportunity will only increase as the population ages. The potential expenditures may be quite significant based on trail user expenditures elsewhere.
- **There is a range of business opportunities for private sector investors arising from the potential development of a rail trail.** Providing accommodation, food and beverages, supported and guided tours, and equipment, are some of the businesses that have arisen along other trails. Such services add significantly to the user's enjoyment if done properly. A 2015 user survey of the Otago Central Rail Trail reported that ratings for package operators have consistently improved over time and were rated 9.5 out of a possible 10 in 2015. There is no doubt that this contributed to visitors rating their overall rail trail experience at 9.0 out of a possible 10.

Trails also have a number of non-monetary benefits. They improve community connectivity and provide increasing recreational options for local people thus contributing to both physical and mental health of communities through which they pass.

THE RECOMMENDED PROJECTS

On the basis of the detailed corridor assessment and due considerations of issues and opportunities, three sections of the corridor appear outstanding candidates for development as stand-alone rail trails.

The Awoonga Lake Rail Trail

The Awoonga Lake Rail Trail runs from Futters Creek Bridge to Ubobo. This section contains several significant bridges, passes alongside Lake Awoonga and associated wetlands and generally provides outstanding views of the surrounding landscape. Unfortunately, many of the existing bridges are no longer in place having been burnt or washed away. Extending the trail to Ubobo gives a clear start/finish point with a range of existing services. It is envisaged that people who are staying in Boynedale Bush Camp will be significant users of the trail heading north and/or south as an activity while staying at the Bush Camp. The total trail length to be developed is approximately **36.28 kilometres.**

This trail will be an expensive trail to construct. The key issue is the number of waterway crossings. There are 30 waterway crossings that either have a bridge or had a bridge over them (not all cross over waterways). This means a significant cost for repairing, replacing (where none exist) or providing alternative waterway crossings such as culverts. Some 66% of the trail's construction costs (not including the on-costs) is dedicated to waterway crossings. Bypasses (either concrete washovers/floodways or culverts) are often suggested as a viable alternative to bridges. In other trail projects, concrete ramps and floodways have been utilised.

The Brisbane Valley Rail Trail has bypassed almost all of the timber bridges on the corridor and has built a range of alternative waterway crossings consisting mostly of concrete floodways. However, these are not very attractive, detracting from the user's experience and often come with significant maintenance issues. Not using the bridges means the loss of an essential part of the rail trail experience. If the trail proceeds, there is a strong case for retention of bridges for their heritage and convenience/utility value. It is reasonable to assume that, without the bridges on this particular rail trail, the rail trail will lose a significant part of its appeal to users. Re-use of the major bridges is seen as the best option to maximise trail use.

The Kalpowar Tunnels Rail Trail

The proposed Kalpowar Tunnels Rail Trail runs from Builyan to Kalpowar. This section contains the 6 tunnels, has several significant bridges and sidings, outstanding views and has a village at each end (as well as the village of Many Peaks) where trailheads can be easily developed (utilising existing facilities such as parks and toilets). The trail will also provide an additional trailhead at Glassford Creek at the bottom of the descent of the Dawes Range.

The descent of the Dawes Range provides an outstanding rail trail experience providing long views over very steep countryside and a mostly vegetated landscape. The tunnels provide a unique experience. The retention of the hogs back sleepers within the tunnels has been strongly advocated by the community. It is recommended that the sleepers be retained in one tunnel (Tunnel 6 which minimises the distance for people who simply want to come and look at the sleepers) and that cyclists and horse riders be required to dismount (by the use of appropriate signage) to traverse the tunnel. It is acknowledged that allowing users to ride in a tunnel with retained sleepers does present a hazard (and is uncomfortable) and should be avoided.

The total trail length to be developed is approximately 31.2 kilometres.

The Burnett River Bridges Rail Trail

The proposed Burnett River Bridges Trail has many of the heritage listed bridges, spectacular views of the Burnett River, considerable local history and volunteer groups with a passion for the development of the rail trail and the preservation of the local history. It is anchored at one end by a major town (Mundubbera) and terminates relatively close to another major town (Gayndah). This trail has recommended trailheads at Mt Debateable, Philpott Siding and Mundubbera.

The Interim Report proposed that the eastern terminus of the trail be at the Mt Debateable siding (where a trailhead would be developed) and users could ride a short spur trail (on the rail corridor) to the stone pitched walls some 1.3 kilometres east of the Mt Debateable siding. Finishing the trail here was recommended for a range of reasons canvassed in the Interim Report and mainly relating to a lack of "destination" if taken to Reids Creek (particularly given the spectacular views over the Burnett River provided by the trail as proposed), the apparent construction of a sealed road over part of the corridor near Dirnbir siding, and additional costs. Upon more detailed investigation during the second round of fieldwork, it was determined that the trail should continue along the corridor to a road known locally as Browns Road (some 2 kilometres further along the corridor from the stone pitched walls). This would then allow users who are keen riders (in particular) to ride along Browns Road to Mt Debateable Road and back

to the siding – this involves travelling along some relatively quiet country roads and creates a loop at the end of the trail.

Developing the trail to this point also facilitates conversion of the corridor if a trail can be extended to the south to connect to Gayndah (over Reids Creek) at some time in the future. The study area for this project extends to Reids Creek primarily because of the difficulty and cost of reestablishing a crossing over Reids Creek (which would be an expensive project). If such a connection was established, the rail trail could then be developed to connect to Gayndah on the old railway corridor. The corridor would need to stay in public ownership for this to succeed.

The total trail length to be developed under this scenario is approximately 28.8 kilometres (from Mundubbera to the intersection of the corridor and Browns Road).

The Recommended Trail Projects: Summary of Costs (GST exclusive)

Trail	*Cost*
Awoonga Lake Rail Trail)	*$10,733,485*
Kalpowar Tunnels Rail Trail	*$6,577,425*
Burnett River Bridges Rail Trail	*$3,383,530*

Each of the recommended shorter trails would provide up to a half day excursion and could easily be packaged as a 2 or 3 day stay in the region. They would provide access to the highlights of the rail corridors – the tunnels, several bridges (including significant heritage

The disused railway runs alongside a substantial length of Lake Awoonga and provides outstanding views of the dam and surrounding landscape.

bridges), very attractive landscapes across a range of vegetation types and water (river and lake) views. They also provide the opportunity to package up a "ride/walk and paddle"

experience in the region (utilising their proximity to Lake Awoonga and the Burnett River). They provide opportunities for some of the smaller villages in the region to develop as a base for trail adventures.

Developing a long trail along the whole of the corridor is a very expensive project and one that cannot be justified given the limited demand for a long trail and the ongoing maintenance costs (which will be quite high due to the trail length). There also is a seeming reluctance by both Councils to take on responsibility for the significant maintenance that would be required for a long trail (maintenance will be required for the three shorter trails, but it will obviously be much less than for the long trail). It may be possible or desirable in the future to develop further trails along the corridor (perhaps even the long trail) but there is no clear business case for developing a long trail presently. Retaining the rail corridor in public ownership would be necessary for future development of a long trail.

THE BUSINESS CASE

It is always difficult to predict the economic impact of a new trail. Visitor numbers on the Bibbulmun Track (in WA) grew from 10,000 when the new alignment was first opened in 1997 to 137,000 in 2004 (*Colmar Brunton 2004*) to over 167,000 in 2008 (*Colmar Brunton 2009*) to over 300,000 in 2015 (*Hughes et al 2015*). This was on a trail that had existed in its entirety for many years but was substantially altered and reopened in 1997 (although new sections of it had been opened prior to its grand opening). Visitors included those on 'local trips', day trips and overnight or longer stays (including those who travelled from end to end).

There is little doubt that some sections of the disused railway corridor are more outstanding in their beauty than others. The key to attracting visitors is to offer outstanding scenery, coupled with retention of relics and reminders of the former railway (bridges, tunnels, stations and sidings, embankments, cuttings and signage).

A dramatic increase in visitor numbers such as experienced by the Bibbulmun Track can be, in part, attributed to very good marketing of the track. The economic impact of any of the

proposed trails are primarily dependent on the extent to which the trails are marketed and promoted (if they proceed).

A trail will bring additional tourists and keep them longer in the area. Other possible benefits from developing the trail include:

- Improvements to community connectivity;
- Increasing recreational options for local people; and
- Creating opportunities to build on existing industries and enterprises of the area.

A trail such as any of the three proposed Rail Trails will have attraction to visitors – day trippers and overnight visitors. However, it will also add to the stock of existing trails for local people – people who live in towns and villages within easy reach of any of the trails. Some of these people will use the trail for exercise – these 'back gate' users may not be significant in terms of expenditure, but they are significant in terms of numbers as they would use the trail many times a year.

There is no doubt that a package of three trails – the Awoonga Lake Rail Trail, the Kalpowar Tunnels Rail Trail and the Burnett River Bridges Rail Trail – will attract users if presented as a package of three trails. It will particularly attract new overnight visitors who want to do the three as a package.

With the right marketing, the trails will attract local users, day trippers and visitors. Under a relatively conservative scenario, the outcomes presented below are achievable.

Forecast user scenarios and economic benefits

	Awoonga Lake Rail Trail	Kalpowar Tunnels Rail Trail	Burnett River Bridges Rail Trail	2 Trail Package	Boyne Burnett Inland Rail Trail Experience (3 trail package)
Local use (numbers)	1,520	2,628	12,968	4,148	17,116
Day trippers	3,000	6,000	3,000	11,000	14,000
Overnight visitors (converted from day trippers)	1,000	2,000	1,000	3,000	4,000
Overnight visitors (extending their stay)	1,000	2,000	1,000	3,000	4,000
New overnight visitors	0	0	0	2,000	4,000
$ injected into local economies	***$857,368***	***$1,706,760***	***$881,981***	***$3,695,418***	***$6,248,999***

It is likely that the fundamental difference between the development of three single trails (the three left hand columns above) and the package of trails (the two right hand columns) will be the ability of the trail package to attract new overnight visitors to the region. The trail package (either the 2 or 3 trail package) provides an attraction that will motivate visitors to come to the region primarily for the trail (they may undertake other activities while in the region). It is unlikely that someone would drive from Brisbane primarily to undertake one of the single trails - a 28 km, 32 km or 34 km trail journey. Many of the world's longer trails offer supported and guided experiences opening up trails to people who may previously have not considered doing a trail activity. Such similar packages can be offered to do the 2 or 3 trail package. The numbers above (in the two right hand columns) reflect the additional attractiveness of the "trails package" i.e. the extra people who will come to do the package who would not come to do individual trails.

It should be emphasised (under all scenarios) that user and visitor numbers will not necessarily be realised in the first years of operation if the trail proceeds. The predicted user numbers are an "end state" of user numbers. Trail numbers will build in the first 5 years of a trail section being opened (after 5 years a trail is a "mature product"). It is assumed that trail use will increase by steady increments. The available evidence is limited and tends to show that trail use starts slowly but grows very quickly at some point. It may be that the growth of social media will see trails reach an "end state" of use much faster than previously.

More details on how user numbers are calculated and the likely realisation of those numbers can be found in Section 7.

The total injection of dollars into the local economies from local, day trip and overnight visitors ranges from **$857,368/ year** to **$6,248,999/year** (under a range of conservative scenarios). Complex economic analysis (beyond the scope of this project) is needed to determine how many jobs are likely to be created by such expenditure.

It should be emphasised (under all scenarios) that user and visitor numbers will not necessarily be realised in the first years of operation if the trail proceeds.

Any of the trails offer a range of new business opportunities and the opportunity for existing businesses to extend their offerings. The trail has the potential to improve the sustainability of businesses reliant on tourism. The Burnett River Bridges Trail presents the opportunity to develop the North Burnett regional tourism market. The completion of a trail would not simply provide an injection of funds to stabilise and grow existing and new businesses. The psychological impact on businesses can also be very important; businesses operating around other rail trails believe the trails have contributed to their businesses as well as helping to position their area as an authentic leisure holiday destination.

The trail provides a number of less quantifiable benefits. These include:

- Health-related benefits to the wider economy. Data from the USA indicates that every $1 of funds spent on recreational trails yield direct medical benefits of $2.94. The trail will encourage people to exercise – the economic benefit to society of getting an inactive person to walk or cycle is between $5,000 and $7,000/year.

Medical research has shown that 1 hour of moderate exercise can add more than 1 extra hour of high-quality life to an individual.

- Rail trails are an accessible form of recreation. Trail-based recreation is generally free, self-directed and available to all people, all day, every day. Good quality, accessible trails encourage physical activity and improved health. Increasing recreational options for local communities will aid overall community wellbeing. The psychological health benefits of trails remain under-estimated.
- Quality recreational facilities, such as trail networks, can help create attractive places to live and visit. Walking and cycling are relatively cheap modes of transport. Trails also provide a low impact means of travelling through the landscape and play an important role in connecting people with nature.
- Trails present a unique opportunity for education. People of all ages can learn more about nature, culture or history along trails. Trails have the power to connect users to their heritage by preserving historic places and by providing access to them. They can give people a sense of place and an understanding of the enormity of past events. An added advantage of a rail trail is that it provides an opportunity for city to connect to country, in a way "bush" trails do not. Education of users about railway history is also a paramount consideration in trail development.
- Trails provide a number of environmental and cultural benefits including opportunities for the community to experience natural and cultural environments, increased community ownership which helps to preserve natural and cultural values, and opportunities for community participation in conservation and revegetation work.

FEASIBILITY STATEMENT

Following consideration of the major issues pertaining to the development of a trail on the disused railway corridor between Taragoola and Reids Creek and considering the views of key stakeholders, groups and individuals consulted (and background information obtained during the course of the project), this Study recommends that:

- Developing a long trail along the whole of the corridor is a very expensive project and one that cannot be justified given the limited demand for a long trail.
- It may be possible or desirable in the future to develop further trails along the corridor (perhaps even the long trail) but there is no clear business case for developing a long trail presently. Retaining the rail corridor in public ownership would be necessary for future development of a long trail.
- The development of three shorter trails – the Awoonga Lake Rail Trail, the Kalpowar Tunnels Rail Trail, the Burnett River Bridges Rail Trail – should be pursued. A series of shorter trails provides a better experience for a wider range of users, provides for a cheaper project to both build and maintain, and delivers a range of economic and non-economic benefits to the host communities.

For the trails to proceed, a number of conditions should be met:

1. More comprehensive community consultation needs to be undertaken based on both the Interim Report and the Feasibility Report to establish wider community feedback on the trail proposals. As the Councils have commissioned the Feasibility Study, it is for them to determine whether and how this consultation should proceed;
2. Both Councils (or a Committee of Management) being prepared to accept vesting of the appropriate sections of former railway corridor i.e. Futters Creek to Ubobo, Builyan to Kalpowar, and Mundubbera to Browns Road (at Mt Debateable), with an acknowledgement that sub-leases may be required to permit other activities (if appropriate). The decision on what vesting entails will likely be made by DTMR as the responsible Government agency. It is likely that vesting will involve similar conditions as other arrangements between Councils and the State Government in respect of community resources such as showgrounds and sports grounds. Responsibilities are likely to include management, maintenance, and user safety liabilities. Some (but probably not all) of these responsibilities can then be "sub-let" to a community group as occurs in the case of many community assets. However, there is yet to be a clear indication from the State on what vesting will involve. The condition may be met by the vesting of the sub-lease for the Mundubbera to Browns Road corridor in an entity other than the North Burnett Regional Council if the entity meets conditions imposed by the Department of Transport and Main Roads. Under such circumstances, the rail trail developed in the first instance along this corridor section may not be as envisaged in this report (at a "lower standard) and it needs to be recognised that this is likely to impact on forecast user numbers. The option needs to be left open to pursue full development of this rail trail at a future date;
3. Detailed design development plans for the rail trails being prepared, which will involve a thorough examination of the entire corridor, the preparation of detailed works lists and cost estimates;
4. A comprehensive program of one-on-one discussions on-site with affected adjoining landowners be undertaken to ascertain their individual concerns and to work out together solutions to each issue raised;
5. The project proponents (the two Councils) seek funding from external sources (notably the Queensland Government and Commonwealth Government) for the construction of the proposed trail (and the detailed trail development plan that will need to be prepared prior to construction); and
6. A commitment to ongoing maintenance of the trail being given by both Councils, a Committee of Management and volunteers. An overview of likely maintenance tasks, possible costs and the use of volunteers to defray some of these costs are discussed in Section 10.

It should be noted that should one of the Councils determine not to proceed with a trail within its jurisdiction, the trail/s in the other jurisdiction should still proceed. There will still be economic and non-economic benefits to the communities; these will not be as significant as a three-trail package would be.

Several sections of the former railway corridor exhibit all the qualities that would make them very attractive rail trails.

If the Councils determine to proceed with trail construction, Gladstone Regional Council would be faced with the question of which trail to develop first - the Awoonga Lake Rail Trail and the Kalpowar Tunnels Rail Trail. There is no simple recommendation. The Awoonga Lake Trail is the most expensive of the trails to develop primarily because of all the bridge work. It would deliver the least economic benefit (it will still make a significant contribution to the regional economy). It is probably the least attractive of the three. On the positive side, it has the potential to involve a committed stakeholder (Gladstone Area Water Board) at an early stage of trail development with buy-in and resources.

Awoonga Lake Rail Trail

The recommended stages connect the proposed trailheads (distances are approximate):

Stage	Description	Estimated cost (excl GST)
1	Boynedale Bush Camp to Nagoorin (16 km)	$6,427,655
2	Nagoorin to Ubobo (5.6 km)	$626,175
3	Boynedale Bush Camp to Gladstone Monto Rd (north of GWB gates) (2.3 km)	$960,825
4	Gladstone Monto Rd (north of GWB gates) to Futters Creek (12 km)	$2,718,830
TOTAL		**$10,733,485**

Kalpowar Tunnels Rail Trail

The recommended stages connect the proposed trailheads (distances are approximate):

Stage	Description	Estimated cost (excl GST)
1	Kalpowar to Golembil siding (17.1 km)	$3,554,880
2	Golembil siding to Builyan (14.1 km)	$3,022,545
TOTAL		$6,5577,425

Burnett River Bridges Rail Trail

The recommended stages connect the proposed trailheads (distances are approximate):

Stage	Description	Estimated cost (excl GST)
1	Mt Debateable siding to Philpott siding (18.4 km)	$2,565,075
2	Mt Debateable siding to Browns Rd (3.3 km)	$150,650
3	Philpott siding to Mundubbera (7.1 km)	$667,805
TOTAL		$3,383,530

SECTION 1 – INTRODUCTION

The proposed Boyne Burnett Inland Rail Trail would be developed effectively on two disused railway corridors. These railway corridors are the Gladstone to Monto corridor (though the study area starts at Taragoola) and the Monto to Gayndah corridor (though the study area ends at Reids Creek). The railway corridors (together) cover a distance of some 270.75 kilometres – conversion to a rail trail would make this the longest rail trail in Australia (the Brisbane Valley Rail Trail currently holds that achievement at 161 kms).

1.1 A HISTORY OF THE RAILWAY CORRIDORS

The Boyne Valley west of Gladstone was predominantly a dairying region and a railway had little justification. However, a branch was justified in 1906 on the basis of large traffic in timber, fuel, limestone and flexing ores. Progressively opened between 1910 and 1931, the line branched from the North Coast line at Byellee a short distance west of Gladstone and struck a south-westerly route via Many Peaks and Mungungo to Monto. The initial construction was from Byellee to Many Peaks. The line was built to transport low grade ore from Many Peaks to Mount Morgan for processing. A train of copper flexing ore ran to Mount Morgan daily and a mixed train to Gladstone and return ran four days a week. Cream and agricultural goods provided the major source of revenue when the Many Peaks mine closed in 1918. The next stage (Many Peaks to Barimoon), though short, took a long time to construct due to the steep terrain through which it passed. A ten-kilometre section beyond Golembil required the construction of six tunnels totalling 730 metres to negotiate a 239-metre climb of the Dawes Range. In 1930, the railway was extended to Mungungo and in July 1931 finally reached Monto thus completing a semi-circular inland link between Maryborough and Gladstone via the already completed line running north west from Mungar Junction through Gayndah, Mundubbera and Eidsvold.

Many of the timber bridges have been removed from the corridor: however, some of the most strategically positioned bridges have been retained for future rail trail use.

Coming from the south east, the Mungar Junction to Monto Branch was a 267 kilometre railway constructed between 1889 and 1928. The line reached Gayndah on 1907 and Mundubbera in 1914. The balance of the line to Monto was opened in three stages – to Ceratodus on 26 April 1924, to Mulgildie on 20 June 1927 and finally to Monto on 15 September 1928. Over time (across Australia), road transport became steadily more efficient during the 1950s and the railways began to lose their primary function. Throughout the following decades, scores of railway lines were abandoned. Many of these corridors remain in public ownership.

The Gladstone Monto line was suspended from use in 2002. The last train on the line from the south was a celebratory journey on an old steam train, which came through from Monto to Maryborough in 2005.

(https://en.wikipedia.org/wiki/Gladstone_to_Monto_railway_line; and https://en.wikipedia.org/wiki/Mungar_Junction_to_Monto_Branch_Railway).

Some important reminders of the former railway remain along the corridors of both lines. Many of the railway stations along the entire section of the corridor remain and have been re-purposed (Mundubbera and Monto are two good examples) or re-located close by (at Ceratodus). Gayndah Station (though outside the study area) has also been restored. Cuttings and embankments are a feature along the corridor. Many bridges remain in some sections and the six tunnels between Kalpowar and Many Peaks are reminders of railway history. These tunnels are locally heritage listed. An active community group has restored much of the signage (siding and railside signs) between Reids Creek and Mundubbera.

The heritage listed railway bridges between Mundubbera and Gayndah are being retained.

1.2 PROPOSALS FOR A RAIL TRAIL

In 2012, several community groups from towns along the inland railway line from Gladstone to Maryborough held discussions with Queensland government representatives regarding the future of the corridor. Each district had their own aims and ambitions for the future of the corridor which had not been in use since 2002. In June 2018 the Boyne Burnett Inland Rail Trail Working Group took the necessary steps to incorporate as a not for profit group.

Representatives from Gladstone Regional Council and North Burnett Regional Council (the two councils through which the corridors pass) have been working with the Boyne Burnett Inland Rail Trail Inc, established by the community to champion the development of the rail corridor and represent the expectations of the community.

A detailed description of rail trails including examples from other States and overseas was included in the Interim Report (provided to the two Councils in early November 2018). A rail trail is a multi-use recreation trail running on a disused rail corridor (public land) for non-motorised recreation. There are over 100 established rail trails in Australia, the majority of which are in Victoria. South Australia, Western Australia, Queensland, Tasmania, NSW and the Northern Territory also have rail trails albeit a small number in each state. A number are under consideration in Queensland.

There is a wide range of features that make rail trails popular. Generally speaking, it is the flatness of the corridor and the many historic features of the railway (embankments, cuttings, bridges, tunnels, signals, switches, stations and sidings, turntables etc) that attract and fascinate visitors to a rail trail.

Not all rail trails are the same: some are located through farming land, some are located in inner urban areas, and others are located through forests.

Rail trails are different from each other, but a number of characteristics often distinguish the good ones. These features are drawn from a number of published sources and the consultants' own extensive experience with rail trails.

- Many successful rail trails have accessibility to large population centres both for visitors and as a stimulus for local demand.
- There are existing or easily developed tourism infrastructure in or near townships along the rail trail - places to eat and drink, explore and stay.
- Good rail trails have some heritage infrastructure in place such as historic stations, bridges, tunnels, goods sheds, sidings, platforms, turntables, switches, signals, and mile posts. Rail trails elsewhere have utilised their railway history as part of their attraction. Remaining major elements of the railway infrastructure (formations, deep cuttings, high embankments, bridges, culverts) add significantly to the user's experience. Built and social heritage values are a critical part of the rail trail experience not often experienced on other types of recreational trails.
- A common feature is community and adjacent landholders' level of support for the project to move ahead. Many (though not all) adjacent landholders are initially suspicious of rail trails; they often become converts once a trail is built.

- A uniqueness of experience is often important – be it landscape, trail type, a 'one-of' nature.
- Many of the good rail trails have a regional or state tourism significance (some have national and international significance). Significance is elevated where extensions are made to connect to services in towns. The best rail trails have natural terminuses in major centres or towns. Intermediate towns easily accessible along the trail are critical when a trail is long and an added bonus when the trail is short.
- The best rail trails are located in highly scenic surrounds, with spectacular views of the surrounding landscapes. These trails are often full of variety and interest. The best rail trails traverse places of cultural and natural history and conservation and provide opportunities to view birds, other wildlife and remnant vegetation.
- The good rail trails often provide opportunities for short, medium and long length rides and walks on the main trail.
- Railway corridors can provide a great insight into the history of the region – both European settlement and Aboriginal use. Good interpretation will mark out an excellent trail. There are many good recreation trails (including rail trails) in Australia – few have good interpretation. Interpretation adds significantly to the user's experience.
- In a similar vein, trails that emphasise local conditions – flora, fauna, history, construction materials, etc. - are very popular. Good interpretation will bring out this local flavour.
- Well-signed and mapped trails - both on the trail and easily available elsewhere - are more successful than those that are not.
- Informed locals make a user's experience more pleasurable.
- The best rail trails offer a challenge, and they offer peace and solitude.
- A well-maintained trail and a strong community support network add to the user's experience, primarily because the trail remains in good condition. Such a community network could include a committed and purpose-dedicated management committee, a strong "Friends of the Trail" Group or even a full-time trail manager. Various rail trails in Australia feature at least some of these elements.

In addition, all rail trails have a number of positive features which mark them out as uniquely rail trails (as opposed to other recreational trails).

- Rail trails are trails for people of all abilities and all types of bicycles. Good trails provide equity for people of many levels of fitness and equipment to gain access to the types of experience within the region.
- All rail trails are motor vehicle free i.e. safe for all types of trail users. Minimising the number of major road crossings adds to the experience. Trails rarely interrupted by road crossings appeal more than those which constantly cross roads – well marked and safe crossings where necessary add to the success.

- All railway formations (through cuttings and along embankments) provide a gentle gradient and sweeping bends, suitable for all types of cyclists, walkers, and where appropriate, horse riders.
- All rail trails offer safety for users compared with urban shared pathways which have driveways, light poles, blind corners, poor sightlines, and are often 'congested' as users cannot see other users approaching due to poor sightlines.

1.3 RECENT HISTORY

The Queensland Government released its *Queensland Cycling Action Plan* in 2017 which committed to the investment of $14 million over four years to develop and implement a program to deliver rail trails in partnership with local governments on state-owned disused rail corridors. This funding provided an impetus to examine a range of railway corridors which may have the opportunity to be converted to rail trails.

In early 2018, the Gladstone Regional Council and North Burnett Regional Council agreed to enter into a partnership to commission a feasibility study on the Reids Creek to Taragoola railway corridor.

The old railway stations at Mundubbera (above) and at Gayndah have been preserved and restored, thanks to the hard work of local heritage groups.

In November 2018, an Interim Report was submitted to both Councils which provided direction for the remainder of the investigation. It contained two recommendations:

- Gladstone Regional Council and North Burnett Regional Council review the Interim Report.
- The Councils determine to proceed with more detailed planning for the three identified candidate rail trails - Futters Creek Bridge to Ubobo, Builyan to Kalpowar, and

Mundubbera to Mt Debateable (including a trail to the stone pitched embankments east of Mt Debateable siding). This planning will verify trail development requirements and focus on key infrastructure identified as necessary for rail trail development. A decision to proceed to this stage does not commit either Council (or the Department of Transport and Main Roads) to the development of the three trails.

The Interim Report and recommendations were accepted by both Councils. While the Interim Report was approved by officers of Gladstone Regional Council, North Burnett Regional Council formally resolved (at its meeting of 30 November) as follows:

That:

1. *North Burnett Regional Council receive the Interim Report;*
2. *The Council agree to proceed with a more detailed planning for the identified candidate rail trails within the North Burnett Region - Builyan to Kalpowar, and Mundubbera to Mt Debateable (including a trail to the stone pitched embankments east of Mt Debateable siding) as this is still within the original funding of the project grant and will be at no addition cost to Council. The planning is to verify trail development requirements and focus on key infrastructure identified as necessary for rail trail development;*
3. *It is noted that a decision to proceed to this stage does not commit Council (or the Department of Transport and Main Roads) to the development of the identified candidate trails; and*
4. *Council will not fund any potential capital and maintenance cost associated identified in the Burnett Boyne Inland Rail Trail Interim Report.*

This report delivers on the recommendations contained in the Interim Report, providing more detailed consideration of three trails:

- Awoonga Lake Rail Trail;
- Kalpowar Tunnels Rail Trail; and
- Burnett River Bridges Rail Trail.

SECTION 2 – SCOPE OF WORKS

The Gladstone Regional Council (GRC) and North Burnett Regional Council (NBRC), in partnership, have determined to undertake a feasibility study on the decommissioned Taragoola (Calliope) to Reids Creek (Gayndah) railway corridor for the purpose of establishing the asset into a highly recognised rail trail destination fit for cycling, walking and horse-riding.

The feasibility study is anticipated to deliver on the following overarching deliverables:

- A detailed asset review of the proposed rail trail across two (2) Local Government regions.
- Identify the social, economic, emerging and ecological tourism opportunities and benefits for the local and adjacent communities.
- A detailed cost analysis of initial asset development and future maintenance costs for each Council provided on the recommended stage approach.
- Recommendations including a staged approach to the establishment of the rail trail corridor.

The feasibility study is expected to take the key considerations identified by each Council and their communities when developing recommendations regarding the rail trail project. These include:

- *Is there a viable trail route?*
- *Are the key stakeholders supportive and advocate for the project?*
- *What will the likely impact be to surrounding land uses/owners?*
- *Is there a market for the trail and will it provide a quality experience to make it attractive to all users?*
- *Does the trail offer unique opportunities to attract emerging markets such as adventure trail enthusiasts?*
- *Are there existing trail adventures that will complement/add value to the rail trail proposal?*
- *What are the costs associated with developing the trail and ongoing maintenance?*
- *What are the additional facilities required in order to service the rail trail route?*
- *Is there evidence of social, economic and tourism benefits to the local and adjacent communities?*
- *Does development of the trail present a viable case to deliver a return on investment and/or be cost neutral to Council?*

Each Council intends to use the study to inform future strategic direction on the project. The study will also inform the future development of applications for Australian, State and/or Corporate investment.

The rail trail could ideally begin from the township of Calliope at the rodeo association grounds (although the brief specifies Taragoola as the trail's northern terminus). The rail corridor is

approximately 91.5km long (within the GRC area) and weaves its way south through the localities of Taragoola, Boynedale and Boyne Valley (Dawes Range) where it connects with the township of Kalpowar on the North Burnett Regional Council side of range.

The North Burnett Region consists of six (6) communities and numerous villages and localities. Kalpowar is the most northern village in the North Burnett region and is an hour and a half drive from Gladstone. Gayndah is the most southern community and is situated on the Burnett Highway approximately 360km north west of Brisbane.

Advice provided by the Department of Transport and Main Roads has identified the proposed rail trail within North Burnett Regional Council to be approximately 179.25km long, starting about 5km north of Gayndah at Reids Creek and ending north of Kalpowar.

The boundary between the two Local Governments lies between Kalpowar and the southernmost tunnel.

Retention of the unique hog's back timber railway sleepers within the tunnels is one of the key factors to be considered when developing the rail trail.

SECTION 3 – DELIVERING ON AGREED COMMUNITY OUTCOMES

The Queensland Government, Gladstone Regional Council and North Burnett Regional Council have prepared a number of community, planning and economic documents in recent times outlining a range of goals, objectives and actions. Developing a series of rail trails on the disused rail corridor delivers on a number of these goals, objectives and actions. How a rail trail aligns with these broad outcomes is best shown under each broad goal (which are similar in a range of documents).

3.1 ECONOMIC DEVELOPMENT

Rail trails provide an additional tourism asset to the communities through which they pass. This in turn creates a number of economic opportunities both for existing businesses and new businesses. Various documents prepared for the two Councils and the wider region include goals and actions around supporting and diversifying the existing economic base.

The *Queensland Cycling Strategy 2017-2027* and the *Queensland Cycling Strategy Action Plan 2017-2019* (which funds this report) have clearly identified the economic benefits of cycling tourism. The Strategy identifies that getting more people cycling, more often will help power Queensland's economy and revitalise local communities. It states that Investing in cycling as a mode of transport for recreation and tourism will help to power Queensland's economy. The State Government has committed to supporting cycle tourism by providing funding to build and promote rail trails and touring routes. The State Government is investing $14 million over four years to develop and implement a program to deliver rail trails in partnership with local governments on state-owned disused rail corridors.

The *Central Queensland Regional Plan* (2013) identifies that there is an opportunity to build on the existing range of tourist experiences to further diversify the Central Queensland tourism sector and ensure long-term economic sustainability. Identified opportunities include developing eco-tourism ventures and activities on environmentally suitable land.

The *Wide Bay Burnett Regional Plan* (2011) includes within its discussion of future planning for tourism that one of the guiding principles for future development is that the existing commercial tourism market is complemented by a diverse range of new sustainable tourism opportunities to build the local economy and employment sector.

The *Gladstone Region 2035 Visioning Project* expresses a desired outcome that the region hosts a diverse economy, with high levels of enterprise and innovation.

The *Gladstone Region Economic Development Strategy (2015)* articulates Council's vision for economic development which is to enable region-wide economic growth by facilitating sustainable, financially and environmentally responsible initiatives that will advance economic development in the Gladstone Region for the community. The Strategy identifies numerous key industries that will drive the development of the future economy, including the tourism, events, arts and culture sectors.

The *Gladstone Regional Council Corporate Plan 2018-2023* indicates that one of Council's goals is to create a more diverse local economy, while another is to increase visitation rates and promote the region as a destination.

A rail trail is one asset which can provide more employment opportunities in tourism and hospitality by offering niche tourism experiences, widening the employment and tourism activity base.

3.2 ATTRACTIVE COMMUNITIES

Quality recreational facilities, such as a rail trail, can help create attractive places to live and visit. Walking and cycling are relatively cheap modes of transport. Trails also provide a low impact means of travelling through the landscapes and play an important role in connecting people with nature. Attracting new businesses and residents to any region is dependent in part on the 'attractiveness' and 'liveability' of the area, with the region competing with other localities throughout Australia.

According to the Regional Australia Institute, one of the key population shifts back to regional cities in recent years are 'regional returners'. These are people aged between 25-44 who left Australia's regions as young adults, but are choosing to return home later in life, and a number are professionals with a mix of specialist skills. Lifestyle is one factor that makes regional areas an attractive alternative to capital cities. A rail trail is part of this mix of lifestyle opportunities. The provision of quality recreation assets and opportunities (such as a rail trail) is one way of adding to an area's appeal for both families and tree changers.

Various planning and community documents prepared for the two Councils and the wider region include goals and actions around improving the attractiveness of local communities as places to live.

The *Central Queensland Regional Plan* (2013) identifies that growing and fluctuating non-resident workforces across the region are putting pressure on all spheres of community infrastructure in the Central Queensland region which in turn is impacting on the liveability of local communities. It sets out a priority outcome for community infrastructure is to support community infrastructure needs, including optimising the use of existing assets to improve community liveability and induce non-resident workers to relocate to the region. The three proposed rail trails all utilise existing community assets and improve liveability.

The *Gladstone Region 2035 Visioning Project* expresses in its vision that community members enjoy access to their desired leisure and recreation opportunities. Some residents will be attracted to a safe off-road riding and walking experience.

The *North Burnett Regional Council Corporate Plan 2018-2023* has as one of its key action areas the promotion of the region to attract people to live, invest and visit.

SECTION 4 - ISSUES

There are a range of issues involved when considering a rail trail project. These were discussed in detail in the Interim Report. Subsequent fieldwork concentrating on the three nominated corridors did not yield any new issues but did provide for some further information on the previously identified ones.

These issues are reproduced below in summary form from the Interim Report with additional comments based on subsequent fieldwork.

- **Tenure and land ownership.** The two railway corridors remain in public ownership. However, initial field investigations revealed two apparent tenure anomalies (neither of which are major but which do have some impact on trail design should a trail proceed). These are near the Dirnbir Siding and at the Mundubbera aerodrome.

  The issue at the Dirnbir Siding (a road appears to have been built on part of the original formation) is no longer an issue as the (proposed) Burnett River Bridges Rail Trail does not proceed that far (going only as far as the western end of Browns Road). It may be an issue in the future if the trail is extended.

  The northern end of the Mundubbera aerodrome runway has been built onto the railway corridor (the grass verge of the runway is on the corridor rather than the constructed runway) but the trail can be moved to the northern side of the corridor thus avoiding any issue in the vicinity of the aerodrome.

- **The merits of a long trail versus a series of shorter rail trails.** If fully developed along its entire length, the proposed Boyne Burnett Inland Rail Trail would be a rail trail of 270.75 kilometres – the longest rail trail in Australia. Whilst this has some appeal (simply being the longest may attract some particular usage), the case can be made that developing a series of shorter trails provides a better experience for a wider range of users (and provides for a cheaper project to both build and maintain). Long rail trails are relatively rare in Australia and New Zealand (the Brisbane Valley Rail Trail is the longest in Australia at 161 kms). Despite the recent growing popularity of long walk trails, available research indicates short trails are still the most popular form of trail. The low number of long rail trails in Australia may suggest that demand for such a product is relatively low, though it is hard to make a decisive comment as demand data does not exist.

  The Interim Report recommended the development of three shorter trails along the corridor in recognition of market and cost realities. It may be possible or desirable in the future to develop further trails along the corridor (perhaps even the long trail) but there is no clear business case for developing a long trail presently. Retaining the rail corridor in public ownership would be necessary for future development of a long trail.

  Such a retention is also desirable if a trail can be extended to the south to connect to Gayndah (over Reids Creek). The recommended Burnett River Bridge Trail extends from Mundubbera to Mt Debateable Siding with a loop trail extending along the corridor to connect with Browns Road. The reasons for originally stopping the trail at the Mt Debateable siding were canvassed in the Interim Report; however subsequent fieldwork

for this report established a possible loop trail utilising the rail corridor and country roads. The proposed trail would see users travelling along the corridor to Browns Road and then along this narrow, unsealed country road before connecting back to Mt Debateable Road. The study area for this project extends to Reids Creek primarily because of the difficulty and cost of reestablishing a crossing over Reids Creek (which would be an expensive project). If such a connection was established, the rail trail could then be developed to connect to Gayndah on the old railway corridor. The corridor would need to stay in public ownership for this to succeed.

- Landholder issues. Adjacent landholders are traditionally – and understandably – apprehensive about trails close to their properties. It is important that these concerns are seriously addressed before any trail conversion takes place. Many landholders resent having things imposed on them or feeling as if they have no say in what is happening around them. Many landholders are resistant to change of any sort, let alone one they perceive will have detrimental impacts on their lifestyle as well as on their farming operations. If conversely, adjacent landholders who understand and support the reasons behind a trail, and who see that the trail is going to be well organised and efficiently managed, will prove to be extremely valuable partners in years to come. Indeed, some of them will take advantage of business opportunities offered by the rail trail project. Landholder consultation always raises a number of issues, all of which have been satisfactorily addressed in other rail trail projects in Australia, New Zealand and North America. Issues tend to centre around a number of key elements within three major headings:
    - Farm management and disruption to farming practices. These include issues such as biosecurity, the need to cross the corridor to access stock watering points, and moving stock and machinery along the corridor;
    - Non-farm management issues. These are generally concerns around safety, security privacy, theft, trespass, noise, disturbance and a range of related issues; and
    - Trail management. These are generally concerns around maintenance, and the behaviour of trail users in regard to littering, toileting and other issues.

  These issues were not further explored during the preparation of this report, but it remains desirable to consult individual landholders in the next phase of planning if the Councils determine to proceed with any of all of the trail developments recommended.

- Bridges: river and creek crossings (and overhead bridges). Bridges are one of the most obvious reminders of the heritage value of disused railways, one of the most significant attractions of trails along disused railways and also one of the costliest items in the development of trails on former railways. Bridges on this corridor cross standing water, cross waterways that have water in them at certain times and cross roads and stock access points. A number of the existing bridges have been preserved while a number have been left in place pending the completion of the rail trail study. Unfortunately, detailed field inspections for the final report indicated that a number of bridges along the selected corridors (particularly along the proposed Awoonga Lake Rail Trail between Futters Creek and Ubobo) have disappeared – they appear to have either been burnt or washed away in flooding.

Replacement and re-purposing costs are one of the considerations for rail trail bridges. Work on other timber rail trail bridges across Australia have returned costs of between $3,000 - $6,000/lineal metre up to $11,000/lineal metre.

The Interim Report noted that the Department of Transport and Main Roads was considering what to do with the remaining bridges (as part of the infrastructure removal process). The Interim Report recommended that all the timber bridges that are needed for the rail trails (i.e. those along the three identified short trails) should be retained. This appears to have occurred and should remain the policy.

- **Fencing.** There may be a need for new boundary fencing both for insurance purposes and to reduce maintenance costs by allowing grazing of the "excess" corridor. One of the options to maintain the corridor (as opposed to maintaining the actual trail) is to allow adjoining or adjacent landholders grazing permits over those parts of the corridor not required for a trail (a 6 metre envelope incorporating the trail on the railway formation). As the original railway corridor is mostly 20 – 40 metres wide, the excess corridor can be leased to adjoining landholders. This approach will minimise the reduction in land that they currently farm and enable stock to 'maintain' the corridor outside of the fenced trail corridor (noting that some landholders already have stock on the corridor). While this creates a capital cost, it has the potential to significantly reduce maintenance costs.
- **Distances and services on the corridor**. One-way trails (or out-and-back trails) need an anchor at both ends to be attractive to users. The best one-way trails (including many rail trails) have natural terminuses in major centres or towns or pass through major towns. The proposed long trail does not offer this opportunity given likely start and end points. There are quite significant distances between established services (this is not to understate the opportunity for services to establish in response to the development of a rail trail). This was one of the factors behind recommending the series of shorter trails.
- **Aesthetics on the corridor.** In addition to the distance between replenishment points, much of the corridor between Kalpowar and Mundubbera runs alongside either Gladstone Monto Road or the Burnett Highway. While the corridor does meander across this landscape and at times is far from these major roads (often only for short distances), there are also significant sections of it alongside these roads. This detracts from the user experience and, again, was one of the factors behind recommending the series of shorter trails which highlight the "best of" the rail corridor.
- **Costs – construction and maintenance.** Costs – both capital and maintenance – are a major consideration in any public infrastructure project. These need to be offset against a range of benefits – both economic and non-economic. Detailed costings are not part of this project, but the Councils and the State Government need to have some understanding of the possible construction and maintenance costs. This is discussed in detail in Section 6.

  Ongoing trail maintenance is a crucial component of an effective management program – yet it is often neglected until too late. Ongoing maintenance can be minimised by building a trail well in the first place. A well-constructed trail surface will last

considerably longer than a poorly built trail (trail construction techniques are included in Appendix 1). Evidence of actual trail maintenance costs for individual items along a rail trail, or any trail for that matter, are scarce. It is difficult estimating the costs involved in maintaining a trail until every last bridge and other infrastructure items have been installed. This is discussed in Section 10.

- Stakeholder positions. While management arrangements for Queensland rail trails are not set to a standard model, there is no doubt that Local Governments are and will be a key player in ongoing management. Initially, both Gladstone Regional Council and North Burnett Regional Council expressed general concerns about trail costs - both construction and maintenance (though maintenance costs appear to be a more significant concern). In response to the Interim Report, North Burnett Regional Council clearly stated its position with its formal resolution stating that Council will not fund any potential capital and maintenance cost associated identified in the Burnett Boyne Inland Rail Trail Interim Report.

  The community groups that have come forward prior to this study and in the course of the study have indicated a very strong support for the proposal. There is an active group at the Gayndah end who are undertaking restorative works along the corridor between Gayndah and Mundubbera at their own expense. The Boyne Burnett Inland Rail Trail Inc. has a large number of members who regularly attend meetings and provide resources to the project.

  The State Government (through its key agency the Department of Transport and Main Roads) has expressed formal position on the proposed rail trail beyond providing funding for the Feasibility Study.

- Potential other uses of the corridor. In recent years there has been a proposal to bring some form of tourist train back to the corridor (or at least to parts of the corridor particularly around the tunnels). A proposal by Monto Rail Adventures to develop a railway tourist attraction stalled after the proponent was not able to produce an acceptable feasibility and management plan for the Department of Transport and Main Roads.

  The Interim Report also identified that the other major potential use of the corridor is heavy rail as proposed in the document entitled *Building the future trade potential of the Wide Bay Burnett: Driving prosperity through greater infrastructure investment*. One of the proposed infrastructure projects is a rail link connecting the Port of Bundaberg with the Wide Bay Burnett Minerals Province. The publicly available report provides no detail of whether the existing railway corridor could be used or whether a completely new alignment is needed. It is understood that the State Government is committed to retaining the railway corridor in public ownership which would allow it to be used for other public purposes should the need arise (other than a rail trail). Unfortunately, there is very little detail about this proposal available which would allow an assessment of its impact on the rail trail proposal. For further detail of the proposal, see *http://www.bundaberg.qld.gov.au/files/BRC_Building_the_Future_Trade_Potential_WEB.pdf*.

SECTION 5 – OPPORTUNITIES

There are a number of specific elements within the area encompassed by the proposed trail routes that provide opportunities and reasons for why the trails should be built. These were discussed in detail in the Interim Report. Subsequent fieldwork concentrating on the three nominated corridors did not yield any new opportunities but did provide for some further commentary on the previously identified ones.

These issues are reproduced below in summary form from the Interim Report with additional comments based on subsequent fieldwork.

- **Appealing landscapes and infrastructure.** The Boyne Burnett Inland Rail Trail would pass through some very attractive scenery. The three recommended short trails showcase the best of this scenery. The journey alongside Futters Creek and Awoonga Lake provides views of and over the creek and lake and the nearby mountains which are quite enjoyable. At the southern end of this trail, there are farming vistas through the Boyne Valley as well as views east to mountain ranges.

  There are great panoramic views afforded in sections, often due to very high and stunning embankments. This is notably the case as the corridor proceeds through the Dawes Range to the Kalpowar tunnels, and along the Burnett River from Mundubbera towards Reids Creek.

  Many bridges remain, including significant and attractive bridges between Mundubbera and Reids Creek, and at the northern end of the corridor in the vicinity of Awoonga Lake. Some of the railway stations remain and have been restored. The proposed trail between Futters Creek and Ubobo provides an outstanding opportunity to view railway tunnels and the presence of 6 in a very short section is probably unmatched on an Australian rail trail. The hog's back sleepers, an unusual feature, add to the appeal of the tunnels.

- **Topography of the preferred route**. One of the major appeals of rail trails is the gentle gradient, suitable for all types of cyclists, and walkers (gradient is typically less of an issue for horse riders). This is the market that would be attracted to a rail trail.

- **Connections between towns.** Taking trail users through towns will provide new business opportunities for service providers. Presently, there are a relatively limited number of services that would appeal to trail users in many of the smaller settlements between Taragoola and Reids Creek. This was another factor in settling on three shorter rail trails. In particular, it shaped the recommendation to extend the Awoonga Lake Rail Trail to Ubobo – to capitalise on existing services that are not found in Nagoorin. Development of the rail trail may provide a range of new business opportunities (or allow existing businesses to expand). The trails will make an actual connection between the towns and villages en route – one that reinforces historic connections.

- **Broadening the recreation offerings.** Provision of an additional off-road trail adds to the list of tourist offerings in the region and encourages visitors to stay a little longer to go for a pleasant walk or ride. A new nature-based attraction has the power to retain those visitors for longer, spending money and generating business opportunities. Utilising the Burnett River for canoe and kayak paddling both adds to the outdoor

recreation offerings as well as providing an opportunity for a circular trail utilising the river and the rail trail in the southern section of the corridor. Awoonga Lake offers a range of outdoor recreation experiences – boating, fishing, swimming, paddling, walking, photography. Boynedale Bush Camp offers accomodation right alongside the rail trail. The Gladstone Area Water Board is interested in developing a part of the rail trail from Boynedale Bush Camp to Four Mile Scrub to offer another activity for users of their recreation resource. Currently, the Bush Camp is visited by 10,000 - 15,000 vehicles per year.

- **Community support.** While no formal consultation was carried out for this report, the consultants attended a meeting of the Boyne Burnett Inland Rail Trail Inc to meet key stakeholders. The number of people at the meeting (in the order of 50) was an impressive display of support for the project. There does appear to be a ground swell of support from groups and individuals within the surrounding communities. It is also evident that there are strong advocates within the communities who have expressed a desire to get more involved in ensuring the proposed rail trail gets developed. This was particularly demonstrated by the Burnett River Rail Trail group who took the consultants to inspect the section of corridor between Mundubbera and Reids Creek on two separate occasions. A committed community-based group is an important element in a rail trail's success. This commitment can be tapped into for ongoing maintenance and promotion of the rail trails should they proceed.
- **Attracting new visitors who spend money**. A trail such as the proposed trail package (three trails which together make up the Boyne Burnett Inland Rail Trail experience) will provide a number of opportunities and offer very different experiences – historic bridges, tunnels and lakeside. A trail will bring additional tourists and keep them longer in the area. A trail will create opportunities to build on existing industries and enterprises of the area. Australians are increasingly looking for passive, non-organised recreation opportunities, often in natural or near-natural settings. Demand for this type of opportunity will only increase as the population ages. While walking remains the most popular of these activities (and is likely to remain so as the population ages), off-road cycling shows a growing and often unmet demand within the trails market. The Boyne Burnett Inland Rail Trail experience would provide experiences for a range of user groups in a series of markets that have been consistent over time – walking and bushwalking and cycling – or growing significantly – off road cycle touring. The trail would provide for both visitors and local people who participate in a range of activities. A number of high-profile trails in Australia and New Zealand provide examples of user numbers that can be achieved on tracks and trails (a product within nature-based tourism). Users are attracted to developed trails that are both 'known' or advertised in some way and offer a range of facilities such as signage and interpretation, parking, toilets and water.
    - Use of the Bibbulmun Track (WA's long-distance walking track linking Perth and Albany) increased from 10,000 in 1998 to 35,000 in 1999-2000 to 137,500 in 2003 to over 167,000 in 2008. In 2015 it was used by over 300,00 people.
    - The Murray to the Mountain Rail Trail (Victoria) attracts almost 60,000 annual visitor days.

- The Otago Central Rail Trail (NZ) offers a 3-day cycle or 5 day walk experience covering 150 kms. In 2011, over 14,000 users traverse the entire length each year, with the most popular section attracting over 20,000 users. In 2015, 12,000 users rode the trail from end to end. Cyclists undertaking the complete journey often do so in 3 days, while walkers take 5 days.
- The Old Beechy Rail Trail in central Victoria attracted 23,368 users/year.
- In the first quarter of 2014, the Great Victorian Rail Trail (a 134 km rail trail between Tallarook and Mansfield) had 27,500 users pass through trail counters.
- Work on South Australia's Riesling Trail (a 34 km rail trail in the Clare Valley) showed 40,000 people passing through 4 trail counters each year.

The potential expenditures may be quite significant based on trail user expenditures elsewhere.

- The Mundaring Trails Network, 1 hour from the Perth CBD, injected some $12.62 million into the local economy and a further $15.21 million into the State economy annually. Local residents spent $4.06/visit to the network and visitors (primarily day users) spent $23.71/visit. The key is that the total number of trips on the trails studied was a staggering 2.454 million visits annually.
- Users of South Australia's Riesling Trail spend $1.08 million/year ($215/person/visit with daily expenditure of around $100).
- In 2003, the Bibbulmun Track generated $21 million of expenditure annually by track users, well in excess of its one-off construction costs of $5 million. In 2008, annual expenditure was $39 million.
- Users of the Murray to the Mountains Rail Trail in North East Victoria have an average daily expenditure of $258/user/day. The bulk of this expenditure was on food and beverage (57% of daily expenditure which equates to $147/user/day).
- Users of New Zealand's Otago Central Rail Trail are spending $NZ 177/day with the average length of stay in the region of 3.8 days. There is a range of expenditures – users doing the whole trail spend $NZ 166/day while those doing part of the trail spend $NZ 247/day. The trail created 81 direct jobs and a total of 102 jobs. Accommodation derives 41-48% of the benefit, followed by food and consumables.

- **Creating new business opportunities.** There are a range of business opportunities for private sector investors arising from the potential development of a rail trail. Providing accommodation, food and beverages, supported and guided tours, and equipment, are some of the businesses that have arisen along other trails. These services are either new businesses or expanded existing businesses. Such services add significantly to the user's enjoyment if done properly. A 2015 user survey of the Otago Central Rail Trail reported that ratings for package operators have consistently improved over time and were rated 9.5 out of a possible 10 in 2015. There is no doubt that this contributed to visitors rating their overall rail trail experience at 9.0 out of a possible 10.

- **Creating new community opportunities.** Trails also have a number of non-monetary benefits. They improve community connectivity and provide increasing recreational options for local people thus contributing to both physical and mental health of communities through which they pass.

SECTION 6 – ESTIMATES OF PROBABLE COSTS

6.1 BASIS OF COST ESTIMATES

The investigations undertaken during the fieldwork associated with this project and the consultation carried out enable a reasonable indication of the work required to bring about the development of the proposed Boyne Burnett Rail Trail project.

The costs of construction of the proposed rail trails are an estimate of probable costs only. Accurate costs can only be determined, firstly, by the compilation of more detailed works lists accomplished through individual, detailed trail development plans for each section of the proposed rail trail and, secondly, via a tendering process.

The costs for development of the trails (bridges, trail construction, etc) are based on conditions likely to be encountered during construction. As accurate measurements have not been made, it is not possible to be precise in quantifying costs. It is only after detailed trail development plans are prepared (including a full traverse of each trail) that more definite quantities and costs can be provided.

Bridge assessments have not involved a detailed examination and further detailed assessments will be required to accurately establish the condition of timber bridge components.

For the purposes of determining costs for this Feasibility Study, the per unit construction rates have been included in the tables, along with an estimate of the total length or quantity.

6.2 ADDITIONAL NOTES

The following notes are relevant when reading Tables 1 to 3:

- Map references shown in the tables refer to works items shown on Plans in Appendix 3
  - Plan 1 covers the Awoonga Lake Rail Trail.
  - Plan 2 covers the Kalpowar Tunnels Rail Trail.
  - Plan 3 covers the Burnett River Bridges Rail Trail.
- Optional items are included within each of the tables:
  - Each of the three tables includes the option of the development of a parallel bridle trail. Option 1 is a trail for walkers and cyclists with no separate bridle trail. Option 2 is a trail for walkers and cyclists with a separate bridle trail. Option 2 represents the maximum expenditure on all 3 trails.
  - For ease of understanding, the maximum expenditure in each section is used as the basis for calculating associated costs – approvals, contingency, and project management.

6.3 AWOONGA LAKE RAIL TRAIL

The proposed Awoonga Lake Rail Trail runs from Futters Creek Bridge to Ubobo. This section contains several significant bridges, passes alongside Lake Awoonga and associated wetlands and generally provides outstanding views of the surrounding landscape. Unfortunately, many of the existing bridges are no longer in place having been burnt or washed away. Extending the trail to Ubobo gives a clear start/finish point with a range of existing services. It is envisaged that people who are staying in Boynedale Bush Camp will be significant users of the trail heading north and/or south as an activity while staying at the Bush Camp. The total trail length to be developed is approximately 36.28 kilometres.

This trail will be an expensive trail to construct. The key issue is the number of waterway crossings. There are 30 waterway crossings that either have a bridge or had a bridge over them (not all cross over waterways). This means a significant cost for repairing, replacing (where none exist) or providing alternative waterway crossings such as culverts. Some 66% of the trail's construction costs (not including the on-costs) is dedicated to waterway crossings – a much higher percentage than other rail trails of similar length. Bypasses (either concrete washovers/floodways or culverts) are often suggested as a viable alternative to bridges. In other trail projects, concrete ramps and floodways have been utilised. The Brisbane Valley Rail Trail has bypassed almost all of the timber bridges on the corridor and has built a range of alternative waterway crossings consisting mostly of concrete floodways. However, these are not very attractive, detracting from the user's experience and often come with significant maintenance issues. Not using the bridges means the loss of an essential part of the rail trail experience. If the trail proceeds, there is a strong case for retention of bridges for their heritage and convenience/utility value. It is reasonable to assume that, without the bridges on this particular rail trail, the rail trail will lose a significant part of its appeal to users. Re-use of the major bridges is seen as the best option to maximise trail use.

(Design issues are covered in Appendix 1 – the appendix covers more detail for the works items listed in the table below).

Table 1: Awoonga Lake Rail Trail – Indicative costs

Activity	Unit	Qty	Rate	$
Clearing of corridor				
• allowance for minimal clearing of weeds etc	metres	34,280	$3	$102,840
• allowance for moderate clearing of regrowth	metres	2,000	$7	$14,000
Gravelling of trail to 2.5m wide, compacted to 150mm thickness[1]	Lineal metres	36,280	$40	$1,451,200
Slash and flail bridle trail alongside main trail (if horses are to be permitted)	*metres*	*36,280*	*$2*	*$72,560*

Erection of fencing along corridor[2]				
• double fencing (allowance)	metres	26,000	$30	$780,000
• single fencing (allowance)	metres	2,000	$15	$30,000
• no fencing	metres	8,280	$0	$0
Allowance for cleaning of, and earthworks around, pipe and box culverts under railway embankment	units	33	$400 (average)	$13,200
Allowance for rehabilitation of drainage through cuttings	metres	1,000	$30	$30,000
Major repairs and/or refurbishment of major/minor bridge structures (abutments, new decking, handrails etc)	metres	386.8 metres (6 bridges)	$11,000	$4,254,800
Minor Repairs and/or refurbishment of major/minor bridge structures (abutments, new decking, handrails etc)	metres	265.3 metres (10 bridges)	$6,000	$1,591,800
Installation of new pre-fabricated bridges	metres	165.4 metres (7 new bridges)	$4,000	$661,600
Installation of concrete culverts/floodways (either to bypass existing low level bridges or as replacements for bridges no longer in place)	metres	43.8 metres (7 new culverts)	$3,000	$131,400
Allowance for installation of stock crossings (grids, gates, etc) to permit stock/machinery to cross from one side of corridor to the other	units	10	$3,800	$38,000
Installation of signage (directional / distance, warning, etiquette, private property, no trespassing, interpretive, emergency etc)	metre	36,280	$2	$72,560
Construction of road crossings at major/minor roads (gating systems and signage)	units	7	$5,400	$37,800

Allowance for refurbishment of significant railway heritage items				$3,000
Allowance for trailside bench seats				$3,000
Allowance for removal of cross fences				$4,000
Boynedale Bush Camp trailhead facilities:				$9,300
• Install map panel	*units*	1	$5,500	
• Directional signage to rail trail	*units*	3	$200	
• Install roadside "Trailhead" signage on local roads	*units*	2	$1,600	
Nagoorin trailhead facilities (in the vicinity of the Moran Rd crossing):				$22,700
• Install picnic shelters and tables	*units*	1	$8,000	
• Install map panel	*units*	1	$5,500	
• Directional signage to rail trail	*units*	0	$200	
• Construct parking area (80m^2)	*m^2*	80	$75	
• Install roadside "Trailhead" signage on local roads	*units*	2	$1,600	
Ubobo trailhead facilities (in the vicinity of the Discovery Centre):				$9,700
• Install map panel	*units*	1	$5,500	
• Directional signage to rail trail	*units*	5	$200	
• Install roadside "Trailhead" signage on local roads	*units*	2	$1,600	
Option 1: Sub-total				*$9,260,900*
Option 2 (includes slashed bridle trail): Sub-total (maximum estimated expenditure)				*$9,333,460*
Approvals, permits, applications, designs, specifications, assessments *(based on maximum estimated expenditure - $9,333,460)*	%		2.5	$233,340

Contingency amount *(based on maximum estimated expenditure - $9,333,460)*	%		7.5	$700,010
Project management *(based on maximum estimated expenditure - $9,333,460)*	%		5.0	$466,675
Total (not incl GST)				***$10,733,485***

Notes

1. *Trail construction. Construction includes light rolling, covering with road base, levelling, trimming, shaping and compacting: $40/lineal metre (for 2.5m trail width). Work done to date on removing the rail and sleepers has left the formation in good condition (though berms were observed in places on the side of the formation). Work on the newest section of the Brisbane Valley Rail Trail worked out at $1,000/km for surfacing due to a range of favourable factors. It is reasonable to err on the side of caution when considering construction costs. Building lesser quality trails leads to significant maintenance bills in the future and also has the potential to deter users.*
2. *The recommendation is that fencing on the corridor will be built to allow for a 6 metre wide trail corridor and the remaining corridor (usually 14 metres on a 20 metre wide corridor) will be made available to adjoining landholders for grazing livestock. This issue is discussed in detail in the Design section in Appendix 1. While this contributes to a high construction cost, it significantly reduces the maintenance burden meaning only a 6 metre corridor needs to be slashed by the trail manager. In most cases, new fencing will therefore be required. The costings reflect this.*

6.4 KALPOWAR TUNNELS RAIL TRAIL

The proposed Kalpowar Tunnels Rail Trail runs from Builyan to Kalpowar. This section contains the 6 tunnels, has several significant bridges and sidings, outstanding views and has a village at each end (as well as the village of Many Peaks) where trailheads can be easily developed (utilising existing facilities such as parks and toilets). The trail will also provide an additional trailhead at Glassford Creek at the bottom of the descent of the Dawes Range.

The descent of the Dawes Range provides an outstanding rail trail experience providing long views over very steep countryside and a mostly vegetated landscape. The tunnels provide a unique experience. The retention of the hogback sleepers within the tunnels has been strongly advocated by the community. It is recommended that the sleepers be retained in one tunnel (Tunnel 6 which minimises the distance for people who simply want to come and look at the sleepers) and that cyclists and horse riders be required to dismount (by the use of appropriate signage) to traverse the tunnel. It is acknowledged that allowing users to ride in a tunnel with retained sleepers does present a hazard (and is uncomfortable) and should be avoided.

The total trail length to be developed is approximately **31.2 kilometres.**

(Design issues are covered in Appendix 1 – the appendix covers more detail for the works items listed in the table below).

Table 2: Kalpowar Tunnels Rail Trail – Indicative costs

Activity	Unit	Qty	Rate	$
Clearing of corridor				
• allowance for minimal clearing of weeds etc	metres	19,800	$3	$59,400
• allowance for moderate clearing of regrowth	metres	11,400	$7	$79,800
Gravelling of trail to 2.5m wide, compacted to 150mm thickness[1]	Lineal metres	31,200	$40	$1,248,000
Slash and flail bridle trail alongside main trail (if horses are to be permitted).	*metres*	*31,200*	*$2*	*$62,400*
Erection of fencing along corridor[2]				
• double fencing (allowance)	metres	16,100	$30	$483,000
• single fencing (allowance)	metres	8,000	$15	$120,000
• no fencing	metres	7,100	$0	$0
Allowance for cleaning of, and earthworks around, pipe and box culverts under railway embankment	units	20	$600 (average)	$12,000
Allowance for rehabilitation of drainage through cuttings	metres	1,000	$30	$30,000
Major repairs and/or refurbishment of major/minor bridge structures (abutments, new decking, handrails etc)	metres	0	$11,000	$0
Minor Repairs and/or refurbishment of major/minor bridge structures (abutments, new decking, handrails etc)	metres	508 metres (11 bridges)	$6,000	$3,048,000
Installation of new pre-fabricated bridges	metres	0	$4,000	$0
Installation of concrete culverts/floodways (either to bypass existing low level bridges or as replacements for bridges no longer in place)	metres	69 metres (3 new culverts; 1 floodway)	$3,000	$110,400 (culverts) $30,000 (floodway)

Allowance for installation of stock crossings (grids, gates, etc) to permit stock/machinery to cross from one side of corridor to the other	units	10	$3,800	$38,000
Installation of signage (directional / distance, warning, etiquette, private property, no trespassing, interpretive, emergency etc)	metre	31,200	$2	$62,400
Construction of road crossings at major/minor roads (gating systems and signage)	units	5	$5,400	$27,000
Allowance for tunnel repairs				$30,000
Allowance for repair of land slips above corridor and installation of wire mesh barrier to prevent rocks falling onto trail surface				$30,000
Allowance for repair of land slips below corridor - rockfill	Cubic metres	10	$3,000	$30,000
Allowance for addressing land slips – install pre-fabricated bridge	metres	30	$4,000	$120,000
Allowance for refurbishment of significant railway heritage items				$6,000
Allowance for trailside bench seats				$3,000
Allowance for removal of cross fences				$1,000
Builyan trailhead facilities (using existing local park and toilets associated with hall):				$9,300
• Install map panel	units	1	$5,500	
• Directional signage to rail trail	units	3	$200	
• Install roadside “Trailhead” signage on local roads	units	2	$1,600	
Glassford Creek trailhead facilities:				$65,100
• Install picnic shelters and tables	units	1	$8,000	
• Install map panel	units	1	$5,500	

• Directional signage to rail trail	units	0	$200	
• Install roadside "Trailhead" signage on local roads	units	1	$1,600	
• Install composting toilet	units	1	$50,000	
Kalpowar trailhead facilities (on the rail corridor south of Pine Street; utilising toilets associated with hall):				$14,700
• Install map panel	units	1	$5,500	
• Directional signage to rail trail	units	0	$200	
• Construct parking area (80m^2)	m^2	80	$75	
• Install roadside "Trailhead" signage on local roads	units	2	$1,600	
Option 1: Sub-total				$5,657,100
Option 2 (includes slashed bridle trail): Sub-total (maximum estimated expenditure)				$5,719,500
Approvals, permits, applications, designs, specifications, assessments *(based on maximum estimated expenditure - $5,719,500)*	%		2.5	$142,990
Contingency amount *(based on maximum estimated expenditure - $5,719,500)*	%		7.5	$428,960
Project management *(based on maximum estimated expenditure - $5,719,500)*	%		5.0	$285,975
Total (not incl GST)				***$6,577,425***

Notes

1. *Trail construction. Construction includes light rolling, covering with road base, levelling, trimming, shaping and compacting: $40/lineal metre (for 2.5m trail width). Work done to date on removing the rail and sleepers has left the formation in good condition (though berms were observed in places on the side of the formation) This level of care needs to extend for the whole corridor (clearing to date has only extended not far south of Builyan). Work on the newest section of the Brisbane Valley Rail Trail worked out at $1,000/km for surfacing due to a range of favourable factors. It is reasonable to err on the side of caution when considering construction costs. Building lesser quality trails leads to significant maintenance bills in the future and also has the potential to deter users.*
2. *The recommendation is that fencing on the corridor will be built to allow for a 6 metre wide trail corridor and the remaining corridor (usually 14 metres on a 20 metre wide corridor) will be made available to*

adjoining landholders for grazing livestock. This issue is discussed in detail in the Design section in Appendix 1. While this contributes to a high construction cost, it significantly reduces the maintenance burden meaning only a 6 metre corridor needs to be slashed by the trail manager. In most cases, new fencing will therefore be required. The costings reflect this.

6.5 BURNETT RIVER BRIDGES RAIL TRAIL

The proposed Burnett River Bridges Trail has many of the area's heritage listed bridges, spectacular views of the Burnett River, considerable local history and volunteer groups with a passion for the development of the rail trail and the preservation of the local history. It is anchored at one end by a major town (Mundubbera) and terminates relatively close to another major town (Gayndah). This trail has recommended trailheads at Mt Debateable, Philpott Siding and Mundubbera.

The Interim Report proposed that the eastern terminus of the trail be at the Mt Debateable siding (where a trailhead would be developed) and users could ride a short spur trail (on the rail corridor) to the stone pitched walls some 1.3 kilometres east of the Mt Debateable siding. Finishing the trail here was recommended for a range of reasons canvassed in the Interim Report and mainly relating to a lack of "destination" if taken to Reids Creek (particularly given the spectacular views over the Burnett River provided by the trail as proposed), the apparent construction of a sealed road over part of the corridor near Dirnbir siding, and additional costs. Upon more detailed investigation during the second round of fieldwork, it was determined that the trail should continue along the corridor to a road known locally as Browns Road (some 2 kilometres further along the corridor from the stone pitched walls). This would then allow users who are keen riders (in particular) to ride along Browns Road to Mt Debateable Road and back to the siding – this involved travelling along some relatively quiet country roads and creates a loop at the end of the trail.

Developing the trail to this point also facilitates conversion of the corridor if a trail can be extended to the east to connect to Gayndah (over Reids Creek) at some time in the future. The study area for this project extends to Reids Creek primarily because of the difficulty and cost of reestablishing a crossing over Reids Creek (which would be an expensive project). If such a connection was established, the rail trail could then be developed to connect to Gayndah on the old railway corridor. The corridor would need to stay in public ownership for this to succeed.

At the western end of this trail, two issues arise. The first (canvassed in the Interim Report) is that the northern end of the Mundubbera aerodrome runway has been built onto the railway corridor (the grass verge of the runway is on the corridor rather than the constructed runway). The trail can be moved to the northern side of the corridor thus avoiding any issue in the vicinity of the aerodrome.

The other issue at the western end is the different tenure arrangements for the corridor currently. North Burnett Regional Council has a licence with DTMR for a section of the rail corridor to the Mundubbera Railway Station (from Bauer Street to Kerles Lane). There is a sub-lease with the Mundubbera Enterprise Association for the Railway Station and a smaller section of the corridor (Bauer Street to Orton Street). the Burnett River Rail Trail group has a 2 year

access licence from Red Gully Bridge to Reids Creek. This is not a major issue if both parties agree that the trail should proceed.

There are other licences and sub-leases along the corridor outside the immediate area of interest (in terms of developing the Burnett River Bridges Trail). North Burnett Regional Council has a licence with DTMR for the Gayndah Rail station area. There is a sublease with the Gayndah Heritage Rail Trail and the Scout Association (section of area within the Railway Station precinct). Gayndah Heritage Rail Trail has a licence agreement with DTMR. North Burnett Regional Council has a licence agreement with DTMR for the Monto Railway Station. North Burnett Regional Council has a sublease with Monto Magic Tourism Action Group for this section.

The total trail length to be developed under this scenario is approximately 28.8 kilometres (from Mundubbera to the intersection of the corridor and Browns Road).

(Design issues are covered in Appendix 1 – the appendix covers more detail for the works items listed in the table below).

Table 3: Burnett River Bridges Rail Trail – Indicative costs

Activity	Unit	Qty	Rate	$
Clearing of corridor[1]				
• allowance for minimal clearing of weeds etc	metres	2,000	$3	$6,000
• allowance for moderate clearing of regrowth	metres	0	$7	$0
Gravelling of trail to 2.5m wide, compacted to 150mm thickness[2]	Lineal metres	28,800	$30	$864,000
Slash and flail bridle trail alongside main trail (if horses are to be permitted).	*metres*	*28,800*	*$2*	*$57,600*
Erection of fencing along corridor[3]				
• double fencing (allowance)	metres	0	$30	$0
• single fencing (allowance)	metres	2,000	$15	$30,000
• no fencing	metres	26,800	$0	$0
Allowance for cleaning of, and earthworks around, pipe and box culverts under railway embankment	units	20	$600 (average)	$12,000
Allowance for rehabilitation of drainage through cuttings	metres	0	$30	$0

Major repairs and/or refurbishment of major/minor bridge structures (abutments, new decking, handrails etc)	metres	39.4 m (Castor Oil Creek bridge)	$11,000	$433,400
Minor Repairs and/or refurbishment of major/minor bridge structures (abutments, new decking, handrails etc)[4]	metres	373.3 metres (9 bridges)	$3,000	$1,119,900
Installation of new pre-fabricated bridges	metres	49.9 metres (2 bridges)	$4,000	$199,600
Installation of concrete culverts/floodways (either to bypass existing low level bridges or as replacements for bridges no longer in place)	metres	15 metres (1 location)	$3,000	$45,000
Allowance for installation of stock crossings (grids, gates, etc) to permit stock/machinery to cross from one side of corridor to the other	units	0	$3,800	$0
Installation of signage (directional / distance, warning, etiquette, private property, no trespassing, interpretive, emergency etc)	metre	28,800	$2	$57,600
Construction of road crossings at major/minor roads (gating systems and signage)	units	2	$5,400	$10,800
Construction of road crossings at major/minor roads (signage only – Bauer St and Strathdee St, Mundubbera)	units	2	$1,000	$2,000
Allowance for refurbishment of significant railway heritage items				$6,000
Allowance for trailside bench seats				$6,000
Mt Debateable trailhead facilities:				$66,700
• Install picnic shelters and tables	units	1	$8,000	
• Install map panel	units	1	$5,500	
• Directional signage to rail trail	units	0	$600	

• Install roadside "Trailhead" signage on local roads	units	2	$1,600	
• Install composting toilet	units	1	$50,000	
Philpott Siding trailhead facilities:				$16,700
• Install picnic shelters and tables	units	1	$8,000	
• Install map panel	units	1	$5,500	
• Directional signage to rail trail	units	0	$200	
• Install roadside "Trailhead" signage on local roads	units	2	$1,600	
Mundubbera trailhead facilities (utilising the existing facilities in Bicentennial Park):				$8,900
• Install map panel	units	1	$5,500	
• Directional signage to rail trail	units	2	$200	
• Install roadside "Trailhead" signage on local roads	units	2	$1,600	
Option 1: Sub-total				$2,884,600
Option 2 (includes slashed bridle trail): *Sub-total (maximum estimated expenditure)*				$2,942,200
Approvals, permits, applications, designs, specifications, assessments *(based on maximum estimated expenditure - $2,942,200)*	%		2.5	$73,555
Contingency amount *(based on maximum estimated expenditure - $2,942,200)*	%		7.5	$220,665
Project management *(based on maximum estimated expenditure - $2,942,200)*	%		5.0	$147,110
Total (not incl GST)				***$3,383,530***

Notes

1. *Much of the clearing has already been undertaken by the Burnett River Rail Trail group.*
2. *Trail construction. Construction includes light rolling, covering with road base, levelling, trimming, shaping and compacting: $30/lineal metre (for 2.5m trail width). More of the necessary work has already been*

done hence the lower cost than the other two trails. Work on the newest section of the Brisbane Valley Rail Trail worked out at $1,000/km for surfacing due to a range of favourable factors. It is reasonable to err on the side of caution when considering construction costs. Building lesser quality trails leads to significant maintenance bills in the future and also has the potential to deter users.

3. *The standard recommendation that fencing on the corridor will be built to allow for a 6 metre wide trail corridor is not recommended here. The corridor has public land along much of one side and is quite steep on both sides. The community group which currently has an access licence is doing a good job of maintaining the corridor at a relatively low cost. The allowance is included simply to cover cases where fencing may be needed.*

4. *This lower cost reflects the fact that with one exception bridges appear to be in good condition with minimum work required. Where brick piles and steel I-beams have been used, bridge conditions appear very good. Adaptation of the bridges to be suitable for bicycle and pedestrian use could be done using prefabricated steel assemblies comprising a deck structure and handrails which could be clamped or bolted onto the tops of the steel girders after rail sleeper removal. The significant cost will be in the height work but using cranes to lift pre-fabricated sections will limit overall costs. While concrete floodways or bypasses could be built at some locations (such as Philpott Dump/Philpott Curve bridge), the key attraction of this corridor is the bridges and use should be maximised.*

The development of the Burnett River Bridges Rail Trail depends in part on the attitude of the North Burnett Regional Council. At this stage, it has indicated (by formal Council resolution) that it is not prepared to commit to either capital or maintenance funding. An alternative option is a low-key development of this particular trail. The Burnett River Rail Trail group has indicated it is prepared to take the sub-lease over the corridor and develop the trail to a minimum standard which would involve bypassing all or most of the bridges. The Group's efforts to date on trail preparation are impressive; however it is not clear whether the opportunity to take up the sub-lease will be made available. Taking over trail development and management is also not a simple task; complexities will arise that have not arisen to date. It has been put to the consultants that a development cost of $100,000 could provide for the provision of a range of signage that could allow all the bridges to be by-passed. Users could travel along the corridor and go down to an alternative bypass at each bridge (existing road or track). If this option was to be considered, additional funding should be made available or further work on developing the trail surface and developing the trailheads. It should be noted that such a development scenario will impact on the business case and forecast numbers (which are based on full trail development). There is no doubt that people will still come and visit the trail as it provides spectacular river views and viewing the old railway bridges from "side-on" does have some appeal. Such a development would also likely attract local users. However, the numbers would be more limited without the experience offered by the bridges – there are no other comparative studies to determine the difference between a trail with developed bridges and a trail with bypassed bridges. The Brisbane Valley Rail Trail is one example of where all bridges have been bypassed; unfortunately, it is not possible to know how many more people would visit should the bridges be re-used. Most of the other rail trails in Australia have, in the main, re-used the existing bridges.

Table 4: Summary of Costs (GST exclusive)

Trail	Cost
Awoonga Lake Rail Trail)	$10,733,485
Kalpowar Tunnels Rail Trail	$6,557,425
Burnett River Bridges Rail Trail	$3,383,530

NOTE 1: The locations (distances) noted in the tables above are approximate only and need to be verified in the field during the preparation of a detailed trail development plan.

NOTE 2: These broad estimates of probable costs are based on contractors' rates. Costs can be considerably reduced through use of in-kind contributions from the Council, use of volunteers for various tasks, use of prison crews (for construction tasks), etc.

NOTE 3: The estimates of probable costs above are based on recent relevant construction costs from other trail projects. Real-life costs will depend on a number of factors, including the state of the economy, the extent of 'advertising' of construction tenders, the availability and competitiveness of contractors, the rise and fall in materials costs, the choice of materials used in construction and final design details. Tenders submitted by construction contractors may vary significantly from the estimated costs in the tables contained within this report.

NOTE 4: Estimated costs are as at January 2019. An additional 3.5% should be added to each individual total per year compounded.

SECTION 7 – THE BUSINESS CASE

7.1 INTRODUCTION

It is always difficult to predict the economic impact of a new trail. Visitor numbers on the Bibbulmun Track (in WA) grew from 10,000 when the new alignment was first opened in 1997 to 137,000 in 2004 (*Colmar Brunton 2004*) to over 167,000 in 2008 (*Colmar Brunton 2009*) to over 300,000 in 2015 (*Hughes et al 2015*). This was on a trail that had existed in its entirety for many years but was substantially altered and reopened in 1997 (although new sections of it had been opened prior to its grand opening). Visitors included those on 'local trips', day trips and overnight or longer stays (including those who travelled from end to end).

A dramatic increase in visitor numbers such as experienced by the Bibbulmun Track can be, in part, attributed to very good marketing of the track. The economic impact of any of the proposed trails are primarily dependent on the extent to which the trails are marketed and promoted (if they proceed).

A trail will bring additional tourists and keep them longer in the area. Other possible benefits from developing the trail include:

- Improvements to community connectivity;
- Increasing recreational options for local people; and
- Creating opportunities to build on existing industries and enterprises of the area.

A trail such as any of the three proposed Rail Trails will have attraction to visitors – day trippers and overnight visitors. However, it will also add to the stock of existing trails for local people – people who live in towns and villages within easy reach of any of the trails. Some of these people will use the trail for exercise – these 'back gate' users may not be significant in terms of expenditure, but they are significant in terms of numbers as they would use the trail many times a year.

There is no doubt that a package of three trails – the Awoonga Lake Rail Trail, the Kalpowar Tunnels Rail Trail and the Burnett River Bridges Rail Trail – will attract users if presented as a package of three trails and will particularly attract new overnight visitors who want to do the three as a package.

7.2 VISITOR MARKETS

Visitor trends and markets were discussed at length in the Interim Report. Key trends and markets to be considered bear re-iteration.

7.2.1 GENERAL VISITOR TRENDS

Tourism Research Australia and Destination NSW have undertaken research on a number of visitor markets relevant to rail trails. While the research focusses on NSW, the most relevant general observation was that regional destinations offer key experiences for what Australians are seeking from their holidays.

- The millennials age group seeks authentic and genuine travel experiences, together with a variety of active and passive ways to enjoy them. This could include nature-based experiences, as well as country food and wine (*Tourism Research Australia, 2017(a)).*
- The over 55s is one of most powerful age groups in Australia in terms of financial capability and life expectancy is increasing. This group travels and prefers domestic travel to international travel. (*Destination NSW, May 2015*).
- More people (over 55) are choosing to travel earlier than retirement to enjoy the more active or immersive experiences that destinations have to offer. This is one of the key demographics for rail trails.
- Ease and convenience are the key drivers for domestic travel by families in Australia, and they are looking for destinations that are relaxed and easy with beautiful surroundings, preferably only a few hours' drive from home. (*Destination NSW, June 2015*).

7.2.2 GENERAL VISITOR NUMBERS

Available figures for the two regions which the rail corridor traverses show:

- In 2017, the Gladstone region hosted 469,000 domestic overnight visitors and 427,000 domestic day trippers. 54,000 international visitors also came to the region (for a total of 950,000 visitors). 75% of domestic visitors were either holidaying or visiting friends and relatives (*Tourism Research Australia, 2017(b)).*
- Tourism data for North Burnett is limited as it does not appear in the Tourism Research Australia profiles. The *Bundaberg North Burnett Destination Tourism Plan 2014 -2020* (though dated) provides information on tourism numbers to the region. The report notes that on average (between 2009 and 2012) 93,000 visitors travelled to the North Burnett. Unfortunately, the data does not differentiate between day trippers and overnight visitors. For the purposes of visitor forecasting, it is assumed that the numbers are split evenly between day trippers and overnight visitors. 64% of these visitors came for either holidaying or visiting friends and relatives. 71% came from Regional Queensland and 23% from Brisbane.

7.3 VISITING TRAIL USERS

There is no doubt from available evidence that recreation trails attract visitors who may come to a region specifically to do a trail (for example in 2004, 50% of visitors to South Australia's Riesling Trail came to the Clare Valley specifically to walk or ride the trail – the other 50% used the trail as a secondary activity to their trip to the Clare Valley).

All three rail trails have the potential to add to the number of existing visitors. The length of each of the trails (between 28 km and 36 kms) is an ideal length for cyclists (who are the primary users of rail trails). As a rail trail, the rail corridor is reasonably flat and will therefore accommodate the full range of cyclists, as well as walkers and horse riders.

7.3.1 GENERAL COMMENTS

What is a reasonable forecast for trail user numbers (some existing visitors will stay longer to experience the trail/s, and some will come to the region as new visitors simply to use the trail/s)?

The following forecasts are prepared in response to the Councils' desire for two separate analyses. Forecasts for a range of user types are provided for five trail development scenarios:

- The development of the Awoonga Lake Rail Trail;
- The development of the Kalpowar Tunnels Trail;
- The development of the Burnett River Bridges Rail Trail;
- The development of those trails within Gladstone Regional Council – the Awoonga Lake Rail Trail and the Kalpowar Tunnels Trail (noting that part of the Kalpowar Tunnels Trail falls within North Burnett Regional Council); and
- The development of the complete package of three trails – the Boyne Burnett Rail Trail experience (incorporating the Awoonga Lake Rail Trail, the Kalpowar Tunnels Rail Trail and the Burnett River Bridges Rail Trail).

The following comments on the different general markets are provided as a prelude to the analysis of the individual trails.

7.3.1.1 Day Trip Usage – General Comments

Any trail has the potential to add to the number of day trippers. The day trip market will be a significant market for any trail. The Mundaring Shire trail network (in WA) is just under 1 hour from the Perth CBD. 180,000 visitors (from outside the Shire) make over 900,000 visits/year (an average of 5 visits/person). The majority of these visitors come from Greater Perth (a population of 1.5 million at that time) and are day trippers. Some 12% of Perth residents visit the trail network.

Market Equity's work in South Australia shows that a significant percentage of cyclists on surveyed trails are more prepared than walkers to travel to use a trail (36% of cyclists interviewed on the five trails were non-locals) (*Market Equity 2004*).

It is difficult to predict with any certainty what effect development of any trail will have on the day trip market in the region as comparative work on other trails simply does not exist. However, the Lilydale Warburton Rail Trail provides a reasonable 'shadow' market for making some estimates. The trail attracts a large number of day trippers, with 100,000 of the 105,000 annual visitors being day trippers (some 3% of the day tripper market to the Yarra Valley and Ranges). The trailhead at Lilydale is 40 minutes by car from Central Melbourne and an hour by train. It is very well positioned for day trippers. The Trail is in an established tourism area – the Yarra Valley and Ranges – with a wide range of tourist infrastructure and attractions. In 2013, the Yarra Valley and Ranges region attracted 663,000 domestic overnight visitors and 3.1 million day trippers. The Yarra Valley and Ranges are very attractive natural environments, another positive factor attracting trail users.

The work below assumes that 2 hours is a reasonable distance for people to travel (each way) to undertake a day trip.

Expenditure is also quite significant. Day tripper expenditure (based on a number of studies) is $145.10/day with $46.43 (or 32%) of this spent on food and beverage – most of which is likely to be spent in the region.

7.3.1.2 Converting Day Trips to Overnight Trips - General Comments

Trail development may also turn day trippers into overnight trippers with consequent rise in economic benefits. The trail provides an additional activity for visitors – an overnight stay will give visitors time to walk or ride the trail in addition to their other activities. Overnight visitors to rail and cycle trails are spending an average of $209.04/person/day.

7.3.1.3 Encouraging Existing Overnight Visitors to Stay Longer – General Comments

Providing an additional facility for visitors already coming to the region is a key benefit of any of the trail development proposals. Such an additional facility will encourage them to extend their stay to allow an extra day (or part of a day) to use the trail/s. Any of the individual trails could be included in a package of outdoor recreation opportunities and this is likely to attract users. A trail would be a good inclusion in a package with other tourist attractions. Such a package makes an appealing weekend away or an incentive to stay a day or two longer.

7.3.1.4 Attracting New Overnight Visitors – General Comments

It is likely that the fundamental difference between the development of three individual trails and the package of trails will be the ability of the trail package to attract new overnight visitors to the region. This is a growing area of trails marketing, where regions are looking to have either a longer trail (a trail that can be traversed in 2-3 days such as the Otago Central Rail Trail in New Zealand) or a cluster of shorter trails that make an overnight or longer visit to a region very attractive (North Eastern Victoria is doing this very well focussing on the Murray to the Mountains Rail Trail but including a range of other cycling opportunities).

Good marketing of such a package would mean that overnight stays in the region would increase accordingly. This has a significant impact on economic benefits, as people who stay overnight spend considerably more than those who come for a day only.

7.3.2 FORECASTING TRAIL USER NUMBERS

7.3.2.1 Day Trip Usage

Awoonga Lake Rail Trail

The accessible trail end points (Boynedale Bush Camp and Ubobo) are within 2 hrs of two of the major population centres of the region – Rockhampton and Gladstone. This puts the rail trail within 2 hours of around 135,000 people.

A trail developed along the old railway corridor between Futters Creek and Ubobo may attract in the order of 3,000 additional day trippers/year (specifically to use the trail). This number represents:

- Around 0.7% of the existing day tripper market to Gladstone Regional Council area; and
- 2% of the population within 2 hours of the trail.

Increasing day trippers to the region by 3,000/year will result in an injection of some $435,300 into the local economies per year (based on the average figures of $145.10).

In addition, the development of this rail trail will provide an additional recreation opportunity for people visiting or staying at Boynedale Bush Camp (GAWB reports that around 10,000-15,000 vehicles come to the bush camp each year). It is impossible to predict any additional expenditure based on these numbers of bush camp users.

This trail is the least attractive of the three hence the slightly lower forecast than the Kalpowar Tunnels Trail.

Kalpowar Tunnels Rail Trail

The trail end points (Builyan and Kalpowar) are within 2 hrs of two of the major population centres of the region – Gladstone and Bundaberg. This puts the rail trail within 2 hours of around 147,000 people.

A trail developed along the old railway corridor between Kalpowar and Builyan may attract in the order of 6,000 additional day trippers/year (specifically to use the trail). This number represents:

- Around 1.4% of the existing day tripper market to Gladstone Regional Council area; and
- 4% of the population within 2 hours of the trail.

Increasing day trippers to the region by 6,000/year will result in an injection of some $870,600 into the local economies per year (based on the average figures of $145.10).

Compared to the Awoonga Lake Trail, the Kalpowar Tunnels Trail is close to more population and is a very attractive trail (the tunnels add to its attraction). This accounts for the higher forecast than the Awoonga Lake Trail.

Burnett River Bridges Rail Trail

The trail end points (Mt Debateable and Mundubbera) are within 2 hrs of major population centres to the south east – Bundaberg, Maryborough, Hervey Bay and Gympie. This puts the rail trail within 2 hours of around 194,000 people.

Compared to the other two trails, the Burnett River Bridges Trail is close to more population and is the most attractive of the three trails. These factors should lead to a higher visitor number than either of the other two trails. However, the North Burnett Region has a very low number of overall visitors (93,000 visitors in total, split between day trippers and overnight visitors). It is obviously not as well-known as a visitor destination as other Local Governments, hence a rail trail would be developed in a relatively small market. This may change with time and the visitor infrastructure and consequent numbers may grow and the trail would become more attractive (a rail trail may in fact stimulate development of tourism infrastructure).

A trail developed along the old railway corridor between Mt Debateable and Mundubbera may attract in the order of 3,000 additional day trippers/year (specifically to use the trail). This number represents:

- Around 6.3% of the (assumed) existing day tripper market to North Burnett Regional Council area; and
- 1.5% of the population within 2 hours of the trail.

Increasing day trippers to the region by 3,000/year will result in an injection of some $435,300 into the local economies per year (based on the average figures of $145.10).

Awoonga Lake Rail Trail and Kalpowar Tunnels Rail Trail Package

Developing two of the rail trails as a package would have the benefit of providing more economic benefit to the region. The impact on day visitation numbers would be lower than other market sectors simply because it would not be practical to do two trails in one day (even as a cyclist). However, the concept of being able to do two trails is likely to attract "new users" to the region. These visitor numbers are made up of two elements (that must be considered in comparing the relative merits of each trail and trail package):

- Those new visitors who would visit the region on two separate days to do the two trails. These are the numbers discussed above (9,000 new visitors).
- Those new visitors who would visit the region on two separate days to do the trails driven solely by the attraction that two trails have been developed i.e. those new visitors encouraged by the package of two trails. This number is difficult to estimate as there is no research available but an additional 2,000/year will result in an injection of some $290,200 into the local economies per year (based on the average figures of $145.10).

This number (11,000) represents around 2.5% of the existing day tripper market to Gladstone Regional Council area.

Boyne Burnett Inland Rail Trail Experience (the 3 trail package)

The same rationale applies to developing a 3 trail package as developing a 2 trail package. These visitor numbers are made up of two elements (that must be considered in comparing the relative merits of each trail and trail package):

- Those new visitors who would visit the region on three separate days to do the three trails. These are the numbers discussed above (12,000 new visitors).
- Those new visitors who would visit the region on three separate days to do the trails driven solely by the attraction that three trails have been developed i.e. those new visitors encouraged by the package of three trails. This number is difficult to estimate as there is no research available but an additional 2,000/year will result in an injection of some $290,200 into the local economies per year (based on the average figures of $145.10).

This number (14,000) represents around 2.9% of the existing day tripper market to the combined Gladstone Regional Council and North Burnett Regional Council areas.

7.3.2.2 Converting Day Trips to Overnight Trips

Any of the trails provide an additional activity for visitors – an overnight stay will give visitors time to walk or ride the trail in addition to their other activities. Overnight visitors to trails are spending an average of $209.04/person/day. The likely scenario would be that some visitors to the region will turn day trips into overnight stays if a trail is provided as an additional activity.

Awoonga Lake Rail Trail

If the trail converted 1,000 day trippers into overnight visitors, this would inject an additional $209,040/year into the economy based on overnight visitor expenditure of $209.04/day. If they stay overnight to undertake the trail journey, they would undertake other activities as well over the course of their stay. The benefit of the 2nd or subsequent day's stay cannot be attributed to the trail.

This number represents around 0.2% of the existing overnight visitor market to Gladstone Regional Council area.

Kalpowar Tunnels Rail Trail

If the trail converted 2,000 day trippers into overnight visitors, this would inject an additional $418,080/year into the economy based on overnight visitor expenditure of $209.04/day. If they stay overnight to undertake the trail journey, they would undertake other activities as well over the course of their stay. The benefit of the 2nd or subsequent day's stay cannot be attributed to the trail.

This number represents around 0.4% of the existing overnight visitor market to Gladstone Regional Council area.

Burnett River Bridges Rail Trail

As stated above, the Burnett River Bridges Rail Trail is in a region not as well known as a visitor destination as other Local Governments. The trail is likely to have more appeal than the other two; the lack of tourism infrastructure may act as a brake on visitor numbers.

If the trail converted 1,000 day trippers into overnight visitors, this would inject an additional $209,040/year into the economy based on overnight visitor expenditure of $209.04/day. If they stay overnight to undertake the trail journey, they would undertake other activities as well over the course of their stay. The benefit of the 2nd or subsequent day's stay cannot be attributed to the trail.

This number represents around 2.1% of the existing overnight visitor market to North Burnett Regional Council area.

Awoonga Lake Rail Trail and Kalpowar Tunnels Rail Trail Package

Developing the trails as a package (either a 2 or 3 trail package) is likely to convert day trippers to overnight visitors. Day trippers could do one of the trails; if visitors want to do two or three trails they would need to stay overnight (or come back on other days, as discussed in 7.3.2.1). Those new visitors who would extend their stay to do the two trails are covered above (3,000 new visitors). This would inject an additional $627,120/year into the economy based on overnight visitor expenditure of $209.04/day.

If they stay overnight to undertake the trail journey, they would undertake other activities as well over the course of their stay. The benefit of the 2nd or subsequent day's stay cannot be attributed to the trail.

This number (3,000) represents around 0.6% of the existing overnight visitor market to Gladstone Regional Council area.

Boyne Burnett Inland Rail Trail Experience (the 3 trail package)

The same rationale applies to developing a 3 trail package as developing a 2 trail package. Those new visitors who would extend their stay to do the three trails are covered above (4,000 new visitors). This would inject an additional $836,160/year into the economy based on overnight visitor expenditure of $209.04/day.

This number (4,000) represents around 0.7% of the existing combined overnight visitor market to Gladstone Regional Council and North Burnett Regional Council areas.

7.3.3.3 Encouraging Existing Overnight Visitors to Stay Longer

Any of the trails will provide an additional facility for visitors already coming to the region. Such an additional facility will encourage them to extend their stay to allow an extra day (or part of a day) to use one of the trails. Any one of the three trails could be included in a package of outdoor recreation opportunities and this is likely to attract users.

The forecast numbers and benefits would be the same as the conversion of day trips to overnight trips.

Awoonga Lake Rail Trail

If the trail converted 1,000 day trippers into overnight visitors, this would inject an additional $209,040/year into the economy based on overnight visitor expenditure of $209.04/day. This number represents around 0.2% of the existing overnight visitor market to Gladstone Regional Council area.

Kalpowar Tunnels Rail Trail

If the trail converted 2,000 day trippers into overnight visitors, this would inject an additional $418,080/year into the economy based on overnight visitor expenditure of $209.04/day. This number represents around 0.4% of the existing overnight visitor market to Gladstone Regional Council area.

Burnett River Bridges Rail Trail

If the trail converted 1,000 day trippers into overnight visitors, this would inject an additional $209,040/year into the economy based on overnight visitor expenditure of $209.04/day. This number represents around 2.1% of the existing overnight visitor market to North Burnett Regional Council area.

Awoonga Lake Rail Trail and Kalpowar Tunnels Rail Trail Package

Those new visitors who would extend their stay to do the two trails are covered above (3,000 new visitors). This would inject an additional $627,120/year into the economy based on overnight visitor expenditure of $209.04/day.

This number (3,000) represents around 0.6% of the existing overnight visitor market to Gladstone Regional Council area.

Boyne Burnett Inland Rail Trail Experience (the 3 trail package)

The same rationale applies to developing a 3 trail package as developing a 2 trail package. Those new visitors who would extend their stay to do the three trails are covered above (4,000

new visitors). This would inject an additional $836,160/year into the economy based on overnight visitor expenditure of $209.04/day.

This number (4,000) represents around 0.7% of the existing combined overnight visitor market to Gladstone Regional Council and North Burnett Regional Council areas.

7.3.3.4 Attracting New Overnight Visitors

General Comments

It is likely that the fundamental difference between the development of three single trails and the package of trails will be the ability of the trail package to attract new overnight visitors to the region. The trail package (either the 2 or 3 trail package) provides an attraction that will motivate visitors to come to the region primarily for the trail (they may undertake other activities while in the region). It is unlikely that someone would drive from Brisbane primarily to undertake one of the single trails - a 28 km, 32 km or 34 km trail journey. Many of the world's longer trails offer supported and guided experiences opening up trails to people who may previously have not considered doing a trail activity. Such similar packages can be offered to do the 2 or 3 trail package.

It is unlikely that any single trail will attract new visitors to the regions in any significant numbers. It is more reasonable to look at the possible increase in numbers as a result of developing a trail package.

The factors to consider have been canvassed above but are worth re-iterating:

- Of the three trails, the Burnett River Bridges River Trail is probably the most attractive, followed by the Kalpowar Tunnels Trail.
- The Burnett River Bridges River Trail is in a region less well developed and with far fewer visitors than the other two trails.
- The Burnett River Bridges Trail has the advantage of a good proximity to Brisbane which will be the major market. It is under 4 hours from Brisbane to Gayndah whereas Brisbane to Kalpowar is over 5 hours. A trail package which includes the Burnett River Bridges River Trail is more likely to attract users from Brisbane than one which does not.

Awoonga Lake Rail Trail and Kalpowar Tunnels Rail Trail Package

Given the numbers of users that are on other trails (and the relative appeal of the two trail package), it is reasonable to estimate that a two trail package is likely to attract 2,000 new overnight visitors for the sole (or primary) purpose of cycling, walking or riding the two trails. The length of time taken to traverse the trails will vary between user groups and between users. However, for the purposes of calculating economic impact, it is assumed that users will take 2 days to traverse the two trails.

2,000 new users will inject $836,160/year into the local economies (based on a 2 day average stay and an average spend of $209.04/day).

Boyne Burnett Inland Rail Trail Experience (the 3 trail package)

Given the numbers of users that are on other trails (and the relative appeal of the three trail package), it is reasonable to estimate that a three trail package is likely to attract 4,000 new overnight visitors for the sole (or primary) purpose of cycling, walking or riding the three trails.

The length of time taken to traverse the trails will vary between user groups and between users. However, for the purposes of calculating economic impact, it is assumed that users will take 3 days to traverse the three trails.

4,000 new users will inject $2,508,480/year into the local economies (based on a 3 day average stay and an average spend of $209.04/day).

In summary, possible visitor numbers are shown in Tables 5 to 9

Table 5: Awoonga Lake Rail Trail:
Possible Visitor Numbers and Associated Expenditure: A Summary

Category	Predicted visitor numbers/year	Predicted expenditure/year
New day trippers	3,000	$435,300
Day trippers converting to overnight stays	1,000	$209,400
Overnight stays being extended by a day to use the trail	1,000	$209,400
Attracting new overnight visitors	0	$0
Total visitor numbers	**5,000**	**$854,100**

Table 6: Kalpowar Tunnels Rail Trail:
Possible Visitor Numbers and Associated Expenditure: A Summary

Category	Predicted visitor numbers/year	Predicted expenditure/year
New day trippers	6,000	$870,600
Day trippers converting to overnight stays	2,000	$418,080
Overnight stays being extended by a day to use the trail	2,000	$418,080
Attracting new overnight visitors	0	$0
Total visitor numbers	**10,000**	**$1,706,760**

Table 7: Burnett River Bridges Rail Trail:
Possible Visitor Numbers and Associated Expenditure: A Summary

Category	Predicted visitor numbers/year	Predicted expenditure/year
New day trippers	3,000	$435,300
Day trippers converting to overnight stays	1,000	$209,400
Overnight stays being extended by a day to use the trail	1,000	$209,400
Attracting new overnight visitors	0	$0
Total visitor numbers	**5,000**	**$854,100**

Table 8: Awoonga Lake Rail Trail and Kalpowar Tunnels Rail Trail Package
Possible Visitor Numbers and Associated Expenditure: A Summary

Category	Predicted visitor numbers/year	Predicted expenditure/year
New day trippers	11,000	$1,596,100
Day trippers converting to overnight stays	3,000	$627,120
Overnight stays being extended by a day to use the trail	3,000	$627,120
Attracting new overnight visitors	2,000	$836,160
Total visitor numbers	**19,000**	**$3,686,500**

Table 9: Boyne Burnett Inland Rail Trail Experience (the 3 trail package):
Possible Visitor Numbers and Associated Expenditure: A Summary

Category	Predicted visitor numbers/year	Predicted expenditure/year
New day trippers	14,000	$2,031,400
Day trippers converting to overnight stays	4,000	$836,160
Overnight stays being extended by a day to use the trail	4,000	$836,160
Attracting new overnight visitors	4,000	$2,508,480
Total visitor numbers	**26,000**	**$6,212,200**

How do these figures compare to what is happening on other trails in Australia? Research figures are limited and tend to focus on iconic trails – the Bibbulmun Track (300,000/yr) and the Munda Biddi Trail (21,000/yr) in Western Australia, the Murray to the Mountains Rail Trail (60,000/yr), the Great Ocean Walk (100,000/yr) and the Wilsons Promontory Walk (60,000/yr) – all in Victoria.

Other less iconic trails provide good pointers to likely use of any of these rail trails:

- In 2005, South Australia's Riesling Trail attracted 11,000 visitors/year. Recent trail counters show that over 40,000 people passed through 4 trail counters each year. While this does not necessarily translate to 40,000 users (as many would pass more than one counter), it suggests more users than the 2005 figures. This trail is 2 hrs from Adelaide in the renowned tourist area of the Clare Valley.
- Over 23,000 users passed through counters on the Old Beechy Rail Trail in 2013. Again, this does not necessarily translate as over 23,000 users, but it gives an indication of use rates.
- Around 27,500 users passed through counters on the Great Victorian Rail Trail in the first quarter (January-March) of 2014. Again, this does not necessarily translate as 27,500 users, but it gives an indication of use rates.

There may be additional people who use the trail as part of their visit to the region. While they add to the total number of trail users, their expenditure cannot be counted in any economic analysis of the trail's benefit as the presence of the trail is not the primary attraction for these visitors. As noted above, 50% of visitors to South Australia's Riesling Trail came to the Clare Valley specifically to walk or ride the trail – the other 50% used the trail as a secondary activity to their trip to the Clare Valley. The economic contribution of the latter 50% is not counted as an economic benefit of the trail.

The predicted user numbers are an "end state" of user numbers. Trail numbers will build in the first 5 years of a trail section being opened (after 5 years a trail is a "mature product"). It is assumed that trail use will increase by steady increments. The available evidence is limited and tends to show that trail use starts slowly but grows very quickly at some point - the Bibbulmun Track for example grew from 10,000 in 1997 to 137,000 in 2003 to 167,000 in 2007 to over 300,000 in 2015. It may be that the growth of social media will see trails reach an "end state" of use much faster than previously.

7.4 LOCAL TRAIL USERS

Every regional trail is a local trail. Therefore, it is important not to overlook the contribution of local residents to the success of a trail. In 2001, the Mundaring Shire trail network was used by over 200,000 people (Jessop and Bruce 2001), having grown from a low base when the network was first fully opened. Only 10% of these users were locals (residents of Mundaring Shire) with many other users drawn from the Perth metropolitan area. The total annual visits (people generally use trails more than once a year) were a staggering 2.454 million visits annually, with local residents accounting for 63% of these visits. The average number of trips per year per local resident was 75 (compared to the 10-30 trips used in the following forecasts). It is difficult to know how far people will travel to take advantage of a local recreation facility. 20 minutes travel is a reasonable figure to estimate the "local catchment" of a trail.

7.4.1 AWOONGA LAKE RAIL TRAIL

There are four villages within 20 minutes of the Awoonga Lake Rail Trail (Nagoorin, Ubobo, Builyan and Many Peaks. The combined population of the four villages and rural areas around them (classified as the Boyne Valley) is 380 people (according to the Gladstone Regional Council planning scheme).

Three possible scenarios can be used in calculating likely local user numbers. These are:

- A low/low scenario - 10% of the combined population within 20 minutes of the trail making 10 visits/year to the trail.
- A medium/medium scenario - 20% of the combined population making 20 visits/year to the trail.
- A high/high scenario - 30% of the combined population making 30 visits/year to the trail.

The next step is to estimate total trip numbers. In the Mundaring study, the average number of trips per year per local resident was 75. Table 10 provides three visitation scenarios taking a far more conservative approach compared to the actual visitation rate coming from the Mundaring study.

Table 10: Potential Total Annual Visits by residents

(Population of the four centres within close proximity to the trail – 380)

Category	Low trail usage: 10% of residents	Medium trail usage: 20% of residents	High trail usage: 30% of residents
Low (10 visits/yr)	380	760	1,140
Medium (20 visits/yr)	760	1,520	2,280
High (30 visits/yr)	1,140	2,280	3,420

Local users also spend money while using trails. Expenditure per trip by local residents is always lower than for visitors, as locals are closer to home and more likely to either take all that they need or come home to eat and drink following a trail visit. The expenditure figures from the Mundaring study ($1.44/person/trip in the Shire – mainly food and drink) are a legitimate base to work from (and have been converted to 2017 dollars - $2.15/person/trip).

Using this figure in combination with visitation scenarios generated in Table 10 gives a range of expenditure estimates. Table 11 shows a simplified set of three scenarios: low usage / low number of trips, medium usage / medium number of trips, and high usage / high number of trips.

Table 11: Potential Total annual expenditure in the vicinity of the trail by residents

(low, medium and high refer to the use rates developed in Table 10 above)

Use Scenario	# of person visits	Total spent ($)
Low/low	380	820
Medium/medium	1,520	3,268
High/high	3,420	7,353

What is the likely scenario for local trail users? The Mundaring figures show 63% of the local population making an average of 75 trips/year. The Awoonga Lake Rail Trail will be the only trail in the area. Somewhere flat to walk or ride would be very popular.

Given these figures, it would seem the medium/medium scenario of 1,520 person visits (i.e. 20% of the 'local' population using the trail for 20 visits per year) is a reasonable, if very conservative, scenario to adopt (conservative when compared with the Mundaring data). Such visitor numbers would inject **$3,268/year** into the local economy. Due to the small local population, economic benefits flowing from local trail use will be relatively low.

7.4.2 KALPOWAR TUNNELS RAIL TRAIL

Under this scenario, residents of Kalpowar, Many Peaks, Builyan, Ubobo and Nagoorin are within 20 minutes of the trail. The combined population of these villages is 657.

Table 12 provides three visitation scenarios (as previously).

Table 12: Potential Total Annual Visits by residents

(Population within close proximity of the trail – 657)

Category	Low trail usage: 10% of residents	Medium trail usage: 20% of residents	High trail usage: 30% of residents
Low (10 visits/yr)	657	1,314	1,971
Medium (20 visits/yr)	1,314	2,628	3,942
High (30 visits/yr)	1,971	3,942	5,913

Using the expenditure figure as discussed above, in combination with visitation scenarios generated in Table 12 gives a range of expenditure estimates shown in Table 13.

Table 13: Potential Total annual expenditure in the vicinity of the trail by residents

(low, medium and high refer to the use rates developed in Table 12 above)

Use Scenario	# of person visits	Total spent ($)
Low/low	657	1,413
Medium/medium	2,628	5,650
High/high	5,913	12,713

The Kalpowar Tunnels Rail Trail will be one of a limited number of trails in the area. Somewhere flat to walk or ride would be very popular, given other existing trails are more demanding.

Given these figures, it would seem the medium/medium scenario of 2,628 person visits (i.e. 20% of the 'local' population using the trail for 20 visits per year) is a reasonable, if very conservative, scenario to adopt (conservative when compared with the Mundaring data). Such visitor numbers would inject **$5,650/year** into the local economy. Due to the small local population, economic benefits flowing from local trail use will be relatively low. (It should be note that the Awoonga Lake Rail Trail and the Kalpowar Tunnels Rail Trail draw much of their local use from the same population catchment. It is not envisaged that this will substantially alter the use numbers).

7.4.3 BURNETT RIVER BRIDGES RAIL TRAIL

Under this scenario, residents of Gayndah and Mundubbera are within 20 minutes of the trail. The combined population of these towns is 3,242.

Table 14 provides three visitation scenarios (as previously).

Table 14: Potential Total Annual Visits by residents

(Population within close proximity of the trail – 3,242)

Category	Low trail usage: 10% of residents	Medium trail usage: 20% of residents	High trail usage: 30% of residents
Low (10 visits/yr)	3,242	6,484	9,726
Medium (20 visits/yr)	6,484	12,968	19,452
High (30 visits/yr)	9,726	19,452	29,178

Using the expenditure figure as discussed above, in combination with visitation scenarios generated in Table 14 gives a range of expenditure estimates shown in Table 15.

Table 15: Potential Total annual expenditure in the vicinity of the trail by residents

(low, medium and high refer to the use rates developed in Table 14 above)

Use Scenario	# of person visits	Total spent ($)
Low/low	3,242	6,970
Medium/medium	12,968	27,881
High/high	29,178	62,732

The Burnett River Bridges Rail Trail will provide somewhere flat to walk or ride and would be very popular.

Given these figures, it would seem the medium/medium scenario of 12,968 person visits (i.e. 20% of the 'local' population using the trail for 20 visits per year) is a reasonable, if very conservative, scenario to adopt (conservative when compared with the Mundaring data). Such visitor numbers would inject **$27,881/year** into the local economy. It should be noted that this figure may be an under-estimate; the doubling of Mundubbera's population during fruit picking season is likely to see some pickers using the trail and expending money with additional economic input to the region.

7.4.4 LOCAL TRAIL USERS – HOW LONG WILL THEY SPEND ON A TRAIL

The evidence is that most trail users spend up to 4 hours on a trail (walking or cycling). However, local people using the trail as part of an exercise regime are likely to have different time use patterns. The most recent Exercise, Recreation and Sport Survey (2010) shows that those who regularly exercise do so for between 2 and 5 hours/week and the median number of exercise "events" was 1.6 times/week. It is reasonable to assume (for the purposes of calculating potential hours of exercise on the trail) that each use will be for 1 hour.

Using this assumption and combining it with the forecast user numbers, it is likely that there will be an additional:

- 1,520 hours of additional physical activity in the local communities along the Awoonga Lake Rail Trail.
- 2,628 hours of additional physical activity in the local communities along the Kalpowar Tunnels Rail Trail.
- 12,968 hours of additional physical activity in the local communities along the Burnett River Bridges Rail Trail.

It should be noted that these local use figures will not alter depending on whether 1, 2 or all 3 of the trails are built. A package of trails will not change local user numbers – local user numbers are entirely dependent on the trail within 20 minutes proximity to the relevant populations.

7.5 PROJECTED USER SCENARIOS - SUMMARY

With the right marketing, the trail will attract local users, day trippers and visitors. Under a relatively conservative scenario, the outcomes presented in Table 16 are achievable.

Table 16: Forecast user scenarios

	Awoonga Lake Rail Trail	Kalpowar Tunnels Rail Trail	Burnett River Bridges Rail Trail	Awoonga Lake and Kalpowar Tunnels (2 Trail Package)	Boyne Burnett Inland Rail Trail Experience (3 trail package)
Local use (numbers)	1,520	2,628	12,968	4,148	17,116
Day trippers	3,000	6,000	3,000	11,000	14,000
Overnight visitors (converted from day trippers)	1,000	2,000	1,000	3,000	4,000
Overnight visitors (extending their stay)	1,000	2,000	1,000	3,000	4,000
New overnight visitors	0	0	0	2,000	4,000
$ injected into local economies	*$857,368*	*$1,706,760*	*$881,981*	*$3,695,418*	*$6,248,999*

The total injection of dollars into the local economies from local, day trip and overnight visitors ranges from **$857,368/ year** to **$6,248,999/year** (under a range of conservative scenarios). Complex economic analysis (beyond the scope of this project) is needed to determine how many jobs are likely to be created by such expenditure.

It should be emphasised (under all scenarios) that user and visitor numbers will not necessarily be realised in the first years of operation if the trail proceeds.

7.6 OTHER TOURISM OPPORTUNTIES

Both Councils have requested the consideration of guided coach tours of any or all of the rail trails should they be built. The Interim Report canvassed the opportunities for guided and supported tours (which can be accessed via a number of forms of transport). There are opportunities for local businesses to provide such opportunities which has been done extensively on other trails (both rail trails and other trails).

The Kalpowar Tunnels Trail is one which lends itself to guided tours and has been identified by Gladstone Regional Council as an opportunity as the Gladstone Region has become a port for the P&O Cruise Ships, and recently welcomed the Carnival Cruise Line. The Council identified

that, while docked at the Port, cruise ship passengers explore the region via a number of ways, i.e. bus tours, boat tours. The Council sees the development of the Rail Trail, in particular the Tunnel Section as a unique tour opportunity for the Region. However, there are a range of practical issues that need consideration.

- The logistics of transporting people from the cruise ships to the tunnels. Tunnel #6 (the most accessible tunnel) is a significant distance from Gladstone (just on 2 hours drive) along roads of varying quality. While it is reasonable to assume normal day trippers will make the effort (and in fact these have been included in Section 7.3), it is unclear whether guests on cruise ships are prepared to. In addition, disembarking and embarking take time, potentially adding significantly to the length of the day trip.
- The user profile. This consultancy has not had experience with cruise ship markets but has been advised that many people are not necessarily looking for a nature-based recreation experience (which a rail trail provides). It is not clear how many cruise ship guests (as a percentage) would be interested in a rail trail experience.
- Developing on-site facilities for coaches. Given that visitors to the tunnels from cruise ships would have limited time, there would be a need to develop facilities for coach parking close to the top of the tunnels, most likely at Barimoon siding. This would require significant earthworks and construction of a bus parking facility and an access road at the siding. In addition, the road into the siding (Barimoon Road) would likely need upgrading to be suitable for coaches. A formal trailhead with signage and possibly toilets may also need to be developed (this has not been costed in Section 6). The alternative is to park coaches at Kalpowar siding (which would be developed as a trailhead) and visitors could transfer to smaller vehicles or traverse the rail trail by bike to the tunnels (a distance of some 6 kms).

Given these logistical and facility development issues, the best approach may be to encourage small group guided tours run by individuals. This would be a more realistic reflection of likely user numbers from cruise shops and requires far less additional expenditure on the rail trail (or on access infrastructure). A coach to Kalpowar and a small vehicle shuttle to Barimoon siding is also an option that could be explored.

Given the likely small numbers of interested people, there is no reason to re-cast the visitor number forecasts. Any new users from cruise ships should be considered part of the new day tripper numbers (7.3.2.1).

The Burnett Bridges Rail Trail offers different opportunities. Coaches (not from cruise ships) could stop at Mt Debateable siding and users could easily walk or ride the 4 kilometres to Roths Bridge (probably the most easily accessible of the bridges). Again, it is more appropriate to make the trail infrastructure available and allow private businesses to create the user package. No extra work would need to be done. Again, user numbers can be considered as part of the forecast numbers in previous sections.

7.7 BUSINESS BENEFITS

The completion of a trail would not simply provide an injection of funds to stabilise and grow existing and new businesses (as discussed in Section 5). The psychological impact on businesses can also be very important. Work done for the Riesling Trail included some qualitative research

using focus groups consisting of business operators (*Market Equity 2004*). The key responses included:

- A belief amongst business providers that the trail contributes to economic activity in the region.
- The trail is seen to attract a variety of visitor types to the region, with wine as well as non-wine interests.
- The trail is seen as highly important to businesses in the area. Businesses were passionate about the trail and believed it contributed to their businesses as well as helping to position the area as an authentic leisure holiday destination. The exact impact in measurable terms could not be clearly ascertained, as it is so intrinsically linked to businesses in the region, but there was a definite opinion that the Clare Valley would not be the same without the trail and that it had contributed to business formation as well as business growth.

Business opportunities were discussed in the Interim Report (and summarised in Section 5), but it bears reiterating that trail development offers a range of new business opportunities and the opportunity for existing businesses to extend their offerings.

It should also be noted that the trail construction process itself will provide an economic input to the region. The size of this benefit is beyond the scope of this report but it can be quite significant.

7.8 NON-ECONOMIC BENEFITS

There are a range of non-economic benefits accruing to local and wider communities from trail construction and use.

7.8.1 HEALTH RELATED ECONOMIC BENEFITS TO THE WIDER ECONOMY

- Data from the USA indicates that every $1 of funds spent on recreational trails yield direct medical benefits of $2.94 (*Wang et al 2005*).
- Any of the trails will encourage people to exercise – the economic benefit to society of getting an inactive person to walk or cycle is between $5,000 and $7,000/year. The economic benefit to society of getting an active person to walk or cycle is between $850 and $2,550/year (*Institute of Transport Economics 2002*). Increasing recreational options for local communities will aid overall community wellbeing.
- Participation in trail activities can improve physical and mental health, assisting with disease prevention particularly cardiovascular, musculoskeletal, respiratory, nervous and endocrine systems as well as reducing obesity, hypertension, depression and anxiety. The obesity epidemic alone is now estimated to cost Australia $1.3 billion/year (*Australian Bicycle Council*). One heart attack is estimated to cost in the vicinity of $400,000 in direct and indirect costs.

7.8.2 QUANTIFIABLE BENEFITS TO INDIVIDUAL RESIDENTS

There are a number of benefits that accrue to residents of the region from a trail development over and above those that accrue to the regional economy (and therefore a select number of people) and to the wider economy (health benefits in particular).

- Medical research has shown that 1 hour of moderate exercise can add more than 1 extra hour of high-quality life to an individual.
- Cycling and walking as recreation activities can be cheaper than alternative forms of exercise such as gym classes. Yearly memberships to gyms are around $600 in many instances – the cost of a good hybrid bike, which has a life of more than one year.

7.8.3 NON-QUANTIFIABLE BENEFITS TO THE COMMUNITY AND TO INDIVIDUALS

There are a number of unquantifiable benefits to individuals and the community. These are listed here so that a complete picture of benefits can be considered when weighed up against project costs. It is difficult to cost them for a range of reasons.

7.8.3.1 Health and Wellbeing

Rail trails are an accessible form of recreation. Trail-based recreation is generally free, self-directed and available to all people, all day, every day. Good quality, accessible trails encourage physical activity and improved health. Increasing recreational options for local communities will aid overall community wellbeing.

Physical activity has also been shown to improve mental health and help relieve stress. The economic cost of mental illness is high in Australia - estimated to be approximately $20 billion per year.

People can use trails in a variety of ways, depending on their abilities and preferences. Physical health benefits are discussed above. Social health benefits include:

- Trail activities facilitate participation and social interaction between a diversity of community members, age groups, individuals and families e.g. community walking groups, voluntary trail maintenance and conservation work;
- Market Equity (2004), in its report on trails in South Australia, found that using trails to get a sense of well-being (95% of survey respondents) and using trails as a means to unwind and relax (91% of respondents) were the two main drivers getting people out on recreation trails. The psychological health benefits of trails remain under-estimated.
- Trails can offer a wide range of opportunities to a diverse group of people. Depending upon design, trails can accommodate the elderly, people with disabilities or satisfy those seeking challenging adventures and a sense of achievement;
- Participation in trail activities has a relatively low cost to participants;
- Trails can introduce participants to other recreational and participation offerings in the community; and
- Trails help to connect people and places and to develop community pride.

7.8.3.2 Liveability

Quality recreational facilities, such as trail networks, can help create attractive places to live and visit. This was identified by a number of planning documents as a goal for the two regions (as discussed in section 3). Walking and cycling are relatively cheap modes of transport. Trails also provide a low impact means of travelling through the landscapes and play an important role in connecting people with nature.

Local users of the trail will enjoy social interaction within the community and with greater social interaction, the social capital of the area may be boosted. There are a number of benefits of enhanced social capital. It improves the capacity for people to trust others (*ABS 2012 cited in SGS 2013*). This strengthens the social cohesion in a community as it provides the opportunity for socially isolated individuals to integrate into the community. Greater social capital also facilitates networking, thus creating more efficient economic networks.

Trail projects help build partnerships among private companies, landowners, and local government. Each trail contains elements of local character and regional influence, and reflects the hard work, enthusiasm, and commitment of individuals, organisations and elected officials. In addition, when residents are encouraged to become involved in a trail project, they feel more connected to the community (*Warren 1998 cited in SGS 2013*).

7.8.3.3 Education

Trails present a unique opportunity for education. People of all ages can learn more about nature, culture or history along trails. Of particular importance, trails provide firsthand experience that educate users about the importance of the natural environment and respect for nature by leading users into a natural classroom. An added advantage of a rail trail is that it provides an opportunity for city to connect to country, in a way “bush” trails do not. Education of users about railway history is also a paramount consideration in trail development.

Enhanced, active education along trails is achieved through the use of comprehensive trail guides and signage to encourage awareness of the natural, cultural and historical attributes of the trail.

Trails have the power to connect users to their heritage by preserving historic places and by providing access to them. They can give people a sense of place and an understanding of the enormity of past events.

7.8.3.4 Environmental and Cultural Benefits

Trails provide a number of environmental and cultural benefits. These include:

- Opportunities for the community to experience natural and cultural environments;
- Protection of the adjacent environments by localising impacts and facilitating management of visitation effects;
- Educational and interpretive opportunities and increased environmental and cultural awareness and appreciation;
- Increased community ownership which helps to preserve natural and cultural values; and
- Opportunities for community participation in conservation and revegetation work.

7.9 SUMMARY

The proposed rail trails (developed under any scenario) will provide a number of benefits to residents and businesses of the region. Some of these are quantifiable.

- If the Awoonga Lake Rail Trail is constructed, increased visitor numbers in the order of 5,000 visitors will inject in excess of $850,000 into the region's economy. Local use rates of over 1,500 people/year will see the injection of an additional $3,200/year. These figures represent an injection of money into the local economy, which will ensure that the construction investment and ongoing maintenance costs is "paid off" over time.
- If the Kalpowar Tunnels Rail Trail is constructed, increased visitor numbers in the order of 10,000 visitors will inject in excess of $1.7 million into the region's economy. Local use rates of over 2,600 people/year will see the injection of an additional $5,600/year. These figures represent an injection of money into the local economy, which will ensure that the construction investment and ongoing maintenance costs is "paid off" over time.
- If the Burnett River Bridges Rail Trail is constructed, increased visitor numbers in the order of 5,000 visitors will inject in excess of $850,000 into the region's economy. Local use rates of almost 13,000 people/year will see the injection of an additional $28,000/year. These figures represent an injection of money into the local economy, which will ensure that the construction investment and ongoing maintenance costs is "paid off" over time.
- If the Awoonga Lake Rail Trail and the Kalpowar Tunnels Rail Trail package is constructed, increased visitor numbers in the order of 19,000 visitors will inject in excess of $3.6 million into the region's economy. Local use rates of over 4,100 people/year will see the injection of an additional $9,000/year. These figures represent an injection of money into the local economy, which will ensure that the construction investment and ongoing maintenance costs is "paid off" over time.
- If the Boyne Burnett Inland Rail Trail Experience (the 3 trail package) is constructed, increased visitor numbers in the order of 26,000 visitors will inject in excess of $6.2 million into the region's economy. Local use rates of over 17,100 people/year will see the injection of an additional $37,000/year. These figures represent an injection of money into the local economy, which will ensure that the construction investment and ongoing maintenance costs is "paid off" over time.

The proposed trails offer a range of other significant benefits to these communities that cannot be quantified but are equally important to consider when assessing the project's merits (developing more than one trail magnifies these benefits). These are:

- The trails offer the opportunity for existing businesses to extend their offerings. The trails have the potential to improve the sustainability of businesses reliant on tourism. The Burnett River Bridges Trail in particular presents the opportunity to raise the tourism profile of the North Burnett Region.
- The trails will encourage visitors to stay a little longer when visiting the region by offering another activity.

- Increasing recreational options for local communities will aid overall community wellbeing, and in the long-term reduce health costs (a saving to the State Government).
- These trails will provide firsthand experience that educate users about the importance of the natural environment and respect for nature by leading users into a natural classroom.
- These trails will provide an opportunity to connect city to country.

In economic analysis, it is important to consider the opportunity cost of investment – the cost (foregone opportunity) of money invested in one project rather than in another. Much of the money that will be spent on this project, should it proceed, will be sourced from specific grants for tourism and/or recreation projects – the Queensland Cycling Action Plan is one such dedicated funding facility. It will not be available for other types of projects – there is, in a sense, limited opportunity cost for funds, though funds for this project could be spent on similar projects elsewhere with a different set of costs and benefits.

SECTION 8 – FEASIBILITY STATEMENT

8.1 THE STATEMENT

The initial project brief required the examination of the feasibility of developing a rail trail on the corridor from Taragoola to Reids Creek. Initial examination of the corridor and likely users indicated that developing a long trail along the whole of the corridor is a very expensive project and one that cannot be justified given the limited demand for a long trail. The low number of long rail trails in Australia may suggest that demand for such a product is relatively low, though it is hard to make a decisive comment as demand data does not exist. Another critical issue considered in making the initial recommendations to focus on three shorter trails was the ongoing maintenance costs of a long trail (which will be very high due to the trail length). This concern was further highlighted by a seeming reluctance by both Councils to take on responsibility for the significant maintenance that would be required for a long trail (maintenance will be required for the three shorter trails, but it will obviously be much less than for the long trail).

The Interim Report (November 2018) recommended the development of three shorter trails along the corridor in recognition of market and cost realities. A series of shorter trails provides a better experience for a wider range of users (and provides for a cheaper project to both build and maintain). This report focusses on the three shorter trails. This position was accepted by the two Councils.

It may be possible or desirable in the future to develop further trails along the corridor (perhaps even the long trail) but there is no clear business case for developing a long trail presently. Retaining the rail corridor in public ownership would be necessary for future development of a long trail.

Consequently, this report focusses on the development of the three individual rail trails. In order to establish whether the proposed rail trails (Awoonga Lake Rail Trail, Kalpowar Tunnels Rail Trail, Burnett River Bridges Rail Trail) are feasible propositions, this Feasibility Study sought to answer several questions:

Is there a viable trail route? Yes. As is the case for the vast majority of disused railways in Queensland, the entire corridor (from Taragoola to Reids Creek) is still in public ownership. Although many adjoining landowners have had unrestricted access to the public land within the corridor for a period of time, the land remains in public ownership and is unlikely to ever be used again as a Government railway. It is also highly unlikely that the publicly owned land will be sold for an alternative use.

There are existing licences over parts of the corridor and in two instances some public infrastructure (a road and an aerodrome) have been built on parts of the corridor. These are not insurmountable difficulties. Detailed design can provide realistic solutions to the aerodrome issue. The road is not an issue as it is not on the preferred route.

Some adjoining landowners have erected fences alongside, and across, the corridor over the years and stock have had unlimited access to much of the corridor for grazing purposes. There will inevitably be disruptions to long established farming practices should the proposed rail trail be constructed.

However, as is the case with many other successful rail trails developed in similar broadacre farming areas in Australia and overseas, there is a range of practical and viable solutions to each and every issue that adjoining landowners raise. The fact that some farms straddle the railway corridor should therefore not be considered as a reason for not proceeding with the development of a trail.

Are there alternative uses for the corridor that will provide more value to the community? Are these alternative uses viable? The realistic answer is no. A proposal by Monto Rail Adventures to develop a railway tourist attraction stalled after the Department of Transport and Main Roads rejected the business plan in 2015.

The proposed rail link connecting the Port of Bundaberg with the Wide Bay Burnett Minerals Province also does not appear to be a likely user of the corridor on its present alignment though no details are available about the proposal. It is understood that the State Government is committed to retaining the railway corridor in public ownership which would allow it to be used for other public purposes should the need arise (other than a rail trail).

Will the trails provide quality user experiences (terrain/landscape/history)? Yes. The Boyne Burnett Inland Rail Trail would pass through some very attractive scenery. The three recommended short trails showcase the best of this scenery. The journey alongside Awoonga Lake provides views of and over the lake and the nearby mountains which are very scenic. At the southern end of this trail, there are farming vistas through the Boyne Valley as well as views east to mountain ranges.

There are great panoramic views afforded in sections, often due to very high and stunning embankments. This is notably the case as the corridor proceeds through the Dawes Range to the Kalpowar tunnels, and along the Burnett River from Mundubbera towards Reids Creek.

Many bridges remain, including significant and attractive bridges between Mundubbera and Mt Debateable, and at the northern end of the corridor in the vicinity of Awoonga Lake. Some of the railway stations remain and have been restored. The tunnels provide an outstanding example of railway tunnel engineering and the presence of 6 in a very short section is unmatched on an Australian rail trail. The hog's back sleepers, an unusual feature, add to the appeal of the tunnels.

As with all disused railway corridors, the routes pass through cuttings, along embankments, across bridges (short and long) and over numerous culverts and creeks. In addition to the cuttings and embankments of the railway formation, other reminders of the former railway exist all along the corridor including mile pegs (and other railway signs), signals and switches, cattle grids and remains of sidings and platforms.

The experience to be gained by users on the proposed trails would be of very high order. Interpretation of the cultural and natural values of the area will add to the user's experience.

Is there a market for the proposed trails? Yes. Existing rail trails in other states, notably Victoria, are extremely well used and very popular recreational assets of the communities in which they are situated. The existing visitor market (both day trips and overnight trips) is very well established in the Gladstone Region, while the rail trails offer the opportunity to develop what is a small visitor market in the North Burnett region.

This Feasibility Study has examined the potential for users to travel to the regions from places such as Bundaberg, Maryborough, Hervey Bay and the State's south east specifically for the rail trails and as an added component to their leisure time activities.

It is highly likely that the proposed rail trails will become popular additions to the suite of rail trails available to those who actively seek out these recreational opportunities. The situation in Queensland at present (with a very limited number of rail trails) has meant that potential rail trail users have to travel to other Australian states (or overseas) to utilise such recreational cycling and walking experiences. The future development of additional rail trails in Queensland will stimulate interest in, and use of, rail trails in a state largely unaware of rail trails.

In addition, the proposed rail trails will foster day-trips from Gladstone, Rockhampton and Bundaberg.

Will the rail trails create any unmanageable or unmitigated impacts on adjoining landholders' farming practices and lifestyles? There are none that are obvious (though there has been very limited consultation with adjoining landholders). It is true that a rail trail is a different use to the historic use of the corridor (for trains) and adjoining landholders may have expectations of how the corridor will be used in the future. A rail trail probably was not one of their expectations and they may have concerns or outright opposition. However, the corridor remains publicly owned land and the issues and concerns likely to be raised by adjoining landholders have been satisfactorily addressed in the other rail trails round Australia (of which there are over 100). Evidence shows no long-term negative impacts on farming practices and lifestyles. It is important to recognise landholder concerns and, if the trails proceed, to work closely with them to address individual concerns and arrive at mutually agreed solutions.

Are the local governments and key stakeholders supportive of the concept? This issue is not clear. Funding for this Feasibility Study was provided by the Department of Transport and Main Roads; Gladstone Regional Council and North Burnett Regional Council managed the process of the Study. Their agreement to manage the study does indicate a willingness to investigate the benefits of such a trail and the opportunities it might provide. However, there is a formal statement by North Burnett Regional Council that, while it has been willing to support the study, it will not fund any potential capital and maintenance costs associated with the rail trail. This is a major concern as experience elsewhere suggests that Local Governments need to be prepared to be involved in the planning and development of rail trails to realise their potential. Community groups, while well-intentioned and passionate, often do not have the resources to deliver a major project such as a rail trail. The Burnett River Rail Trail group has done a very good job of getting the existing rail corridor to the state it is presently; fully developing it as a rail trail will have complexities that have not yet been encountered.

Gladstone Regional Council has not committed to a formal position on the rail trail but has raised concerns with ongoing maintenance.

Are there supportive/strong advocates in the community? Yes. The roles of the community groups have also been critical in getting the project to this stage – they in fact initiated the process. This means that one of the challenges often presented - the need to bring the communities along with the development of the project – has partially been dealt with although any further planning and development will require more widespread community consultation.

The Burnett River Rail Trail Group has to date undertaken a range of tasks along the corridor from Reids Creek to Mundubbera – many of which would be undertaken by a formal Committee of Management (having an access permit, trail construction, sign making and restoration, historic features interpretation) and many which would be undertaken by a 'Friends of' group, notably trail maintenance. The group has already undertaken this work at no cost to any agency.

The Boyne Burnett Inland Rail Trail group on the other hand is relatively new and has taken advocacy as one its key tasks at this stage. Advocacy is also a key role for a 'Friends of' group.

There is a ground swell of support from groups and individuals within the surrounding communities. It is also evident that there are strong advocates within the communities who have expressed a desire to get more involved in ensuring the proposed rail trails get developed (though this was based on a complete Inland Rail Trail rather than the 3 trail package option proposed).

A committed community-based group (or groups) is an important element in a rail trail's success. This commitment can be tapped into to ensure the rail trails succeed should they proceed for ongoing maintenance and promotion.

Is there a supportive community? It is not possible to provide a definitive answer as to community support, given the very limited consultation for this project (which consisted of meetings with the two community groups advocating for the trails and two adjoining landholders – one in the Dawes Range and one near Reids Creek). Projects with a long lead time prior to a feasibility study often have developed a reasonable level of community support (and opposition). Of the three proposed trails, the Burnett River Bridges Trail has the longest "public" history.

Based on previous rail trail projects, the pattern of community comments generally falls into three categories:

- Most adjoining landholders have concerns with the proposal and raise a number of issues. Some are vehemently opposed to a proposal, whereas others see that, if proposals were to proceed, acceptable solutions could be found to their issues.
- A few people do not support a proposal, instead arguing that a heritage rail proposal should take precedence along a corridor.
- Many community members (both within the corridor communities and beyond) are very supportive of a proposal and would use the trail if it were developed.

This is typical of most rail trail proposals. There are some within the community who fear that problems may arise and are somewhat opposed to the prospect of a change to the norm. There are also some who have genuine concerns about a project but are open to potential solutions if engaged correctly – for example, by one on one consultation as part of a trail development plan.

Would the trails be value for money? Yes. Trails repeatedly demonstrate that there are numerous benefits to be gained through their construction: economic benefits to the towns where they start and finish; a boost to businesses associated with the trail; social and physical health benefits; and a range of environmental and cultural benefits. The business case for the

trail is set out in Section 7. In summary, it can be reliably anticipated that development of the proposed rail trails will result in increased annual visitor numbers in the range of 5,000 to 26,000 who will inject between $850,000 and $6.2 million into the region's economy. Local use rates of between 1,500 and 17,100 people/year will see the injection of between $3,000 and $37,000/year.

Is there a commitment to maintenance ("friends of …" group or support network)? This has not been explored in any detail. The Feasibility Study identifies likely maintenance costs. As stated above, the Burnett River Rail Trail group has already made a major commitment to trail construction and maintenance and it is likely that this will continue. Other people may be encouraged to join the group once the trail is established. The Boyne Burnett Inland Rail Trail group have so far committed to the task of lobbying. It is not hard to envisage that they would be involved in ongoing maintenance if the trails are constructed.

Will the trails provide a unique experience? Yes. The landscape associated with these proposed rail trails is very attractive and adds significantly to the range of trail opportunities available to walkers and cyclists in this region. The attractive vistas available all along the proposed rail trail routes, the variety of existing rail infrastructure (notably cuttings, embankments and bridges), and the relative uniqueness of the varied landscapes (farmed country, creek valleys, heavily vegetated and relatively undisturbed bushland) add interest. The tunnels and the large number of significant heritage bridges certainly add interest to the trails. The tunnels in particular are a unique experience in Australia.

Is there a demonstrated benefit to trail users and, especially, the host communities? This question has been answered partially in answers to other questions posed. The demonstrated benefits come in the form of economic and non-economic benefits that will accrue to both users and host communities (with the creation of a range of economic opportunities arising from the development of the rail trails). The economic benefits can be magnified if two or three trails are developed as a package.

8.2 RECOMMENDATIONS

Following consideration of the major issues pertaining to the development of a trail on the disused railway corridor between Taragoola and Reids Creek and considering the views of key stakeholders, groups and individuals consulted (and background information obtained during the course of the project), this Study recommends that:

- developing a long trail along the whole of the corridor is a very expensive project and one that cannot be justified given the limited demand for a long trail.
- It may be possible or desirable in the future to develop further trails along the corridor (perhaps even the long trail) but there is no clear business case for developing a long trail presently. Retaining the rail corridor in public ownership would be necessary for future development of a long trail.
- the development of three shorter trails – the Awoonga Lake Rail Trail, the Kalpowar Tunnels Rail Trail, the Burnett River Bridges Rail Trail – should be pursued. A series of shorter trails provides a better experience for a wider range of users, provides for a cheaper project to both build and maintain, and delivers a range of economic and non-economic benefits to the host communities.

For the trails to proceed, a number of conditions should be met:

1. More comprehensive community consultation needs to be undertaken based on both the Interim Report and the Feasibility Report to establish wider community feedback on the trail proposals. As the Councils have commissioned the feasibility study, it is for them to determine whether and how this consultation should proceed;
2. Both Councils (or a Committee of Management) being prepared to accept vesting of the appropriate sections of former railway corridor i.e. Futters Creek to Ubobo, Builyan to Kalpowar, and Mundubbera to Browns Road (at Mt Debateable), with an acknowledgement that sub-leases may be required to permit other activities (if appropriate). The decision on what vesting entails will likely be made by DTMR as the responsible Government agency. It is likely that vesting will involve similar conditions as other arrangements between Councils and the State Government in respect of community resources such as showgrounds and sports grounds. Responsibilities are likely to include management, maintenance, and user safety liabilities. Some (but probably not all) of these responsibilities can then be "sub-let" to a community group as occurs in the case of many community assets. However, there is yet to be a clear indication from the State on what vesting will involve. The condition may be met by the vesting of the sub-lease for the Mundubbera to Browns Road corridor in an entity other than the North Burnett Regional Council if the entity meets conditions imposed by the Department of Transport and Main Roads. Under such circumstances, the rail trail developed in the first instance along this corridor section may not be as envisaged in this report (at a "lower standard) and it needs to be recognised that this is likely to impact on forecast user numbers. The option needs to be left open to pursue full development of this rail trail at a future date;
3. Detailed design development plans for the rail trails being prepared, which will involve a thorough examination of each proposed trail, the preparation of detailed works lists and cost estimates;
4. A comprehensive program of one-on-one discussions on-site with affected adjoining landowners be undertaken to ascertain their individual concerns and to work out together solutions to each issue raised;
5. The project proponents (the two Councils) seek funding from external sources (notably the Queensland Government and Commonwealth Government) for the construction of the proposed trail (and the detailed trail development plans that will need to be prepared prior to construction); and
6. A commitment to ongoing maintenance of the trails being given by both Councils, a Committee of Management and volunteers. An overview of likely maintenance tasks, possible costs and the use of volunteers to defray some of these costs are discussed in Section 10.

It should be noted that should one of the Councils determine not to proceed with a trail within its jurisdiction, the trail/s in the other jurisdiction should still proceed. There will still be economic and non-economic benefits to the communities; these will not be as significant as a three trail package would be.

SECTION 9 – IMPLEMENTATION

This Feasibility Study is one of the initial steps in the development of the proposed rail trails. The fieldwork and other investigations carried out in the study have revealed a number of tasks that will need to be undertaken to progress the proposed trails through to fruition.

9.1 WHO SHOULD DRIVE THE PROJECT

The rail trail development program is a substantial – and complex – project. There are many stakeholders, both private and public, all with a strong interest in this project – some are already involved while some will need to be involved in the future.

The Gladstone Regional Council and the North Burnett Regional Council have been the primary drivers of this phase of work (with funding provided by the Department of Transport and Main Roads). The Councils have taken a pro-active role in facilitating this Feasibility Study and should be commended for being prepared to carry primary responsibility through this process. The roles of the community groups have also been critical in getting the project to this stage – they in fact initiated the process.

There are a number of tasks that need completion at this early stage to ensure the project's success. These include:

- Broad community consultation;
- Preparation of detailed trail development plans; and
- Sourcing funds for future development of the rail trails.

These primary tasks are critical to the project's eventual success and will require human and financial resources.

It is therefore recommended that the two Councils continue to take the lead role in the next phase of the project, working in conjunction with relevant State Government agencies to implement the development of the rail trails. Following consideration of this Feasibility Study, the Councils will have developed a more detailed understanding of many of the issues and opportunities and are ideally placed to continue to facilitate future stages.

9.2 FURTHER INVESTIGATIONS REQUIRED

A number of further investigations are needed before further work on constructing any or all of the trails is undertaken.

9.2.1 BROAD COMMUNITY CONSULTATION

It is important to establish levels of community support for the project. This is often more difficult to do as supporters of any project do not often voice their support. This report (as well as the Interim Report) provide both Councils with materials to lead discussions in their communities about the rail trail projects and the relative benefits and costs.

Adjoining landholders will be one key stakeholder group. It is important to consider the issues that may be raised by adjoining landowners and investigate what options are available for resolving some of these concerns. Many landowners resent having things imposed on them or

feeling as if they have no say in what is happening around them. Many landowners are resistant to change of any sort, let alone one they perceive will have detrimental impacts on their lifestyle as well as on their farming operations.

Apart from consultation with 'neighbours' of the proposed rail trails, consultation and engagement with the general community is essential to garner support for the project and to elicit any issues that other people in the community may have about the project.

The broader communities along the trails also need to understand the potential benefits of the trails so they can be factored into any consideration. The Business Case and the identification of general opportunities presented in this report provide information for communities to consider.

9.2.2 STRUCTURAL INTEGRITY OF BRIDGES

The Scope of Works for this Feasibility Study does not include detailed engineering assessment of bridges.

If the Councils determine to proceed further along the trail planning and development process (after community consultation), bridge inspections are seen as a key matter to be addressed. Most of the bridges seen during fieldwork have some prospect of re-use but will require a detailed examination to confirm their true condition (as will all other bridges along the corridor). Detailed assessment of all bridges will determine their suitability for refurbishment or, as an alternative, the need for new structures to be installed. This level of work could be included within the recommended trail development planning phase or it could be carried out as a separate project.

9.2.3 DETAILED TRAIL DESIGN (TRAIL DEVELOPMENT PLAN)

This project (incorporating the two reports) is a feasibility study examining the merit and physical constraints of establishing a trail on the disused railway corridor between Taragoola and Reids Creek. By necessity, indicative costs and possible solutions are included. It does not provide detailed trail development planning that seeks out solutions to all specific issues, nor does it articulate detailed design solutions. It does however provide broad estimates of probable costs, based on an examination of numerous parts of the former railway corridor that identifies likely works required (clearing, trail construction, bridges, drainage, signage, etc).

With respect to individual trail planning, there are two basic elements:

- Individual Trail Feasibility Study – establishes whether a trail route is viable; refines potential alternative trail routes; identifies issues/challenges to trail development; identifies the possible market for the trail; broadly identifies costs; provides feasibility statement on the practicalities of developing the trail; and
- Trail Development Plan – identifies precise route of proposed trail; identifies construction techniques and materials; provides reliable cost estimates and detailed works lists; identifies signage requirements and costs; provides trail inspection and maintenance schedules.

Following the establishment of trail feasibility and the preparation of a detailed trail development plan, trail construction can begin. This process ensures a maximum return on public (and private) investment in trail development work. Far too often, people leap to construct trails without any idea of who uses them, why, when, how much it is going to cost, how to market a trail etc. The result is often trails that are underused and eventually "return to the bush".

The Boyne Burnett Inland Rail Trail project is at the "feasibility" stage of the trail planning and development spectrum. Further detailed trail planning will be required for the rail trail once it has been demonstrated that it is feasible and therefore worth proceeding with.

The preparation of a detailed trail development plan will deliver a high quality, locally focussed and well-managed and maintained trail for use by residents and visitors.

If the decision to proceed is taken (after community consultation), the preparation of a trail development plan is the next logical step.

9.3 TRAIL CONSTRUCTION STAGES

Development of trails can often be staged so that parts of trails are developed in line with available funding sources. It is often not possible to open the full length of a trail simultaneously as significant physical, financial, community and institutional work needs to be undertaken. This is the case in many recreational trails around Australia. It has not detracted from their utility or the enjoyment of them by users; however, there is a need to be conscious of how stages are marketed. Promotional material needs to clearly articulate what sections are open and what this means for users.

A staged approach to planning and development is often the best approach as it better suits the capacity of the entity charged with delivering the project. Trails can take up to 10 years to develop from initial planning stages. The "new" Bibbulmun Track in WA was some 4 years in the detailed planning and construction. This was a significant trail project with backing by the State Government – it stands out as a track planned and built relatively quickly. Other rail trail projects provide better illustrations of a realistic timeframe. A Feasibility Study for the Great Victorian Rail Trail was prepared in 2004; the trail opened in 2012. Interestingly, this trail was completely developed in one stage as the result of a large Commonwealth Government grant after the tragic Black Saturday bushfires in 2009. The Port Fairy Warrnambool Rail Trail (a 37km trail) was subject to various studies and plans from 2002; it was opened in 2010 – again all in one stage.

The criteria used to determine the recommended stages of development for each of the three trails were:

- Trail sections anchored in trailheads for each of the three trails; this provides easier access for users and builds on associated infrastructure investments already made. It also limits the number of possible stages for both the Kalpowar Tunnels Rail Trail and the Burnett River Bridges Rail Trail.
- Construct cheaper sections earlier than expensive ones (affordability).
- Construct most attractive sections first.
- Probable economic impacts.
- Finished product logic.
- Ease of access for users.
- Trailhead development.
- Numbers of rural properties through which the rail trail would pass.

Assessment of potential stages was done in a broad sense against all these criteria, rather than assessing each section against each individual criterion. Combined with the field assessment, consideration of these elements allows the determination of the implementation schedule.

If the Councils determine to proceed with trail construction, Gladstone Regional Council would be faced with the question of which trail to develop first - the Awoonga Lake Rail Trail and the Kalpowar Tunnels Rail Trail. There is no simple recommendation. The Awoonga Lake Trail is the most expensive of the trails to develop primarily because of all the bridge work. It would deliver the least economic benefit (it will still make a significant contribution to the regional economy). It is probably the least attractive of the three. On the positive side, it has the potential to involve a committed stakeholder (Gladstone Area Water Board) at an early stage of trail development with buy-in and resources.

9.3.1 AWOONGA LAKE RAIL TRAIL

The recommended stages connect the proposed trailheads (distances are approximate).

Table 17: Awoonga Lake Rail Trail implementation schedule and costs

Stage	Description	Estimated cost (excl GST)
1	Boynedale Bush Camp to Nagoorin (16 km)	$6,427,655
2	Nagoorin to Ubobo (5.6 km)	$626,175
3	Boynedale Bush Camp to Gladstone Monto Rd (north of GWB gates) (2.3 kms).	$960,825
4	Gladstone Monto Rd (north of GWB gates) to Futters Creek (12 kms).	$2,718,830
TOTAL		$10,733,485

9.3.2 KALPOWAR TUNNELS RAIL TRAIL

The recommended stages connect the proposed trailheads (distances are approximate).

Table 18: Kalpowar Tunnels Rail Trail implementation schedule and costs

Stage	Description	Estimated cost (excl GST)
1	Kalpowar to Golembil siding (17.1 km)	$3,554,880
2	Golembil siding to Builyan (14.1 km)	$3,022,545
TOTAL		$6,5577,425

9.3.3 BURNETT RIVER BRIDGES RAIL TRAIL

The recommended stages connect the proposed trailheads (distances are approximate).

Table 19: Burnett River Bridges Rail Trail implementation schedule and costs

Stage	Description	Estimated cost (excl GST)
1	Mt Debateable siding to Philpott siding (18.4 km)	$2,565,075
2	Mt Debateable siding to Browns Rd (3.3 km)	$150,650
3	Philpott siding to Mundubbera (7.1 km)	$667,805
TOTAL		$3,383,530

9.4 IMPACTS ON NATIVE VEGETATION

Generally speaking, much of the corridor has been cleared of vegetation, primarily through the removal of the railway sleepers and steel tracks. In some sections that have not been cleared of rail line, there has been regrowth since the last train ran, though this is not extensive and is mostly grasses.

It is unclear whether permits for the clearing of regrowth vegetation for the purposes of constructing the trail will be required - removing the remaining rail line along the sections of the corridor where trails are to be established is likely to remove what vegetation remains (permits may have already been issued). The project proponent may need to liaise with the Department of Environment and Science to determine whether clearing permits will be required and/or whether offset revegetation will be required.

The railway corridor traverses wetlands between Monto and Bukali that has been acknowledged by Department of Environment and Science as a matter of state significance and also appears to have been listed under the relevant Commonwealth legislation. The wetlands appear to straddle both the railway corridor and the Gladstone Monto Road. At this stage, this is not a significant issue as the three proposed rail trails do not traverse this area. It may be a matter of significance if, in the future, any further development of a rail trail along the corridor is envisaged.

9.5 SOURCING FUNDING

Once the decision is taken to proceed with the implementation of any of the proposed rail trails, one of the first tasks will be to seek funding for the next phase which is the preparation of a detailed trail development plan (i.e. the construction blueprint). It will also be prudent to start the process of finding construction funding. All funding sources available at that time will need to be identified and funding applications prepared as soon as possible. (Funding programs often change and are subject to review – current funding programs are discussed in Section 11).

9.6. ENVIRONMENTAL ISSUES

A number of key environmental issues have been identified. These include:

- Clearing of regrowth vegetation along the corridor, and the need for clearing permits and the possible future need for offset re-vegetation.
- The potential for the spread of weeds (and pathogens) during the construction phase and, potentially, through usage of the trail.
- Contamination of soils as a result of the operations of the railway and the manner in which former bridges were constructed and maintained.
- The potential for sedimentation of watercourses as a result of trail construction and bridge works.

In addition, care will need to be taken in the ongoing maintenance of the proposed rail trails to ensure weeds and pathogens are not unwittingly spread by maintenance machinery. Ongoing clearing at the sides of the rail trails will be required to keep the trail corridor at acceptable widths.

SECTION 10 – TRAIL MANAGEMENT

10.1 INTRODUCTION

Once a decision is taken to proceed with the development of any of the proposed trails, decisions will need to be made about the management regime that will be put in place to manage and maintain the trail. A serious commitment to long term management by the trail's proponents will be required, particularly as there is likely to be a significant investment of Government funds.

The responsibility for overseeing the preparation of this Feasibility Study has rested with the Gladstone Regional Council and North Burnett Regional Council (with funding from the Department of Transport and Main Roads).

Ongoing management of the construction program and operation of any of the three trails will be crucial in achieving sustainable and well-used facilities. Options are available for future management of the trails.

The Queensland Government has not given any indication as to how any new rail trails will be managed. What exists on rail trails presently is a combination of State and Local Government and community groups. What follows draws on standard administrative practice in Victoria (which has the most mature process for rail trail development and management), provides commentary on the key attributes and issues and provides advice on the types of skills and tasks a management committee should undertake; these elements will not necessarily be governed by whatever administrative procedures are adopted. The commentary is provided as a series of best practice notes. They are also provided for the two Councils to consider likely ongoing arrangements if the trail proceeds.

10.2 COMMON ELEMENTS OF GOOD MANAGEMENT

While legislative regimes differ, the operations of many trails across the country are marked by a common set of features. Some common characteristics about all aspects of operation are: discussed below as well as some specific commentary relating to the three recommended trails:

- Most trails have incorporated Committees of Management; many (but not all) of these draw support from 'Friends of' groups. The Burnett River Rail Trail Group has to date undertaken a range of tasks along the corridor from Reids Creek to Mundubbera – many of which would be undertaken by a formal Committee of Management (having an access permit, trail construction, sign making and restoration, historic features interpretation) and many which would be undertaken by a 'Friends of' group, notably trail maintenance. The Boyne Burnett Inland Rail Trail group on the other hand is relatively new and has taken advocacy as one its key tasks at this stage. Advocacy is also a key role for a 'Friends of' group.
- Trails that work best have one entity with primary responsibility for trail development and management (it is often, but not always, some form of Committee of Management). Ownership and maintenance responsibilities extend along the whole of a proposed trail and management structures put in place to own and manage the trail

also own and manage the trail infrastructure, including any bridges. The set of three trails for this project set some interesting challenges in this area. The Awoonga Lake Rail Trail would fall wholly within Gladstone Regional Council though part of it runs through land managed by the Gladstone Area Water Board which is keen to get involved in trail development for a short section at Boynedale Bush Camp. The bulk of the Kalpowar Tunnels Rail Trail is located in the Gladstone Regional Council with a small section in North Burnett Regional Council. Should this trail proceed, it could be jointly managed by the two Councils or Gladstone Regional Council could take a sub-lease over the whole corridor including the section within North Burnett Regional Council. This was the situation with the Brisbane Valley Rail Trail where South Burnett Regional Council had a sub-lease extending over part of the trail within Somerset Regional Council (near the village of Linville). The proposed Burnett River Bridges Rail Trail is located entirely in North Burnett Regional Council. Promoting the package of three trails (if developed) will require a coordinated approach across the two Councils.

- Community involvement in positions of 'power' i.e. on a Committee of Management is critical to community buy-in.
- In Victoria in particular, all Committees follow a template for setting up the organisation and, to a certain extent, pursue the same activities (due to the requirement under legislation and guidelines established by the State Government).
- All trails predominantly use public land – mostly State Government land.
- There are no charges to enjoy any trail.
- Most trails opened are section-by-section (i.e. a staged process) while keeping the big picture in mind. However, there is a need to be conscious of how stages are marketed.
- All trails make the most of official 'opening ceremonies' – bridges, sections, etc.

10.3 TYPES OF MANAGEMENT STRUCTURE

There are three primary ways a rail trail (or indeed any trail) can be managed:

- Local Government as sole manager – e.g. Railway Reserves Heritage Trail, WA
- Local Government as lead player in partnership with other stakeholders (State Government and community) – e.g. Murray to the Mountains, Victoria
- Local Government as a stakeholder in the management structure – e.g. Great Southern Rail Trail Victoria; Riesling Trail, SA

This is particularly an issue in association with these three trails as Gladstone Regional Council has indicated a desire to explore trail management being done by another entity with Council holding the sub-lease (similar to what happens with other community facilities such as sporting fields and showgrounds). North Burnett Regional Council has formally expressed that it is not prepared to provide any capital or maintenance funding for any rail trail and it may be that management of this trail corridor would need to be put in the hands of another entity if Council's position remains the same and also entails that they will not take any management responsibilities.

Each of the three models has its advantages and disadvantages.

Rail trails where a single Council manages a rail trail are simply managed as a recreation asset of the Council, no different from a range of other assets. This has the advantage of simplicity but has no community ownership and buy-in and treats a rail trail as similar to swimming pool or park – assets provided simply for the local community with no outside appeal (bearing in mind that these rail trails will attract visitors). Another disadvantage of this model is that it does not promote cooperation between the two Councils (which are in different regions), particularly critical to realise the full economic potential of the 3 trails package. The Murray to the Mountains is a single trail passing through three Local Governments (while this would be a package of 3 trails in 2 Local Governments). The marketing experience of the trail is important. In discussions with officers at the Rural City of Wangaratta (one of the Councils responsible for the Murray to the Mountains Rail Trail), one of the key elements that came out was that the trail is seen, marketed and managed as one trail that just happens to pass through three Local Governments. This has been critical to the trail's success. A key issue in the consideration of this model is the current position of North Burnett Regional Council.

Trails where Local Government is the lead player in partnership with other stakeholders is the most common approach used in Victoria. A strong argument for this model is community ownership. Those involved in a number of trails strongly put forward the view that community involvement needs to be significant and meaningful. If this does not occur, people will say "It's Council's problem, why doesn't Council fix it?". The other advantages of this model are summed up by contrasting it with experiences of trail managers where the Local Government is involved simply as a player.

Those involved in management of the two trails where Councils are involved as simply a stakeholder (option 3) believe that Councils should play a much stronger role for various reasons:

- A rail trail project needs solid and proper support from the responsible Council on an ongoing basis and preferably from the project commencement. There is a concern that a long-term vision for the trail is missing. Such long-term views are often (though not always) located within a Council rather than outside a Council structure.
- The project is a community resource (as evidence by the large number of local people using the trail), therefore the community should contribute to the trail (including through the Council).
- One of the challenges for one of the Committees is the process of renewal and that many of the Committee members have been on the Committee since inception (in the late 1990s) and new blood is needed. If a trail sits "within the Council" i.e. is driven or at least strongly supported within the Council, the institution can take a trail through these times of transition much easier than can a community-based model.
- Council should have a significant responsibility in the trail's management – it should be responsible for seeking funds, for involving the community in a meaningful way and for keeping the project going when community involvement drops (as it inevitably will at times). Many significant funding programs are open only to Local Governments (rather than community groups).

A key issue in the consideration of this model is the current position of North Burnett Regional Council.

The Great Southern Rail Trail (Gippsland, Victoria) was entirely community driven; proponents believe that there was, and there continues to be, a need to engage a range of individuals, organisations and governments – this is a lot easier if the project is driven by the community rather than by Government. This is a critical advantage of this model (Option 3). It has been the operating model for the Burnett River Rail Trail Group to date. The Burnett River Rail Trail group has indicated it is prepared to take the sub-lease over the corridor. The Group's efforts to date on trail preparation are impressive; however it is not clear whether the opportunity to take up the sub-lease will be made available. Taking over trail development and management is also not a simple task; complexities will arise that have not arisen to date. The other issue that has arisen (though not with rail trails but on other recreational assets) is the sense of proprietorial ownership that can occur when a community group is the sole manager. This has both advantages and disadvantages but it has the been the experience of Local Governments (often around showgrounds) that such proprietorial ownership can lead to management difficulties when changes are required.

The final decision on a management option may well depend on the State Government's position. In 2010, the State Government was looking to develop a series of rail trails in consultation with Local Governments. At that time, the responsible department was offering long-term (30 year) sub-leases to Local Governments only. If a Local Government declined the opportunity to take up a sub-lease, the State Government indicated it would consider offering a similar sub-lease to a responsible entity that could indemnify the State Government and could demonstrate a capacity and a willingness to develop the corridor for recreation purposes. Whether this is the current position is unknown. The current State Government position may determine whether the Burnett River Bridges Trail (particularly) can proceed.

The model which is the preferred model for rail trail management across Australia (i.e. the one that is the most common) is one where the Local Government or Governments has a lead role in partnership with other stakeholders.

10.4 COMMITTEES OF MANAGEMENT

A formal Committee of Management should be established; this is the established process in Victoria and has been successful in managing a number of rail trails. In Victoria, Committees of Management under the Crown Land (Reserves) Act have a number of powers and duties:

Powers

- Managing the reserve;
- Undertaking works and improvements;
- Using workers;
- Deriving income;
- Spending, borrowing and investing;
- Controlling users;
- Entering into legal proceedings; and
- Granting tenancies (licences, leases, permits)

Duties

- Financial records and auditing;
- Reporting – financial, annual, performance;
- Liability insurance – duty of care;
- Duties as an employer;
- Council rates (payable by occupiers under lease, licence and tenancies – commercial and agricultural); and
- Responsibilities under Freedom of Information and Ombudsman requirements.

Committees of Management have traditionally absorbed the responsibility for pursuing the development of a rail trail including the preparation of concept plans and business plans.

Any committee set up to run any of the trails (or all of the trails) should have a similar set of powers and duties.

10.5 SKILL SETS

At a general level, skill sets that would be useful for the committee to have as a whole include:

- Leadership skills – critical to hold the committee together, to inspire and motivate, to advocate to a wider audience and to maintain focus on a long term vision;
- Community skills – the skills to motivate community and volunteer efforts;
- Business skills – skills to understand and tap into locally based businesses – the capacity to communicate to businesses in ways that garner their support;
- Entrepreneurial skills – a business-like approach to running a trail is critical;
- Administrative skills – expertise and knowledge of government grants, and how to apply for them. General administration skills are also critical;
- Environmental/scientific skills – understanding of native flora and fauna and wider environmental issues. The ability to communicate these to a wider audience is desirable;
- Engineering skills – the capacity to understand design and construction of all manner of trail infrastructure;
- Governmental skills – the ability to liaise with and understand government departments and politicians; and
- Users – it is essential that the Committee understand the needs and requirements of various targeted user groups.

These 'selection criteria' needs to be considered in selecting committee members. Project initiation skills are important in the early stages whereas ongoing management skills are more appropriate once the trail is established.

10.6 TRAIL MAINTENANCE

Ongoing trail maintenance is a crucial component of an effective management program – yet it is often neglected until too late. Countless quality trails have literally disappeared because no one planned a maintenance programme and no one wanted to fund even essential ongoing repairs.

10.6.1 TRAIL MAINTENANCE PLAN

Ongoing maintenance costs can be minimised by building a trail well in the first place. A well-constructed trail surface will last considerably longer than a poorly built trail. Signs, gates, posts and bollards installed in substantial footings stand less risk of being stolen or damaged. Well designed, well built and well installed management access gates and trail user gates (as proposed) will keep motor vehicles and motorised trail bikes off the trail with a consequent lesser need for surface repairs. Trail furniture (such as seats, trail directional marker posts and interpretation) should be installed (during the construction/upgrading process) in substantial footings sufficient to withstand high winds and theft. These should require minimal ongoing maintenance.

Building good trails in the first place is the very best way of minimising future problems and costs. As a second line of defence, a clear and concise Management Plan with a regular maintenance program written into it will aid significantly in managing ongoing resource demands.

Volunteers organised by the Committee of Management at a busy bee to undertake maintenance work along the rail trail near Port Fairy in Victoria.

The goals of a Trail Maintenance Plan are to:

- Ensure that trail users continue to experience safe and enjoyable conditions;
- Guard against the deterioration of trail infrastructure, thereby maintaining the investment made on behalf of the community;
- Minimise the trail manager's exposure to potential public liability claims arising from incidents which may occur along the trail; and
- Set in place a management process to cover most foreseeable risks.

Most minor repairs (bridges, fences and gates) are largely labour intensive rather than capital expensive. Calamitous events such as fire or flood will naturally generate significant rebuilding activity and consequent costs. These events are generally unmanageable and should simply be accepted as part of the longer-term reality of trail management.

Resourcing a maintenance program is crucial, and funds will be required on an ongoing basis to enable this essential maintenance. This matter should be addressed in the preparation of the maintenance plan. It would be short sighted to go ahead and build the rail trail and then baulk at the demands of managing and maintaining it.

10.6.2 PUBLIC LIABILITY AND RISK MANAGEMENT

It is prudent that the trail manager is aware that – whether or not visitors are actively encouraged to come to the rail trail – they carry a significant duty of care towards those visitors accessing the trail. The maintenance of a quality trail is therefore critical from this perspective. Legislative changes across Australia have reduced the number of small claims against land managers. However, liability generally rests with the land managers and hence, every attempt should be made to minimise the risk of accident or injury to trail users (and therefore the risk of legal action).

While public liability is certainly an issue for all land managers, it is not a reason to turn away from providing safe, sustainable and enjoyable resources. It is simply a mechanism by which to recognise the responsibilities inherent in managing natural and built resources. Dealing with a perceived liability threat is not about totally removing that threat – it is about doing all that is manifestly possible to provide safe access opportunities for visitors, thereby minimising the risk of liability claims.

A formal Hazard Inspection process is crucial in the ongoing maintenance plan. Not only will this define maintenance required and/or management decisions to be addressed, it is vital in ensuring safe conditions and therefore in dealing with any liability claim which may arise in the future. Courts are strongly swayed by evidence of a clear and functional program, and a regular series of reports, with follow-up actions, will go a long way to mitigating responsibility for injuries. Further, clearly defined 'User Responsibility' statements in brochures, maps, policy documents, plans and public places will assist this process.

10.6.3 TRAIL MAINTENANCE ACTIVITIES

The discussion that follows provides general guidance for the development of maintenance plans should any of the rail trails proceed. It is not a substitute for specific maintenance plans for a trail (*note that reference to a single trail is made in the following text – the comments apply to any of the trails that are developed)*.

Maintenance on a rail trail should be divided between regular inspections and simple repairs, a one (or two) person job, and quarterly programs undertaking larger jobs such as significant signage repairs or weed / vegetation control. A range of basic machinery, tools and equipment will be required for this work.

At the core of any trail maintenance program is an inspection program. The relevant Australian Standards sets out the basis for frequency of trail inspections. It only covers walking tracks and provides for inspections every 30 days (or less) for Class 1 trails, every 90 days for Class 2 trails, and annually for Class 3-6 trails. This sets the minimum standard for inspections and is a guide only. What the Australian Standards do not include but should include is an inspection of any trail after significant weather events such as storms, fire, floods, and high winds in addition to the regular inspection program. The trail should have its own maintenance plan that may, for

particular reasons, have more frequent inspections. Particular needs should be recognised in an individual trail maintenance plan.

Clear records of each activity/inspection will be kept by the body with responsibility for maintenance. Pro-formas serve to maximise user safety and minimise liability risks. It will also provide a valuable record of works undertaken and make for efficient use of maintenance resources over time.

In general, Maintenance Plans are based around regular inspections, at which time simple maintenance activities should take place concurrently. More time-consuming maintenance activities should take place every six months, while detailed Hazard Inspections should occur annually. Further, the capacity to respond immediately to random incoming reports of hazards or major infrastructure failures should be built into the Plans.

The presence of trees along some sections of the trail means that time will be spent removing damaged and fallen trees and branches in the aftermath of a storm.

One of the most frequent maintenance task will be attending to fallen branches and limbs, repairing trail surfaces, replacing stolen or damaged signs (including road signs), clearing culverts and under bridges and ensuring gates and fences are functioning as intended.

Table 20: Key elements for a trail maintenance programme

Activity	*Notes*
Check, repair or replace all trail signage, esp. road-crossings and directional markers	Particular attention needs to be given to signs at road crossings or junctions. Each crossing should be carefully checked to ensure that all signage is present, and that all signs are clearly visible. Particular attention must be given to ensuring that “Trail Crossing ahead” signs (on roadside at approach to trail crossing) are not obscured by overhanging vegetation. Each trailhead should be carefully checked to ensure that all signage is present, and that all signs are clearly visible and legible. An inventory of locations needs to be prepared to assist in regular maintenance. Interpretive panels should be checked for damage and cleaned if necessary. If damage is too great, replacement is essential. An inventory of locations needs to be prepared to assist in regular maintenance.
Check and cut-back overhanging or intruding vegetation	Undergrowth vegetation grows quickly, and over time will continue to intrude into the trail 'corridor'. Such intruding vegetation will need to be cut back to provide clear and safe passage for trail users. Care will be taken to ensure that sharp ends are not left protruding into the trail as these can harm trail users. It should be noted that trailside vegetation hangs lower when wet, and allowances should be made for this when assessing whether or not to prune.

	"Blow-downs" - trees or limbs that have fallen across the trail - will be cleared as a part of this process. Sight lines must be kept clear either side of road crossings as a part of this process, to ensure that users can clearly see a safe distance either way at road crossings.
Check condition of trail surface for erosion (or other) damage and arrange repairs if necessary; trim off regrowth vegetation	Some of the trail sections will require regular surface maintenance, though this should be minimal as the rail formation was originally constructed with drainage a major consideration. Primary focus will be on erosion damage caused by water flowing down or across the trail and by illegal motor vehicle and trail bike use. This must be repaired as soon as it is noted, or it will get worse, quickly. Earthen surfaces may need to be topped up after heavy storms, though good design will minimise such washouts.
Check and clear drains	Drainage maintenance is critical. Drains need to be checked and cleared once or twice/year and after heavy rainfall events. Regular maintenance especially after heavy rainfall is essential. Most maintenance will involve clearing of material from silted up or blocked drains. Any scouring out of table drains should be stabilised as soon as possible. Drain blockages should be cleared as urgent priority. Silt traps at culvert discharges or entry points should be cleared regularly. Drains through cuttings will require attention, though care during construction of trail (through cuttings) will minimise ongoing maintenance requirements.
Check structural stability of built structures such as trailside furniture, bridges, interpretive signage, interpretive shelters	Visual inspection is appropriate though detailed inspection should follow storm events.
Maintain all non-slip surfaces	Maintenance on these surfaces is critical to prevent build-up of conditions that can lead to deterioration. Leaf blowing, sweeping, gurneying and the application of algaecide are all appropriate techniques. The appropriate technique and efficiency will be subject to site conditions.
Undertake Hazard Inspection and prepare Hazard Inspection Report	This should be done annually

10.6.4 MAINTENANCE COSTS

Maintenance costs are a major consideration in any public infrastructure project. These need to be offset against a range of benefits – both economic and non-economic. Detailed costings are not part of this project but the Councils need to have some understanding of the possible construction and maintenance costs. The following presents a broad discussion on costs informed by other projects and real life rail trail costs and broad inspections of the corridor.

Estimating the cost of maintaining a trail is difficult due to the unpredictability of events such as wild fires, ferocious storms, occasional flooding and malicious damage. Heavy rains and the subsequent runoff can cause considerable damage to trail infrastructure – especially if drainage is not attended to well during the construction of the trail.

According to a report prepared by the Rail to Trails Conservancy in the USA (*Rail Trail Maintenance and Operation – Ensuring the Future of Your Trails – A Survey of 100 Rail Trails, July 2005*), the cost to maintain trails is hard to determine. The report provides two general answers for why it is difficult to estimate maintenance costs. First, the trail may be part of a larger budget for a single park or even an entire parks and recreation department. Specific costs for the trail aren't separated out. Second, small trail groups, though run by competent and extremely dedicated volunteers, tend to be 'seat-of-the-pants' operations. Maintenance is done "as needed," funds are raised "as needed," and the people are volunteering because they love the trail, not because they love doing administrative tasks like budgeting.

Evidence of actual trail maintenance costs for individual items along a rail trail, or any trail for that matter, are scarce. However, the activities of a strong Committee of Management and an effective volunteer maintenance program can significantly reduce the maintenance burden on a local government.

In Victoria, the Murrindindi Shire Council manages and maintains approximately 85% of the (134km) Great Victorian Rail Trail. It spends around $2,000/km on maintenance activities each year. Anecdotal information indicates that initial construction issues necessitate an increased level of maintenance of the trail surface (and drainage through cuttings). A higher level of (initial) construction quality (i.e. better trail surfacing and better drainage through cuttings) would mean less ongoing maintenance. At present there is no "Friends of" group to undertake some of this maintenance (and lessen the cost burden of maintenance).

Local schools, and other groups such as service clubs maintain sections of the Port Fairy to Warrnambool Rail Trail in Victoria.

Maintenance responsibility does appear to significantly affect cost. Approximately 60% of the surveyed trails reporting costs were maintained primarily by a government agency, implying paid staff and/or contractors. The other 40% of trails were primarily maintained by a non-profit or volunteer organisation. Annual costs for government-run trails were just

over $2,000 per mile ($1,250/km). This is not much more than the overall average of $1,500/mile ($940/km), but it nearly triples the average for volunteer-run trails of just under $700 per mile ($440/km).

There will be numerous items that will require ongoing attention and maintenance. Fencing and gates should be installed (during the construction process) in substantial concrete footings sufficient to withstand removal by 4WD vehicles. Trail furniture (such as seats, signage, trail directional marker posts and interpretation) should be also installed in substantial concrete footings. These should require minimal ongoing maintenance.

The presence of trees along some sections of the proposed rail trails mean that time will be spent removing damaged and fallen trees and branches in the aftermath of a storm.

The most frequent maintenance task will be attending to signage. Replacing stolen or damaged trail signage may be required, but how much time spent on this task is guesswork.

The biggest maintenance costs involved are obviously maintenance of the items that initially cost the most to install: the trail surface itself (due to erosion from stormwater runoff and usage – especially misuse by unauthorised users such as trail bike riders) and maintenance of bridges.

It is difficult estimating the costs involved in maintaining a trail until every last bridge and other infrastructure items have been installed.

Tables 21 - 23 make an attempt at estimating an amount that may be required on an annual basis for maintaining the three trails.

The use of volunteers to undertake many of the routine repairs and cleaning tasks can substantially reduce the costs to the management authority.

Table 21: Awoonga Lake Rail Trail - Estimate of Maintenance Costs (36km)

Task	*Frequency / note*	*Possible Costs*
Inspect and check trailhead facilities and infrastructure	3 trailheads at average repairs of $500 per site	$1,500
Trail surface - allowance for incidental repairs to, and upgrading of, gravel trail surface.	Allowance of 2% of replacement cost (i.e. 2% of $1,451,200).	$29,024
Check side vegetation growth and overhead vegetation and cut back where required. Clearing of fallen trees and branches.	Allowance of 3 person days per 10km section per year (@ $500/day).	$6,000
Slashing of trail environs to reduce weeds and fire load/risk. (See Note 1)	Timing dependent on seasonal growth patterns. Allowance for up to 5 or 6 times per year. Allowance for 80% corridor, both sides of trail (= 54km) (@ $100/hr). Corridor slashed 6 times a year.	$11,000

Inspection and routine maintenance of bridges (all timber components, decking, handrails, etc). Check for obstructions and clearing under bridges.	Allowance of $4,000 per year for large timber bridges, $1,000 per year for short timber bridges, $500 per year for new installations	$62,500
Check and clear culverts.	Allowance of 10 hours for checking and cleaning.	$1,000
Check road crossings. Replace damaged and/or missing signs and undertake other tasks: - Give Way signs - Road Ahead signs - Trail Crossing warning signs - Road name signs - Regulatory signs - Check sight distances and clear vegetation if necessary	7 crossings (major and minor) at average repairs of $300 per crossing	$2,100
Inspection of and allowance for replacement of trail directional marker logo/arrow plates and trail kilometre posts (incorporating Emergency Markers)	2 replacements per 10km section per year.	$3,600
Allowance for repairs to trailside furniture and occasional replacements (when required).	Inspection and minor repairs every 6 months. 1 replacement per year.	$1,000
Check miscellaneous signs along trail (e.g. Road Ahead, Give Way, trail name, distance signs, “No Trespassing”, bridge load signs, etc).	5 replacements per 10km section per year.	$600
Check management access gates and fences at road crossings. Make repairs where necessary.	Allowance of $2,000 per year for repairs.	$2,000
Check toilets where installed.	Allowance for cleaning	$0
Check operation of stock crossings (fences, gates and grids).	Allowance for minor repairs	$500
Check interpretation along trail for damage and structural stability.	Allowance for replacement of 1 panel per year.	$1,000
Inspection of rail trail (3 times/year).	Allowance for 3 inspection trips per year	$4,500

Preparation of annual Hazard Inspection Report.	1 person days @ $1,000/day.	$1,000
		$127,324 excl GST (per annum)

This equates to a rate of approximately $3,509/per kilometre per annum.

Note 1*: The necessity to slash could be much reduced if the rail trail is located within a narrower, fenced corridor and adjoining landowners graze stock within that part of the corridor deemed 'surplus to requirements'. Slashing costs are based on the fencing option whereby the corridor is fully fenced (resulting in a 6m wide trailway). Any other options will mean higher maintenance costs.*

Note 2: *Use of volunteers would substantially reduce maintenance costs.*

Note 3: *Reporting of routine maintenance requirements by trail users will obviate need for many scheduled inspections.*

Note 4: *Appointment of a Trail Manager, with responsibility for regular inspections of entire trail, will substantially reduce need for unscheduled and expensive maintenance.*

Table 22: Kalpowar Tunnels Rail Trail - Estimate of Maintenance Costs (31 km)

Task	*Frequency / note*	*Possible Costs*
Inspect and check trailhead facilities and infrastructure	3 trailheads at average repairs of $500 per site	$1,500
Trail surface - allowance for incidental repairs to, and upgrading of, gravel trail surface.	Allowance of 2% of replacement cost (i.e. 2% of $1,248,000).	$24,960
Check side vegetation growth and overhead vegetation and cut back where required. Clearing of fallen trees and branches.	Allowance of 3 person days per 10km section per year (@ $500/day).	$6,000
Slashing of trail environs to reduce weeds and fire load/risk. (See Note 1)	Timing dependent on seasonal growth patterns. Allowance for up to 5 or 6 times per year. Allowance for 80% corridor, both sides of trail (= 50km) (@ $100/hr). Corridor slashed 6 times a year.	$10,000
Inspection and routine maintenance of bridges (all timber components, decking, handrails, etc). Check for obstructions and clearing under bridges.	Allowance of $4,000 per year for large timber bridges, $1,000 per year for short timber bridges, $500 per year for new installations	$56,000
Check and clear culverts.	Allowance of 10 hours for checking and cleaning.	$1,000

Check road crossings. Replace damaged and/or missing signs and undertake other tasks: - Give Way signs - Road Ahead signs - Trail Crossing warning signs - Road name signs - Regulatory signs - Check sight distances and clear vegetation if necessary	5 crossings (major and minor) at average repairs of $300 per crossing	$1,500
Inspection of and allowance for replacement of trail directional marker logo/arrow plates and trail kilometre posts (incorporating Emergency Markers)	2 replacements per 10km section per year.	$3,600
Allowance for repairs to trailside furniture and occasional replacements (when required).	Inspection and minor repairs every 6 months. 1 replacement per year.	$1,000
Check miscellaneous signs along trail (e.g. Road Ahead, Give Way, trail name, distance signs, "No Trespassing", bridge load signs, etc).	5 replacements per 10km section per year.	$600
Check management access gates and fences at road crossings. Make repairs where necessary.	Allowance of $2,000 per year for repairs.	$2,000
Check toilets where installed.	Allowance for cleaning	$1,000
Check operation of stock crossings (fences, gates and grids).	Allowance for minor repairs	$500
Check interpretation along trail for damage and structural stability.	Allowance for replacement of 1 panel per year.	$1,000
Inspection of rail trail (3 times/year).	Allowance for 3 inspection trips per year	$4,500
Preparation of annual Hazard Inspection Report.	1 person days @ $1,000/day.	$1,000
		$116,160 excl GST (per annum)

This equates to a rate of approximately $3,723/per kilometre per annum.

Note 1*: The necessity to slash could be much reduced if the rail trail is located within a narrower, fenced corridor and adjoining landowners graze stock within that part of the corridor deemed 'surplus to requirements'. Slashing costs are based on the fencing option whereby the corridor is fully fenced (resulting in a 6m wide trailway). Any other options will mean higher maintenance costs.*

Note 2: *Use of volunteers would substantially reduce maintenance costs.*

Note 3: *Reporting of routine maintenance requirements by trail users will obviate need for many scheduled inspections.*

Note 4: *Appointment of a Trail Manager, with responsibility for regular inspections of entire trail, will substantially reduce need for unscheduled and expensive maintenance.*

Table 23: Burnett River Bridges Rail Trail - Estimate of Maintenance Costs (29 km)

Task	*Frequency / note*	*Possible Costs*
Inspect and check trailhead facilities and infrastructure	3 trailheads at average repairs of $500 per site	$1,500
Trail surface - allowance for incidental repairs to, and upgrading of, gravel trail surface.	Allowance of 2% of replacement cost (i.e. 2% of $864,000).	$17,280
Check side vegetation growth and overhead vegetation and cut back where required. Clearing of fallen trees and branches.	Allowance of 3 person days per 10km section per year (@ $500/day).	$4,500
Slashing of trail environs to reduce weeds and fire load/risk. (See Note 1)	Timing dependent on seasonal growth patterns. Allowance for up to 5 or 6 times per year. Allowance for 80% corridor, both sides of trail (= 26km) (@ $100/hr). Corridor slashed 6 times a year.	$9,000
Inspection and routine maintenance of bridges (all timber components, decking, handrails, etc). Check for obstructions and clearing under bridges.	Allowance of $4,000 per year for large timber bridges, $1,000 per year for short timber bridges, $500 per year for new installations	$41,000
Check and clear culverts.	Allowance of 10 hours for checking and cleaning.	$1,000
Check road crossings. Replace damaged and/or missing signs and undertake other tasks: - Give Way signs - Road Ahead signs - Trail Crossing warning signs - Road name signs - Regulatory signs - Check sight distances and clear vegetation if necessary	4 crossings (major and minor) at average repairs of $300 per crossing	$1,200
Inspection of and allowance for replacement of trail directional marker logo/arrow plates and trail kilometre	2 replacements per 10km section per year.	$3,600

posts (incorporating Emergency Markers)		
Allowance for repairs to trailside furniture and occasional replacements (when required).	Inspection and minor repairs every 6 months. 1 replacement per year.	$1,000
Check miscellaneous signs along trail (e.g. Road Ahead, Give Way, trail name, distance signs, "No Trespassing", bridge load signs, etc).	5 replacements per 10km section per year.	$600
Check management access gates and fences at road crossings. Make repairs where necessary.	Allowance of $2,000 per year for repairs.	$2,000
Check toilets where installed.	Allowance for cleaning	$1,000
Check operation of stock crossings (fences, gates and grids).	Allowance for minor repairs	$500
Check interpretation along trail for damage and structural stability.	Allowance for replacement of 1 panel per year.	$1,000
Inspection of rail trail (3 times/year).	Allowance for 3 inspection trips per year	$4,500
Preparation of annual Hazard Inspection Report.	1 person days @ $1,000/day.	$1,000
		$90,680 excl GST (per annum)

This equates to a rate of approximately $3,150/per kilometre per annum.

Note 1*: The necessity to slash could be much reduced if the rail trail is located within a narrower, fenced corridor and adjoining landowners graze stock within that part of the corridor deemed 'surplus to requirements'. Slashing costs are based on the fencing option whereby the corridor is fully fenced (resulting in a 6m wide trailway). Any other options will mean higher maintenance costs.*

Note 2: *Use of volunteers would substantially reduce maintenance costs. It should be noted that the Burnett River Rail Trail group have indicated that they can do slashing for around $1,500/year.*

Note 3: *Reporting of routine maintenance requirements by trail users will obviate need for many scheduled inspections.*

Note 4: *Appointment of a Trail Manager, with responsibility for regular inspections of entire trail, will substantially reduce need for unscheduled and expensive maintenance.*

A number of observations are relevant:

- The maintenance costs (of all three trails) are on the high side of figures that have been obtained in research (noting the caveats in the report about very limited available data). It is a conservative estimate.

- Good asset management practice suggests money be put aside every year for maintenance, even though much of it will not be spent in the first 5-10 years as there will be limited need for maintenance. The dollar figure/km/yr is an “end-case scenario”.
- Costings are at full commercial rates (but of course this would be far less if volunteers are involved). US evidence suggests significant savings using volunteer maintenance (trails maintained by volunteers costs one-third of those maintained by Government entities).
- The maintenance estimate provided in the report is an estimate only based upon certain design parameters and construction standards. For example, repurposing bridges using material other than timber such as expanded steel mesh or fibreglass reinforced plastic for the decking which would have a different maintenance regime and costing. It is impossible to estimate maintenance costs to the most accurate possible level until construction is finished and every construction item is catalogued (noting that events like wildfires and major floods are events that maintenance budgets never account for).
- Around 20% of the maintenance budget for each trail is surface repair. The maintenance budget includes an annual allocation, but it should be noted that there will be very limited need for surface repairs in the first 5 years.
- An allowance is also included for bridge maintenance – bridges are even less likely to need repair for the first 5 years (or even 10 years) of a trail’s life. Re-constructed and refurbished bridges will require little or no maintenance for many years. However, after perhaps a decade of use they will require more and more maintenance of decking timbers (if used) and more scrutiny of fixings (depending on what materials are used for decking). Pre-fabricated bridges (suggested for some water crossings) require less maintenance over time.
- Maintenance on these two critical elements (surface and bridges) Is even less likely to be needed in the first 5-10 years if the trail is built well in the first place. The key message is spend more on construction and spend less on maintenance.
- The likely maintenance costs in the first few years of a trail’s life will focus on sign damage and inspections.

10.6.5 REDUCING MAINTENANCE COSTS

Using volunteers is the key element in reducing the maintenance costs. This is of particular relevance with the trails under consideration. The Burnett River Rail Trail group has already undertaken a significant construction and maintenance program on sections of the proposed Burnett River Bridges Trail at no cost to any agency.

- The Munda Biddi Trail Foundation assists with planning, developing, marketing and maintaining the trail. It enlists paid memberships, enrolls and manages volunteers, holds trail and community events, and provides information and resources to enhance the quality of the trail experience. **Over 85% of that trail is maintained by volunteers.**
- Activities of the Friends of the Lilydale to Warburton Rail Trail include revegetation, weed eradication, protection of remnant species, and building and restoration work.

- Parklands Albury Wodonga a community-based, not for profit organisation focused on undertaking the conservation of "bush parks" in and around Albury-Wodonga from an ecological perspective, whilst allowing sympathetic recreational access. One of the Group's projects is managing and maintaining the High Country Rail Trail.

Trail managers and "Friends of …" groups often arrange 'Adopt-a-Trail' programs to ensure the rail trail is well maintained – by volunteers.

The Bibbulmun Track is Western Australia's premier long-distance walking track. The Track's success can be put down in large part to the efforts of the Bibbulmun Track Foundation. The Bibbulmun Track Foundation is probably the most successful 'Friends of' Group in Australia, with a paid-up membership in excess of 2,100 (in a number of categories).

The Foundation is not the track manager – this job is done by the Department of Parks and Wildlife (DPAW). The Foundation is a not-for-profit community based organisation established to provide support for the management, maintenance and marketing of the Bibbulmun Track. The Foundation encourages community participation, ownership and education, develops opportunities for tourism, employment and training, advocates the protection of natural and historical values of the Track, attracts funds and other resources, and promotes the track as accessible to all.

Corporate sponsorship has made possible its "Eyes on the Ground" maintenance volunteer program – volunteers adopt a section of the track and ensure it remains well maintained. Approximately 780 km (80%) of the Track is "managed" in this way by volunteers – a Herculean effort in this time-poor modern environment. They carry out basic maintenance activities such as pruning, clearing minor obstacles, replacing trail markers and keeping campsites clean and report regularly on conditions likely to affect walkers or the long-term future of the Track itself to the track manager. The maintenance volunteers have developed the same sense of ownership of 'their' section of Track. There are also office and field activity volunteers.

The Foundation has a number of corporate sponsors and also receives funding from the Lotterywest Trails Grants Program (WA Lotteries). Importantly, the Foundation has developed a number of paying events on the Track to support its ongoing work.

SECTION 11 – RESOURCES AND FUNDING OPPORTUNITIES

(Note: Funding programs do change; the information presented in this report is current at the time of writing).

Once the decision is taken to proceed, one of the first tasks will be to seek development funding. All funding sources available at that time will need to be identified and funding applications prepared as soon as possible and dedicated resources made available. The Commonwealth and State Governments regularly review funding programs (particularly before and after elections); such decisions make the need to review this section at the time of seeking grants critical.

11.1 COMMONWEALTH GOVERNMENT

The **National Stronger Regions Fund** (NSRF) will provide funding of $1 billion over 5 years, commencing in 2015 - 2016, to fund priority infrastructure in regional communities. Key elements are:

- Grants must be between $20,000 and $10 million.
- Local government and incorporated not-for-profit organisations are eligible to apply.
- Grant funding must be matched in cash on at least a dollar for dollar basis.
- NSRF funding will be provided for capital projects that involve the construction of new infrastructure, or the upgrade or an extension of existing infrastructure.
- The project must deliver an economic benefit to the region beyond the period of construction. Projects should support disadvantaged regions or areas of disadvantage within a region.
- The NSRF funded component of the project must be completed on or before 31 December 2019.

Trail projects have been funded by this program. Round 1 funded:

- The Grampians Peaks Trail Project (Victoria). The NSRF contributed $10 million (of $27 million) to this project, which will construct a 144km, multi-day walking trail across the length of the Grampians National Park. The project will showcase the beauty and majesty of the Park's natural and cultural landscapes. The Grampians Peak Trail will be one of the great iconic walks of Australia with an estimated visitation of 23,000 people per annum by 2020.
- North East Rail Trail (Tasmania). The NSRF contributed $1.47 million (of almost $3 million) to this project – the construction of a 70km multi-use trail along the disused rail corridor from Launceston to Scottsdale.

(See http://investment.infrastructure.gov.au/funding/NSRF/ for further information)

Rounds 2 and 3 funded a military history trail on the Fraser Coast and a maritime trail along the Murray River.

11.2 QUEENSLAND GOVERNMENT

The main current source of funding will come from the Queensland Cycling Action Plan and program (which has funded this study). the program commits the State Government to investing $14 million over four years to develop and implement a program to develop, deliver and manage rail trails in partnership with local governments on state-owned disused rail corridors across the state.

Other programs may also provide funding (though the amounts are likely to be small).

The Department of Local Government, Racing and Multicultural Affairs manages the $600 million Works for Queensland (W4Q) program which supports regional Councils to undertake job-creating maintenance and minor infrastructure projects. An additional $200 million has been approved to extend the W4Q program until 2020–21. The allocation is to be spent on job-creating maintenance and minor infrastructure projects relating to assets owned or controlled by local governments. This program is being used to fund the development of the Imbil Brooloo Rail Trail in Gympie Regional Council.

Sport and Recreation Services offers a number of programs for planning and infrastructure development. These change over time – if the Councils determine to proceed, review of what relevant programs are available should be undertaken.

11.3 PRIVATE SPONSORSHIP

Sponsorship is big business – and very competitive. Two main options exist: either negotiate with local/national corporate entities which have a geographical and social connection with the area through which a trail passes or go after the 'big' players for big projects. Many large companies have formalised sponsorship programs.

Elsewhere in Australia, funding for trail development has been received from a number of major (and minor local) companies.

- Alcoa has been a major contributor to Western Australia's two premier long distance tracks – the Bibbulmun Track (walk) and the Munda Biddi Trail (mountain bike).
- BHP Billiton provided over $200,000 for the Coast to Crater Rail Trail in western Victoria to help construction.
- GlaskoSmithKline Australia has donated $10,000 to the development of the Warrnambool to Port Fairy rail trail project to encourage employees to combine their physical exercise with commuting to work. GSK has stated "We are proud to contribute to the establishment of the Port Fairy rail trail through our Community Partnerships Program. We see this project as being of benefit not only to our own employees, but also to the local community as a whole."

Significant sums can be gained if benefits can be proven. Any company with an operation within the region would appear to be a potential sponsor. Major resource companies operate within the region (particularly in Gladstone).

Companies are looking to be good local citizens and being associated with a positive asset such as a trail can be good for business. Companies should be approached with the message that

such a project will bring a number of benefits to the region. Any approaches to corporate sponsors should focus on a main message that trails and the company products provide an alliance of healthy sustainable living and healthy sustainable products and sustainable economic opportunities (if such a link exists).

Corporate entities are looking to make community commitments in a number of ways other than direct funding. The Macquarie Bank Foundation looks to supply time and expertise as well as funding. Many other banks have both a competitive grants program and a volunteer scheme that provides paid volunteer leave to every employee. Organisations such as the ANZ and National Banks also look for community development options for their staff e.g. corporate team building days are held on a trail. It is important to note that, when considering these options, there are often exclusivity provisions around such programmes.

What is important in dealing with potential corporate sponsors is to have:

- a clear trail development plan (the next stage of work should the trail proceed);
- a well-developed message;
- clear pointers as to what and where their engagement might be; and
- a clear indication of how they might benefit from their involvement.

11.4 OTHER TRAIL FUNDING RESOURCES

11.4.1 THE HEART FOUNDATION

The Heart Foundation Local Government Awards are held each year to acknowledge projects and initiatives that local councils and organisations are delivering in their communities to promote and improve heart health. While not a significant source of funds, there is a $5,000 prize for the overall winner and a $2,000 prize for each State winner. The award also offers positive promotional opportunities. The award is for Local Governments rather than community-based organisations; this does provide a "hook" for councils to become involved in a trail project.

The Murray to the Mountains Rail Trail has won the Best Overall project. Lake Fred Tritton, an artificial lake in Richmond Shire (Qld) with a significant walk trail constructed around its edges, won the Best Overall project and the Recreation Infrastructure Project in 2004. The Peninsular Pathlinks Program, a program to develop 77 kilometres of new trails and walkways in the 42 communities in the Mornington Peninsula Shire (Victoria) won the Best Overall project and the Recreation Infrastructure Project in 2005. For further details, the Heart Foundation's website is www.heartfoundation.com.au.

11.4.2 WORK FOR THE DOLE

Schemes to provide meaningful work experience and some training for long-term unemployed are provided under the Work for the dole scheme. The program generally only supplies labour – the host agency is responsible for tools, materials, technical supervision etc.

11.4.3 CONSERVATION VOLUNTEERS AUSTRALIA

Conservation Volunteers Australia provides small crews of volunteers, with a supervisor, to undertake environmental activities. Teams of between five and eight people work for one to two weeks. An administration fee is imposed by CVA. Materials, tools and technical supervision need to be provided by the host agency. CVA has been involved in trails project elsewhere in Australia – they were heavily involved in construction of a new walking track around the base of Mt Tibrogargan in the Glasshouse Mountains in South East Queensland. This trail is of the highest quality and is a testimony to their skills as trail builders.

11.4.4 PRISON CREWS

Crews of minimum security inmates have worked extensively in trail construction in Western Australia in the last 15 years. In the Northern Territory, NSW and Queensland, prison crews have been successfully used recently on trail and park projects.

For example, the Gympie Regional Council has partnered with Gympie Probation and Parole to help maintain the station yards of the Mary Valley Rattler. The hours committed and the dollar value of those hours are not insignificant. In 2013/14, community service workers attached to Gympie Probation and Parole contributed a total of 6,917 community service hours (valued at over $150,000) to volunteer community groups, Council initiatives, church groups and sporting clubs across the Gympie region by community service workers.

The labour supplied by inmates goes directly towards each community organisations' and Councils' goals, while the inmates gain an opportunity to develop positive work habits, self-discipline and pro-social behaviours within a working environment.

11.4.5 VOLUNTEERS

Volunteers are often the last thought-of resource but are often the most effective. Many trails are only built – and then kept alive – by volunteer input. This is particularly relevant to the Burnett River Bridges Trail which has been built to date entirely by volunteers – a good base to build on for further development.

The way forward is to build on the specific local 'Trail Volunteers' or 'Friends of…' groups. Both the Burnett River Rail Trail group and the Boyne Burnett Inland Rail Trail group provide a good basis on which to build community-based trail groups.

There is also a growing network of trail advocates whose experience is extremely worthwhile. Concerns have been expressed in a number of forums (including popular media) about getting volunteers in a time when people have very busy lifestyles. This is acknowledged; however, the Bibbulmun Track in Western Australia provides an encouraging lesson (where some 80% of the trail is maintained by volunteers).

Volunteer labour can also be used in innovative ways to benefit a number of community sectors. The Lilydale Warburton Rail Trail (Victoria) needed bridge construction and put out a public tender for the work. The tender was won by the local branch of the Country Fire Authority, which needed a new fire engine. Labour in bridge construction was "swapped" for a new fire engine.

11.4.6 PHILANTROPY

There are a number of philanthropic organisations in Australia (though not in the same numbers as the USA). The brief has not permitted time to extensively research all these.

The Macquarie Bank Foundation currently contributes more than $2.5 million a year in community grants. Its core areas include the health care and research, the environment and the arts (trails can address each of these core areas).

The Ian Potter Foundation has a number of interests, including environment and conservation (details can be found at www.ianpotter.org.au). Its' Environment and Conservation program supports small projects that combine elements of biodiversity and ecology preservation, volunteerism and community education. A trail development could fall within this mandate.

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APPENDIX 1

TRAIL DESIGN AND DEVELOPMENT CONSIDERATIONS

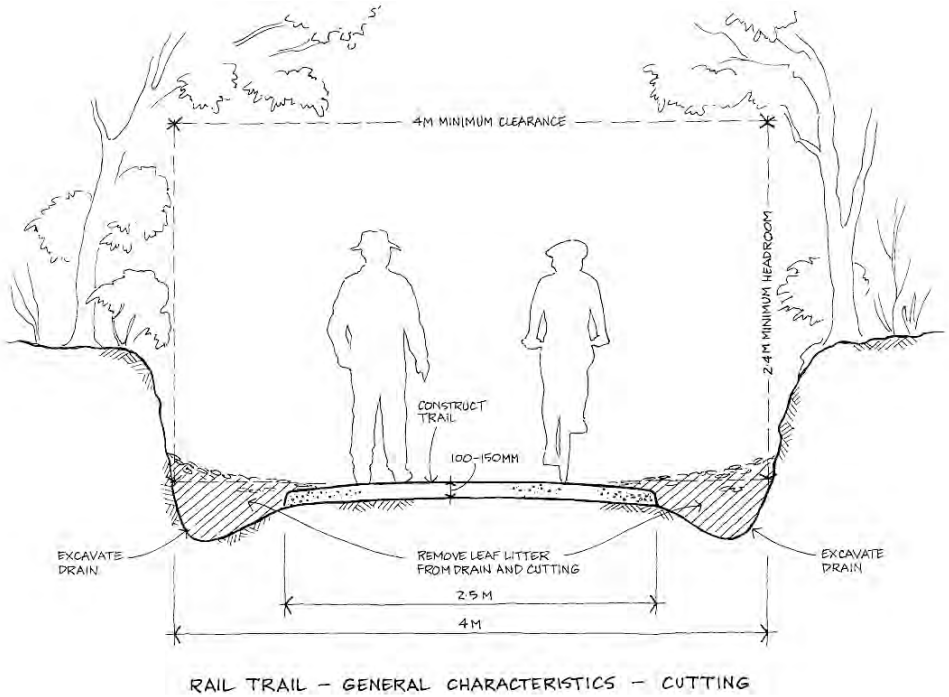
1. GENERAL CONSIDERATIONS

This section of the Trail Plan addresses a series of matters relating to trail design and development of the three trails that make up the Boyne Burnett Inland Rail Trail – to achieve three rail trails that are constructed with minimal disturbance to the natural environment, is sustainable and that requires minimal maintenance.

During construction of the original railway line, effective drainage was important, as it is with all public infrastructure. Locating a trail on the formation of the former railway is important, and reinstatement of bridges where they have fallen into disrepair, is vital for the success of the rail trail.

There are several bridges on the three recommended rail trails. These range in size from less than 5 metres up to 189 metres (the Futters Creek bridge). A number are no longer in place (particularly on the Awoonga Lake Rail Trail between Futters Creek and Ubobo) due to either fire or flood. Many of the remaining bridges appear to be in reasonable condition and present the opportunity to be re-used.

Construction of the railway involved the cutting and filling of the landscape to create a surface that was relatively flat to enable the passage of steam trains. The result was a series of cuttings and embankments along the entire length of the rail corridor. Effective drainage will be required, especially within most cuttings, to ensure stormwater is quickly and effectively removed from the sides of the trail (as it was when the trains were running).



Culverts and other drainage controls should be used to direct run-off away from the trail. Stormwater must drain freely, and where possible, pass beneath the trail without impact on either the base formation or the surface itself. Rail trails, by their very nature, tend to deal with these problems relatively well. Numerous culverts inspected during fieldwork were completely or partially block, thereby inhibiting the free flow of stormwater under and away from the railway embankment. Regular cleaning of blocked culverts is essential to avoid serious soil and water degradation problems.

Particular care must be given to reinstating the side (cess) drains through cuttings.

Construction of the rail trail and associated signage should comply with relevant Australian Standards and Austroads guidelines.

2. TRAIL WIDTH AND HEIGHT

To function effectively as a shared use facility (for cyclists and walkers), the rail trails should have a width of 2.5 metres. A separate slashed bridle trail would be slashed to a width of 1 metre (if the trail is to be used by horse riders – a desire expressed by some members of both the community groups and the Gladstone Regional Council). Anything wider than that and the trail starts resembling a road, which is not what rail trail users want. The width of the existing embankment/formation of the original railway will ultimately determine the width that the proposed rail trail can be constructed in some locations.

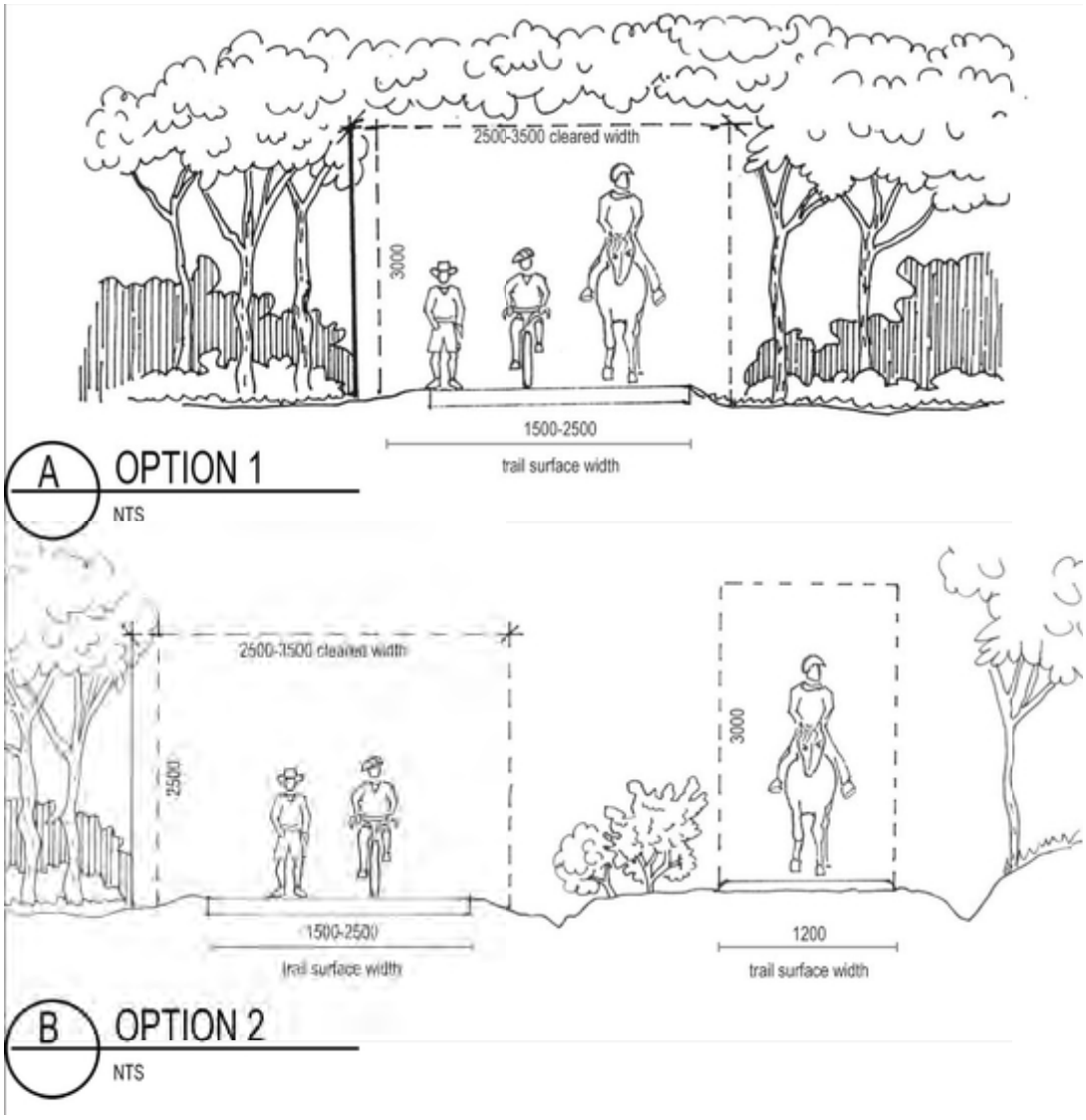
Some sections of the former railway reserve are currently used for farming purposes (grazing etc.), and this access can be retained without seriously diminishing trail user experiences (subject to trail manager approval).

The railway has been mainly disused since 2002. During this time some sections of the corridor have become overgrown and will require clearing for the passage of trail users. Where vegetation has regrown, overhead clearance should be maintained to approximately 2.4 metres from the rail trail surface. All overhanging vegetation – and that which intrudes from the sides into this ‘corridor’ should be cut back on a regular basis. Care should be taken that sharp and dangerous ‘points’ are not left in this pruning process.

There are instances where side vegetation can be retained, as the trees are attractive and provide shade. They also provide an attractive vista along the cutting or embankment.

Some sections of the former railway reserve are currently used for farming purposes (grazing etc.), and this access can be retained without seriously diminishing trail user experiences (subject to trail manager approval).

There are instances where side vegetation can be retained, as the trees are attractive and provide shade. They also provide an attractive vista along the cutting or embankment.



Trail width needs to be consistent. Option B is the preferred option for accommodating horses on any of the trails.

3. TRAIL SURFACING

A smooth compacted surface is most appropriate for a shared use rail trail. The surface should be firm enough to provide cyclists (the predominant user group of rail trails) with a relatively smooth ride.

Most rail trails developed in Australia use a locally available earth surface (gravel, decomposed granite, crushed limestone, etc.) to produce a firm surface easily capable of accommodating walkers and cyclists. Use of such material provides a high-quality natural surface without the expense of a hardened (i.e. sealed) surface.

Generally speaking, asphalt, concrete and other such hard surfaces are not appropriate on rail trails. However, there are some good arguments for sealing the surface of some rail trails – users on road bikes are able to use such a trail and the very successful Murray to the Mountains Rail Trail (Victoria) is a sealed trail. Usually, the costs of putting down a hard surface and the aesthetics of a hard surface are arguments against a hard surface.

It may be possible to develop a lower "standard" trail by simply slashing the corridor to a 5 metre width. This has been done along sections of the corridor between Mundubbera and Reids Creek under the management of the Burnett River Rail Trail group. This is a low cost option to develop a trail but should only be used as an interim measure. It has been used on part of the Kilkivan Kingaroy Rail Trail (between Kilkivan and Goomeri) but has been met with mixed reviews by users – many horse riders appear satisfied, but many bike riders are not satisfied with the surface. A constructed surface while more expensive has a greater potential to attract a larger number of users, justifying the initial investment.

It is not appropriate to allow the trail surface to deteriorate into either a soft sandy material or a wet, boggy or slippery condition. Soft sand is not acceptable to cyclists or walkers. Water-logged trails are quickly damaged and degraded and are very unpleasant to traverse. Loose surfaces such as ball-bearing gravel are also unacceptable as they pose safety risks to all trail users (walkers, mountain bike riders, horse riders).

Landholders may wish to cross the corridor at certain localities and move stock and machinery. Where these points are constructed, cement stabilisation of the rail trail surface at each 'stock crossing' is strongly recommended to ensure the regular passage of stock across the rail trail does minimal damage to the trail surface and is long-lasting.

No ballast should be left on the trail formation. It is too rough for bike users in particular and significantly detracts from the user's experience.

While rail removal is ongoing, care should be taken not to create berms of ballast on the side of the trail which have the effect of trapping the water in the trail formation i.e. creating a dam effect. Care should also be taken to ensure in cuttings that the ballast is not simply pushed in to the existing drainage measures (cess drains) on the side of the trail or these will have the effect of preventing the drains from performing as they should. Grading should be followed by the spreading and compacting (by vibrating roller) of the new surfacing material. In some locations (notably cuttings), material will need to be dug out of drainage lines in order to clear them and make them work effectively. It may be appropriate that this material be used as part of the trail surface; this approach will make every limited impact on costs but may be a way of reusing material rather than disposing of it off-site.

Alternative surface treatments may also be worth exploring. A number of liquid polymer modified bitumen composition products are currently available and the proponents have indicated that this surfacing treatment can be delivered at a similar cost to a compacted natural surface. Proponents have argued that the two key advantages are that the products re-use the ballast and therefore it does not need to be removed from site and that as a harder wearing surface it has a longer life.

Around 75% of rail trails across Australia do not permit horses but are used by walkers and cyclists; the remaining 25% permit use by horse riders. If horses are to be permitted on any of the three trails, it is important to keep horses off the main trail surface as the hooves of horses can do significant damage to unsealed trail – although the level of damage depends on the surfacing material used and the prevailing weather conditions. Some surfacing materials (such as "Lilydale Toppings" as used on the Lilydale Warburton Rail Trail in the Yarra Valley in Victoria) are very accommodating to horses' hooves.

The most effective method of accommodating horses is by the establishment of a separate bridle trail – usually a signposted, slashed single-track route off to the side of the main trail (but still within the original railway reserve). This is commonly done on rail trails such as the Great Victorian Rail Trail, the High Country Rail Trail (also in Victoria) and others. The bridle trail route can be simply constructed by slashing the low grass. The constant passage of horses will keep the 'single-track' clear of regrowth and clearly defined. Bridle trail signage will be required to show riders where to go and to keep them off the main trail. Horses will need to share bridges where they cross watercourses.

4. SAFETY CONSIDERATIONS

The most significant safety issue is that of potential conflict between road users (cars and trucks) and users of the proposed rail trail – especially at road crossings. This is more fully dealt with in 'Road Crossings' (see below).

Another major safety issue is that of the bridges over the watercourses (see Section 8).

Possible conflicts between different types of trail users is a potential safety issue. Users in conflict can be both legal and illegal – for example, between trail users and trail bikes or 4WD's that have illegally accessed the rail trail. Effective signage and vehicle exclusion barriers (management access gates and self-closing gates for trail user access, or chicanes) will greatly limit this potential problem.

Dogs can be a potential safety consideration on any rail trail. Often, dogs can be permitted on a trail in the "town" areas limiting potential interactions with livestock. Dogs should be kept on leads and enforcement should be in accordance with relevant Council regulations.

5. ROAD CROSSINGS

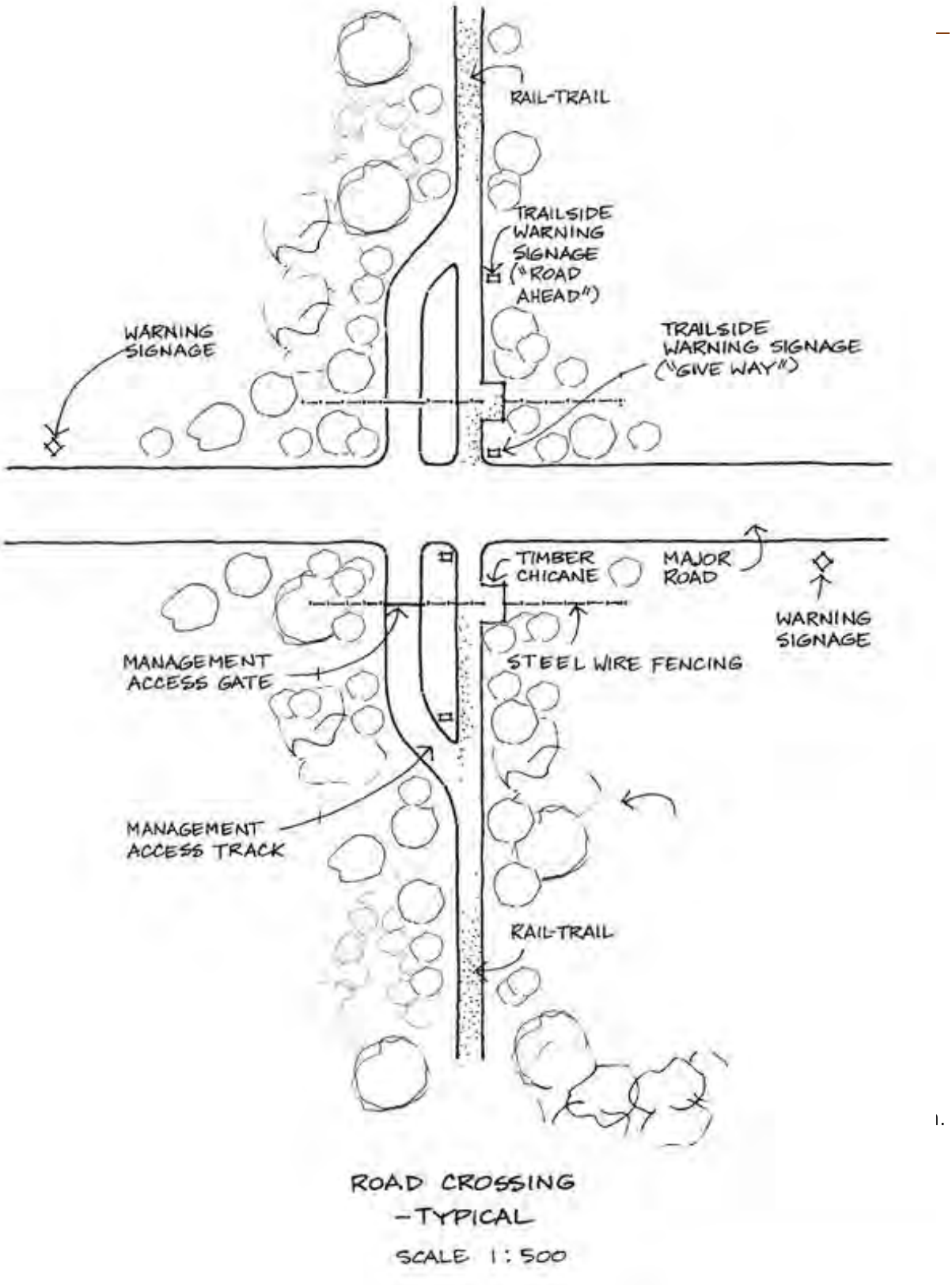
Road / trail crossings always present a special hazard which must be addressed carefully. A crossing should have enough space cleared and levelled on both sides of the road to allow cyclists travelling together to gather in a group and cross en masse. One-at-a-time crossing greatly increases the overall time in the roadway and therefore increases the likelihood of

encountering a vehicle. The crossing should ideally be at a straight, level area allowing both trail user and vehicle driver good visibility and the driver ample stopping distance (if possible). All trail crossings should be perpendicular to the road.

Road crossing treatments generally required include:

- Installation of signage on the rail trail (both sides of the road crossing) advising (or warning) of the upcoming crossing of the road;
- "Trail Crossing Warning Signage" on the road (both sides of the trail crossing) alerting road users of the upcoming trail crossing;
- Management access gates and chicanes (permitting access by legitimate trail users and authorised vehicles, such as emergency services vehicles and management vehicles) in certain locations. Use of the trail by horse riders may require the addition of a horse step-over or cavaletti gate to allow horses access depending on the chicane gate design.
- Installation of pipe culverts (where required); and
- Miscellaneous signage (including Rail Trail name and logo; distance signs; Emergency Marker signs; road name signs; "Unauthorised Vehicles Prohibited" signs; "Trail Bikes Prohibited" signs, etc.).

Road crossings often present a challenge; design must consider passing vehicle speeds, sightlines, traffic volumes, and management access.



This shows a generic road crossing. A detailed trail development plan would allow the preparation of specific road crossing concept plans.

6. SIGNAGE

Several kinds of signage would be required on the rail trails, including distance, directional, warning, promotional, etiquette and interpretive signs. Each should be standardised along the rail trail and, where appropriate, concordant with relevant local or Australian 'standards' or practices. The chosen colours of all signs should be uniform throughout the trail.

Above: Signage for the Tiger Rail Trail in Victoria warns of the upcoming road crossing as well as promoting its existence to all road users passing by.

6.1 DISTANCE SIGNAGE

Trail distance signage will need to be placed at regular intervals along the route. The obvious location is at each road crossing (and at the trailhead) where trail users are likely to join the trail.

6.2 WARNING SIGNAGE

There are a number of locations along the proposed rail trails that demand warning signage, primarily at the many road crossings facing trail users.

There are a number of road crossings along the three routes, and some of these provide both challenges and opportunities for trail development. The challenges come in ensuring that these crossings are safe for future trail users, while the opportunities surround the passing road users who can be alerted to the trail's presence. Such 'opportunistic' promotion can only be good for the future of the rail trail in raising awareness and increasing user numbers.

Signs pointing in to the "Trailhead", as used on the High Country Rail Trail in Victoria, are an excellent means of directing trail users to a Trailhead and serve to promote the existence of the rail trail to passing motorists, tourists and local people.

6.3 PROMOTIONAL SIGNAGE

Promotional signage has been used to great effect on other rail trails throughout Australia, increasing general awareness of the trail

among the broader community. Promotional signage is often incorporated into the on-road signage (such as has occurred on the Forrest Birregurra Tiger Rail Trail). They are an excellent means of communicating the message to road users that they need to be alert for the presence of trail users.

Trailhead signs are also erected to give prominence to a trail. These signs enable local people and visitors become more aware of the trail (a good example is the High Country Rail Trail).

6.4 EMERGENCY MANAGEMENT SIGNAGE

Distance signage provides good reference points for emergency services. It gives anyone who needs emergency assistance an easy reference point. On-trail signage should be as helpful as possible and minimise likely stress. Consequently, distance signs should be installed at regular intervals, with distances to the next trailhead or major town or road crossing (on either side of the post). This enables people to quickly identify where they are by travelling a very short distance from the emergency situation. All road crossings should also have a GPS reference/identifier on the chicane (or on a separate post) for use in emergencies, again as a location aid for those in stress. There is also a need to include the emergency telephone number at all trailheads (on the trailhead map panel) and clearly identify that one number will contact all three emergency services (police, ambulance, fire). While the emergency number from a landline is 000, the emergency number that works best from a mobile phone is 112. Information on what to do in an emergency, the location of public phones (there may be none on the trail itself), and the capacity for a flip-down sign indicating trail closure (due primarily to fire, flooding or maintenance work) should also be included at each trailhead.

Above left: An Emergency Marker sign on the Lilydale Warburton Rail Trail in Victoria. Above right: An Emergency Marker on the Kilkivan Kingaroy Rail Trail in Queensland.

6.5 PERMITTED USER SIGNAGE

Signs (in the form of pictograms) indicating user groups that are permitted (or not permitted) on the various trail sections or trails are usually installed at every road crossing and entry point. Pictogram signage could include “No Motor Vehicles”, “No Motor Bikes”, “No Smoking”, “No Alcohol” and “Dogs on Lead”.

6.6 INTERPRETIVE SIGNAGE

On-trail interpretation is becoming more and more of a feature of trails built in recent times. When well done, it can add significantly to the depth of the user’s experience. It can also generate a sizeable cost and can be subject to ongoing vandalism in urban and rural areas.

All rail corridors are inevitably rich with history, not just European settlement history but also indigenous and natural history. There are many stories that can be told along rail trails. The provision of interpretive material will greatly enrich the experience of visitors to the rail trail.

Interpretation should be an integral part of any trail’s development process.

7. EROSION CONTROL

Proper drainage is of considerable importance in constructing a lasting, maintenance-free trail. Water should be removed from trail surfaces as fast as possible, wherever possible. Given the flat terrain or gentle slopes involved on much of the proposed rail trail, erosion control should be relatively easy. As the railway has not operated for many years, maintenance of the formation and its drainage structures has been non-existent. Consequently, many of the culverts under the formation and drains along the formation have become overgrown with weeds, grasses and other vegetation. Most require cleaning out.

Those sections of the railway formation which do have blocked culverts or dysfunctional drains should be attended to in the trail construction process, as allowing water to stand on the proposed trail surface or run down even a gentle slope is to invite surface damage followed by costly repairs.

It may be necessary to clear existing drains on a regular basis, or to install additional culverts under the trail in some locations to remove standing water effectively – if this is done, care must be taken to ensure the surface is soundly patched afterwards.

While the cuttings examined during fieldwork appear to be in good condition, it may be necessary to build up the trail within the cuttings to ensure the cess (or side) drains operate effectively. It may be more effective to “build up” the trail formation to 300mm (rather than 150mm) rather than excavating the cess drains in cuttings.

8. BRIDGES: RIVER AND CREEK CROSSINGS AND OVERHEAD BRIDGES

Bridges are one of the most obvious reminders of the heritage value of disused railways. They are also one of the most significant attractions of trails along disused railways and one of the costliest items in the development of trails on former railways.

Bridges on this corridor cross standing water, cross waterways that have water in them at certain times and cross roads and stock access points.

As well as being an attraction to rail trail users, the bridges along a disused railway corridor perform an important and necessary function: enabling users to cross rivers and creeks and other permanently wet areas.

Detailed discussions on bridges and bridge options were included in the Interim Report. A summary of that discussion is included here along with additional notes on design and pre-fabricated bridge options. **The key outcome of the Interim Report (in respect of bridges) was that the recommendation was to retain all the timber bridges that are needed for the rail trails (i.e. those along the three identified short trails). This appears to have been done (December 2018) although there are a number of bridges that have either been burned or washed away, particularly between Futters Creek and Ubobo.**

8.1 BRIDGES – RETAIN OR REMOVE?

Within the Gladstone Regional Council local area, the brief identifies approximately 72 rail crossings over permanent water, seasonally dry creeks and/or estuary crossings by culvert, wooden and/or steel bridges (Queensland Rail register records 56 bridges). Within the North Burnett Regional Council local area, the Queensland Rail register records 101 bridges.

Replacement and re-purposing costs are one of the considerations for rail trail bridges. The remaining bridges on all three proposed rail trails are likely to have some prospect of re-use but will require a detailed examination to confirm their true condition. Work on other timber rail trail bridges across Australia have returned costs of between $3,000 - $6,000/lineal metre up to $11,000/lineal metre (it should be noted that the bridge over Lockyer Creek on the Brisbane Valley Rail Trail is costing far in excess of this figure. However, it has a range of special requirements – it is on the State heritage register and is quite high).

Adaptation of the bridges to be suitable for bicycle and pedestrian use could be done using prefabricated steel assemblies comprising a deck structure and handrails which could be

clamped or bolted onto the tops of the steel girders after rail sleeper removal. The deck would probably best be made from one of the FRP moulded gratings now available on the market.

Repair work on the bridge over Jimmy's Gully (on left) on the Brisbane Valley Rail Trail was complex and cost $11,000/lineal metre. The Tingoora bridge on the Kingaroy Kilkivan Rail Trail (on right) was around $1,700 lineal metre for re-purposing.

Table 24: Waterways Crossing Alternatives

River and creek crossings	Unit costs	Comments
Re-purpose timber rail bridges	$3,000 - $6,000/lineal metre up to $11,000/lineal metre	Costs may be more if heritage or environmental matters such as lead paint need to be managed
Concrete floodways/wash-overs	$20,000 - $30,000	These costs are for simple crossings
Major concrete floodways	$600,000 - $800,000.	These were the costs three concrete floodways recently built on the Brisbane Valley Rail Trail where significant bridges were washed away. It is acknowledged that no watercourses along the potential Rail Trail route where bridges have been removed or may be removed will carry similar volumes of water.

Concrete culverts	$2,000/lineal metre installed (plus handrails where needed)	These costs are for simple crossings
Pre-fabricated bridges (Landmark or similar)	$4,000/lineal metre	Costs will vary but this assumes there are a number to be installed and there are some economies of scale

Should any or all of the rail trails proceed, all bridges on these trails should be retained on the assumption that they are potentially structurally sound pending a structural engineering assessment to confirm their capability to carry the weight of trail users (a Level 2 inspection can determine this and can be done for around $7,000/bridge). It is acknowledged that this may become an expensive exercise (at least in the medium term) and it is has been the experience on other Queensland rail trails that Councils are reluctant to take ownership and/or management of timber bridges which may require high maintenance costs. However, not using the bridges means the loss of an essential part of the rail trail experience. Given the large number of remaining bridges on the Awoonga Lake Rail Trail, some of the shorter lower bridges can be bypassed using concrete culverts or floodways.

Above: A low level timber bridge across a creek on the Kingaroy Kilkivan Rail Trail.

Above: A concrete floodway across a creek on the Kingaroy Kilkivan Rail Trail.

Above: A flooded waterway crossing on the Kingaroy Kilkivan Rail Trail.

Various options are available for waterway crossings, where the original bridge no longer exists. However, leaving a waterway crossing in a natural state (see photo at left) can lead to issues with trail usability.

8.2 PRE-FABRICATED BRIDGES

A simple option where bridges are in poor condition or have been removed completely is to install pre-fabricated bridges. Landmark is one company that specialises in supplying such bridges but there are other suppliers.

Any replacement bridges may need to carry vehicles, depending on a number of factors, particularly proximity of accessible roads and whether there is sufficient "go-round" space to allow vehicles access along the trail elsewhere within the former railway corridor. A detailed trail development plan would assess these requirements.

9. TUNNELS

The Kalpowar tunnels provide an outstanding example of railway tunnels and the presence of 6 in a very short section is probably unmatched on an Australian rail trail. The hog's back sleepers, an unusual feature, add to the appeal of the tunnels.

The tunnel linings have been formed using tongue-and-grooved timber for formwork. Of the three tunnels visited by the relevant consultant, none showed any signs of rust from embedded steel reinforcement nor other signs of significant concrete deterioration, such as spalling. Whilst it is likely that some steel reinforcement was used, the tunnels could be structurally satisfactory without reinforcement, as were the many brick tunnels which preceded them using the same cross section (See Appendix 2 for detail).

10. TRAIL FURNITURE

There are a number of scenic locations along the corridor well suited to the placement of seats that would benefit all trail users. An allowance has been made for the eventual installation of seats – at sites selected by the trail manager. Sites should have views over the adjoining countryside. Care should be taken in the selection of styles of seating and tables. Many styles commonly used on trails are more suited to backyard gardens, or city parks. Few look 'right' in the natural environment. Placement of simply constructed seats at intervals along the trail will benefit all trail users.

11. TRAILHEADS AND PARKING

A trailhead is usually defined by the existence of a car parking area, often with picnic facilities, interpretive signage, a map panel of the trail showing sites of interest and distances to features along the trail and a Code of Conduct. It is a location where a (short or long) trail walk or ride can begin or end. Given that much of the usage of any rail trail is likely to come from users from other areas, formal 'trailheads' are important.

Basic facilities such as parking, and a picnic table or seats in the shade, interpretive information (on a map panel) showing distances to features and towns along the rail trail is important and will prove useful to all rail trail users.

12. FENCING

Detailed discussions on fencing were included in the Interim Report. A summary of that discussion is included here.

It is critical that any rail trail corridor be fenced on both sides of the trail where it passes through farms – for public liability insurance and risk reasons. The rail trail corridor should not remain unfenced where it traverses farmland.

There may be a need for new boundary fencing both for insurance purposes and to reduce maintenance costs by allowing grazing of the "excess" corridor.

There are four options for corridor maintenance that will impact significantly on fencing requirements. It should be noted that currently livestock do graze sections of the corridor, particularly along the northern section of the Awoonga Lake rail corridor, and from Many Peaks to Kalpowar. This practice may need to change depending on the options chosen:

- Option 1. Adjoining landholders are offered the opportunity to graze the "excess" corridor. Interest needs to be sought before this major cost exercise is undertaken. This option will involve a high capital cost. This option provides for low maintenance costs in terms of reduced slashing requirements (though human resources will be required to manage this process). **This option is the primary preferred option (and is costed in the report).**
- Option 2 would allow stock to graze the "remnant" parts of the corridor at given times of the year to manage vegetation growth. The best approach to temporary seasonal grazing may be to allow grazing by the use of temporary electric fencing delineating the grazing areas. This option offers a low capital cost, and relatively low maintenance cost (falling between Option 1 and Option 3). However, advice from one adjoining landholder is that this will not work because cattle will simply push through and damage the fence even though it is electric.
- Option 3 is basically a 'do nothing' option. trail manager would manage the entire corridor width, slashing up to 5 - 6 times/year depending on growing seasons. This has effectively no capital cost but a very high maintenance cost. It also means that no stock would be permitted on the corridor due to public safety and public liability concerns.
- Option 4 is the option utilised by the manager of the Brisbane Valley Rail Trail. The corridor is fenced on the boundary with neighbours and cattle graze inside the rail trail corridor with unfettered access across the trail corridor thus reducing the maintenance requirements for the trail manager (in terms of keeping grasses under control). This is not a recommended option due to insurance issues and potential damage to the corridor by livestock particularly in wet weather.

13. STOCK CROSSINGS

Along the railway corridors (for the recommended trails), some 'private' level crossings were encountered – these crossings allow adjoining landowners to move their stock or machinery from one side of the rail trail corridor to the other.

Any such crossings should be retained, and the development of any trail will need to make allowance for their retention. These facilities are only required where landholders own parcels on both sides of the corridor. They may also be needed where an adjoining landholder expresses an interest in grazing the "remnant" corridor.

Such crossings can be either 'open' meaning that stock are able to cross the rail trail to the other side of the corridor at all times, unhindered by gates – with trail users having to open gates to get across the stock crossing, or they can be gated either side of the corridor meaning that the adjoining landowners would be responsible for opening the gates when needed.

By having 'open' stock crossings, the matter of stock being cut off from water supplies on the other side of the fenced corridor is negated. In this scenario, trail users will need to open self-closing gates at each side of the crossing and pass across from one side to the other. The gates need to be 1200mm spring-loaded gates opening into the crossing in order to prevent stock pushing them open. Gate design needs to ensure that the gate closes against the adjoining fence post (i.e. the opening for the gate is to be less than 1200mm). While not favoured by rail trail users as this is somewhat inconvenient (especially when there are many gates to open/close) it is regarded as one of the best compromise designs. By allowing stock from adjoining farms to cross from one side of the corridor to the other at all times, the interruption to current farming practices is minimised and adjoining landowners are much more favourably disposed to the prospect of the rail trail.

Stock grids along rail trails, such as this one on the rail trail south of Margaret River in WA, can allow stock crossings to be open 24/7 thereby enabling stock and machinery to cross the trail unimpeded.

Individual discussions with landholders at the time of construction would work out the most appropriate system. Another alternative is to use stock grids either side of the crossing that trail users must pass over. This does away with the need for gates to be opened (and closed) by trail users. Care must be taken in the design and fabrication of the grids to ensure they are safe for trail users, particularly cyclists. If horse riders are to be permitted on the corridor, this solution does not work without the installation of cavaletti gates in the adjoining fence (which may allow stock to wander) (See photo above for a typical example of a grid on a rail trail).Cement stabilisation of the rail trail surface at each 'stock crossing' is strongly recommended to ensure the regular passage of stock across the rail trail does minimal damage to the trail surface and is long-lasting.

Above and below: two styles of stock crossings on the Otago Central Rail Trail in New Zealand.

There are several options for moving stock across a rail trail. Top: crossings that are gated either side of the corridor allow the controlled passage of stock and/or machinery at certain times. Bottom: crossings where gates are across the rail trail, where trail users need to open/close the gate.

14. CODES OF CONDUCT

Managing interaction between user groups is a primary prerequisite on all trails, and standard signage and protocols already exist. Providing adequate signage is installed and users are well aware of the likelihood of meeting other user groups, such interactions should generally be non-threatening and relatively safe.

Every attempt must be made to ensure the rail trail is not used by either four-wheel drives or trail bikes, though this is likely to be difficult to manage and hard to police. The proposed management access gates and chicanes at every road crossing will go part way to addressing this issue.

Education through signage and use of gates or other vehicle exclusion barriers will help, as will encouraging bona-fide users – and local residents – to report registration numbers of illegal users. A Code of Conduct for each user group provides all trail users with guidelines to minimise their impact on the environment, and on other trail users.

Codes of Conduct help to:

- Prevent trespass;
- Prevent soil erosion;
- Minimise trampling;
- Prevent the introduction and spread of noxious and exotic plants;
- Protect waterways;
- Reduce the risk of fire;
- Protect significant and environmentally sensitive sites;
- Minimise potential conflict with other users of the trail; and
- Ensure the safety of all trail users.

The Murray to the Mountains Rail Trail has a Code of Conduct sign board at regular intervals along the trail ensuring that all trail users are aware of their rights and responsibilities.

Trailhead signage is the best place to provide Code of Conduct signage.

15. HERITAGE ISSUES

A number of structures along the trail corridor have historical or heritage value. These include station buildings, station signs, bridges, culverts, cuttings and embankments, and distance posts. A rail trail will enhance the appreciation of these historic assets.

It is strongly recommended that the trail manager seek to ensure all artefacts and relics of the railway remain in place during the construction of the trail. The existing stations and other buildings in all the station grounds are outstanding examples of preserved railway heritage.

All existing signs, signals and switches have been identified in the works tables and an allowance made for the retention and upgrading.

16. CLEARING FOR THE RAIL TRAIL

In the years since the railway last operated, vegetation (in various forms) has regrown along parts of the corridor that formerly was kept clear of vegetation.

Generally speaking, a cleared 'trail corridor' of 3.5 - 4.0 metres will be required to enable a trail of 2.5 metres to be developed in the centre of the cleared corridor. Either side of a trail will require further clearing of vegetation up to 1.0m for drainage.

Ongoing maintenance will be required, on an 'as and when required' basis, to prune the vegetation alongside the trail to keep the trail corridor clear of overhanging vegetation. The regularity of the clearing of side growth vegetation will depend on numerous factors, particularly the type of vegetation growing alongside the trail over its length.

17. TOILETS

Proposed trailheads at a number of places along the three rail trails have existing toilets (either in villages or towns or at recreation locations such as Boynedale Bush Camp). Consideration has been given to the installation of additional toilets along the rail trail and there are new composting toilets recommended at Glassford Creek trailhead (on the Kalpowar Tunnels Rail Trail) and at Mt Debateable trailhead (on the Burnett River Bridges Rail Trail). There is no standard accepted distance between toilets on a trail.

APPENDIX 2

ENGINEERING REPORT

CALLIOPE TO GAYNDAH INLAND RAIL TRAIL

PRELIMINARY STRUCTURAL ASSESSMENT

REPORT FOR
MIKE HALLIBURTON ASSOCIATES

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Revision	Prepared By	Description	Date
—	Bill Jordan	Draft report for review	8/1/2019
A	Bill Jordan	Revision A	9/1/2019

Authorisation

Role	Name	Signature	Date

Cover photo: Southern portal of Tunnel 5.

CALLIOPE TO GAYNDAH INLAND RAIL TRAIL PRELIMINARY STRUCTURAL ASSESSMENT

1 SUMMARY OF FINDINGS

From observations made with available access, it was found that:

- the tunnels and bridges assessed were generally in sound condition;
- loose materials in cuttings needs to be removed to reduce hazards for users;
- all structures need to be further assessed and compared with any available design drawings.

2 PROJECT DESCRIPTION

2.1 The Brief

Mike Halliburton Associates, Recreation Trail Planners, engaged Bill Jordan & Associates to undertake a preliminary structural assessment of tunnels and bridges on a section of the abandoned Calliope to Gayndah railway line in Central Queensland

The general location is shown in figure 1, an image taken from Google Earth, and figure2, on an image assembled from Queensland 1:25,000 topographic maps.

Figure 1. An excerpt from Google Earth shows the end points of the proposed rail trail and a significant location, Boyne Valley, along its route.

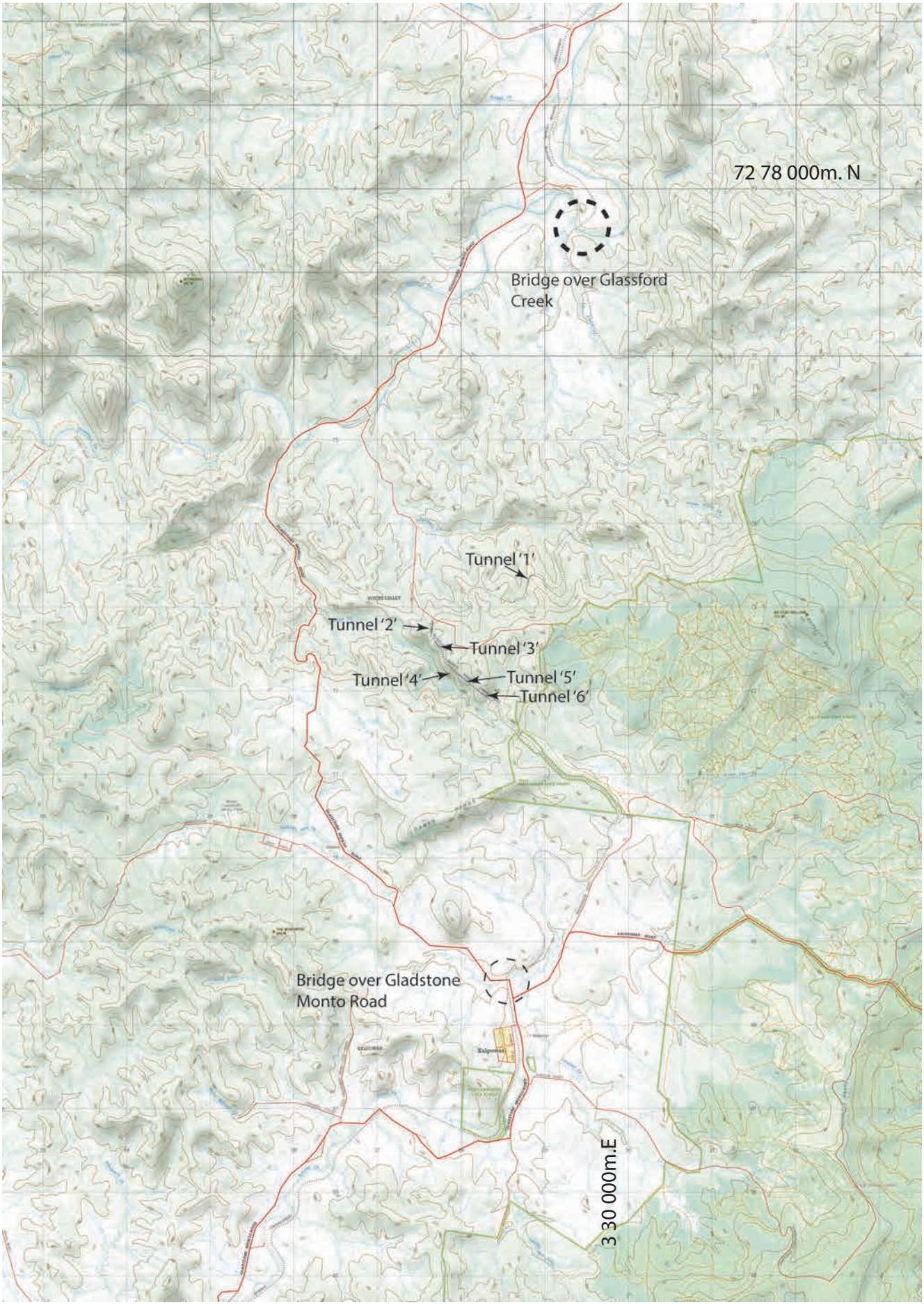


Figure 2. A detailed map showing the sites assessed on 6 December 2018. Queensland 1:25,000 topographic maps, sheets 9148-13 and 9148-14, have been combined for this image. Reduced (A3) copies of the full maps are appended.

2.2 Description

Available records[1] show that most of the line concerned was built between 1910 and 1930: excerpts from this record are appended.

The forms of construction of the tunnels and the bridges are consistent with these dates. It was noted, however, that the bridge over Glassford Creek had two different types of steel girders: the central section of seven spans having a superstructure of rivetted plate web girders but with three spans on each end using rolled steel joists for spans of similar length. This suggests that the bridge was lengthened by six spans, possibly following a flood and using a more up-to-date technology; the plate web girders could also have been taken from an earlier structure.

It would be useful to locate as many design drawings as possible.

2.3 Work undertaken

The field work forming the basis of this report was undertaken in the company of Mike Halliburton and Mike Maher of Mike Halliburton Associates on 6th December 2018. Unforeseeable circumstance prevented an extra planned day in the field.

Three tunnels and two bridges were assessed visually and limited hammer sounding of the concrete lining of Tunnel 6 was undertaken.

From the descriptions given to me, the other three tunnels (numbers 1 to 3) were built at the same time and were in similar condition to those visited (number 4 to 6). For a preliminary assessment intended to identify structural issues requiring further work, I am confident that the field work was adequate for the tunnels.

Two bridges, one over the Gladstone Monto Road and one over Glassford Creek were also assessed visually. Other bridges of timber construction are known to exist along the line and will need to be assessed, particularly for termite damage.

3 FINDINGS OF DETAILED SITE ASSESSMENT

3.1 Tunnels 4 to 6

3.1.1 DESCRIPTION

The basic dimensions of the tunnels seen are shown in figure 3 and there is no information to suggest that those not seen are of different cross section. The height was measured for the top of the rail.

The tunnel linings have been formed using tongue-and-grooved timber for formwork as can be seen by the finished surface. Of the three tunnels visited, none showed any signs of rust from embedded steel reinforcement nor other signs of significant concrete deterioration, such as spalling. Whilst it is likely that some steel reinforcement was used, the tunnels could be structurally satisfactory without reinforcement, as were the many brick tunnels which preceded them using the same cross section.

As for other structures on the line, it would be invaluable if original design drawings could be found. This would allow a better assessment of the continuing structural integrity.

There was a potential stability problem in the northern portal of Tunnel 4. This is further discussed below.

3.1.2 STRUCTURAL INTEGRITY

Overall, the structural integrity of the tunnel linings is considered to be satisfactory with no general observations indicating possible future issues. With the exception of an extension to the wingwall of the northern portal to Tunnel 4, no problems were seen in the tunnel portals, such as spandrel wall separation as often seen in brick tunnels.

Whilst there are no signs of "red" rust nor the spalling that can be associated with it, black stains near water leaks in the roof and walls could be associated with iron or steel corrosion. It could be furhter investigated at a later stage but is not likely to be of structural significance.

1 Quinlan, H & Newland J.R., Australian Railway Routes 1854 - 2000, Australian Railway Historical Society, NSW Division, 2000

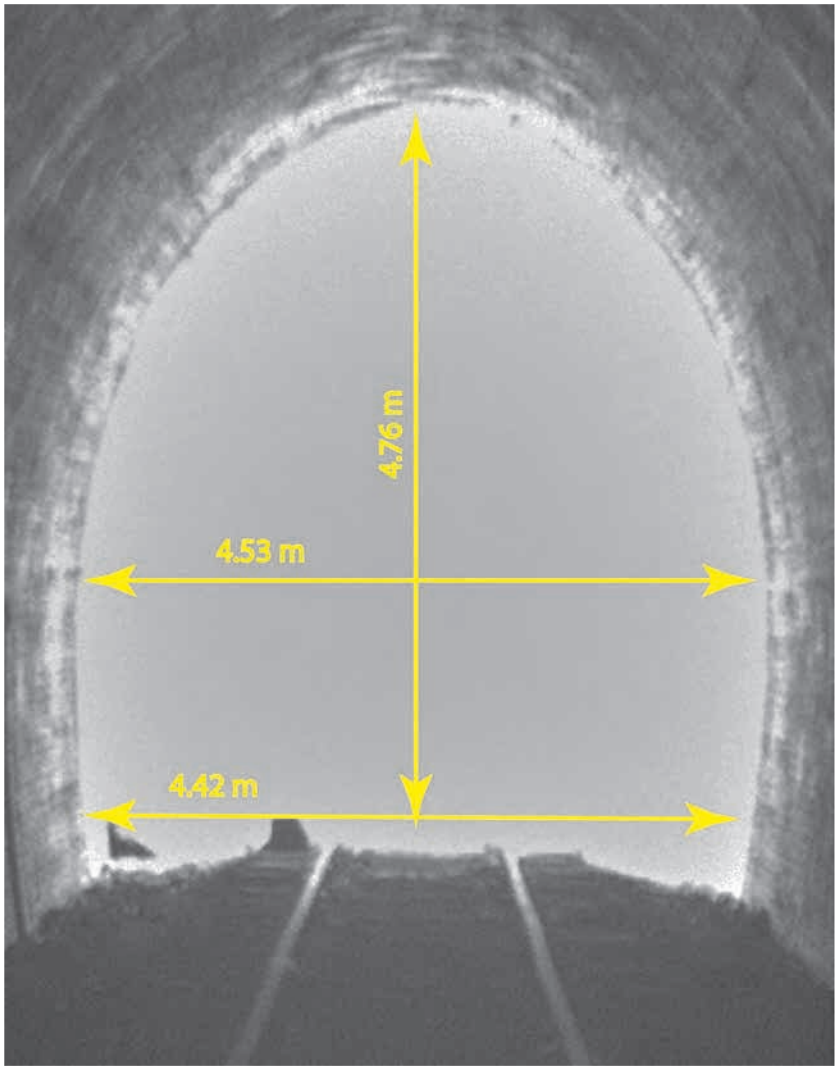


Figure 3. Tunnel cross section is of "horseshoe" shape.. This section is typical of both brick and concrete lined single track tunnels of the period.

3.1.3 TUNNEL 4, NORTHERN PORTAL

Figures 4 and 5 illustrate some minor problems at the northern portal of Tunnel 4.

Figure 4. The northern portal of Tunnel 4 has had the wingwall extended using a wall built from stone. This wall, which may have been an informal solution by the builders has moved from earth pressure and broken the concrete to which it was attached.

Figure 5. Detail of figure 4. It cab be seen that the stone wall on the right has possibly moved outwards and its base undermined. The movement has taken part of the concrete headwall with it.

This failure will need further investigation to design rectification details, but it has not moved very much in the 90 years since construction. If an excavator can access the site, the earth pressure causing the problem may be able to be relieved by removing excess material. The concrete could then be patched.

3.2 Bridges

3.2.1 STEEL BRIDGES

Only two bridges were assessed in the time available, the underbridge over the Gladstone Monto Road about 600 m north of Kalpowar, which also spans a small unnamed creek, and the bridge over Glassford Creek. Both use a steel girder deck structure resting on a concrete pier substructure.

Figure 6: Underbridge north of Kalpowar. The bridge uses welded plate web girders, which may be a modern replacement for an older superstructure as such girders were not used at the time of the original construction

Paintwork on on both bridges is in good condition and was possibly renewed in 1997 if a painted sign on a girder of the underbridge has been properly interpreted. The two bridges are illustrated in figures 6 and 7.

The underbridge superstructure appears to date from the 1960s, or even later, but the concrete piers and abutments match other original concrete on the line.

Adaptation of these and other bridges to be suitable for bicycle and pedestrian use could be done using prefabricated steel assemblies comprising a deck structure and handrails which could be clamped or bolted onto the tops of the

Figure 7: Glassford Creek bridge. The superstructure of the centre seven spans are made from rivetted plate web girders; three spans on each end use compound girders with flange plates rivetted top and bottom. Changes in the pier tops also suggest that the bridge was lengthened after the original construction.

steel girders after rail sleeper removal. The deck would probably best be made from one of the FRP moulded gratings now available on the market.

Glassford Creek bridge is an interesting structure in having two different designs of girder for similar-length spans. Whilst the rivetted plate web girders are what might be expected for the time of construction, the extensions either end use compound girders made by rivetting flange plates to the top and bottom flanges of rolled steel joists: this was a form of construction common from the 1920s to the 1950s when larger beams were made by welding flat plates, as seen in the underbridge. The rolled steel joists were manufactured by Dorman & Long of England, who were still supplying a considerable amount of steel to Australia in the early years of BHP Newcastle.

The principal concern with both bridges is scour around the base of at least one of the piers. If the piers concerned are firmly founded on rock, then there should be no risk; if they are not founded on rock then remedial protection works will be required to reduce risk from further scour. The original or work-as-executed drawings (preferable) would be of great value in resolving this problem.

Figures 8 and 9 illustrate the scour.

Figure 8: Pier base in small creek at underbridge. The founding of this pier needs to be checked against drawings and rip-rap may be needed to limit future risk from scour.

Figure 9: Scour around pier base at Glassford Creek. If the pier is founded soundly on rock, risk is low. Otherwise rip-rap could be dumped to limit further scour.

3.2.2 TIMBER BRIDGES

No timber bridges were assessed, although some were seen from a distance during the journey. All will need detailed assessment as part of the final design exercise, although considering when the line was closed, there may not be many problems.

Termite and fungal ("dry rot") infections are the principal risk.

4 CONCLUSIONS

The bridge and tunnel assessments carried out for the proposed Calliope to Gayndah Inland Rail Trail revealed no major structural issues which would hinder the proposal.

J.W. Jordan BE FIEAust CPEng RPEQ
NER Registered No. 161488

for and on behalf of Bill Jordan & Associates Pty Ltd

APPENDIX 1

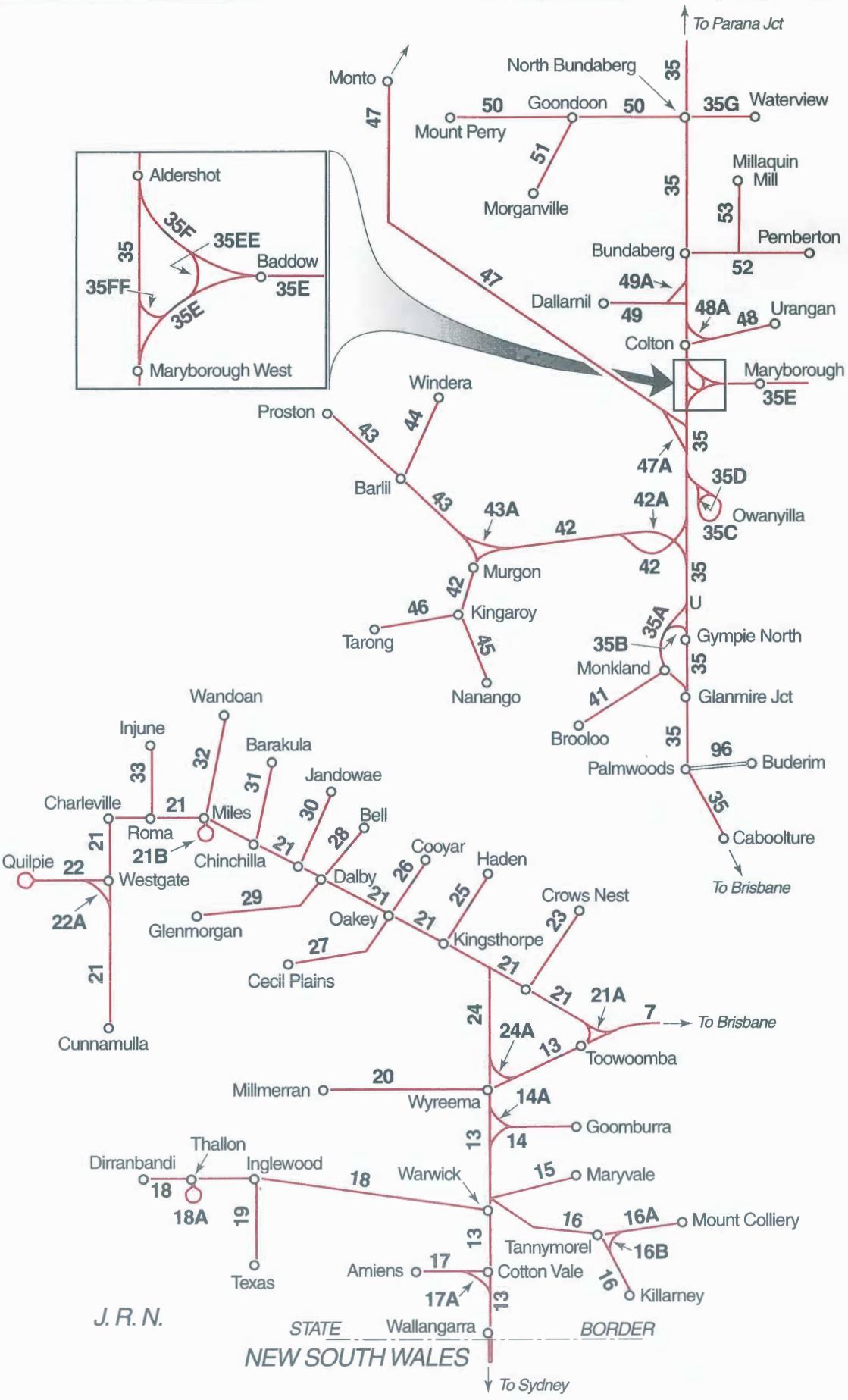
Information on rail line origins from Australian Railway Routes 1854 - 2000

AUSTRALIAN RAILWAY ROUTES 1854 - 2000

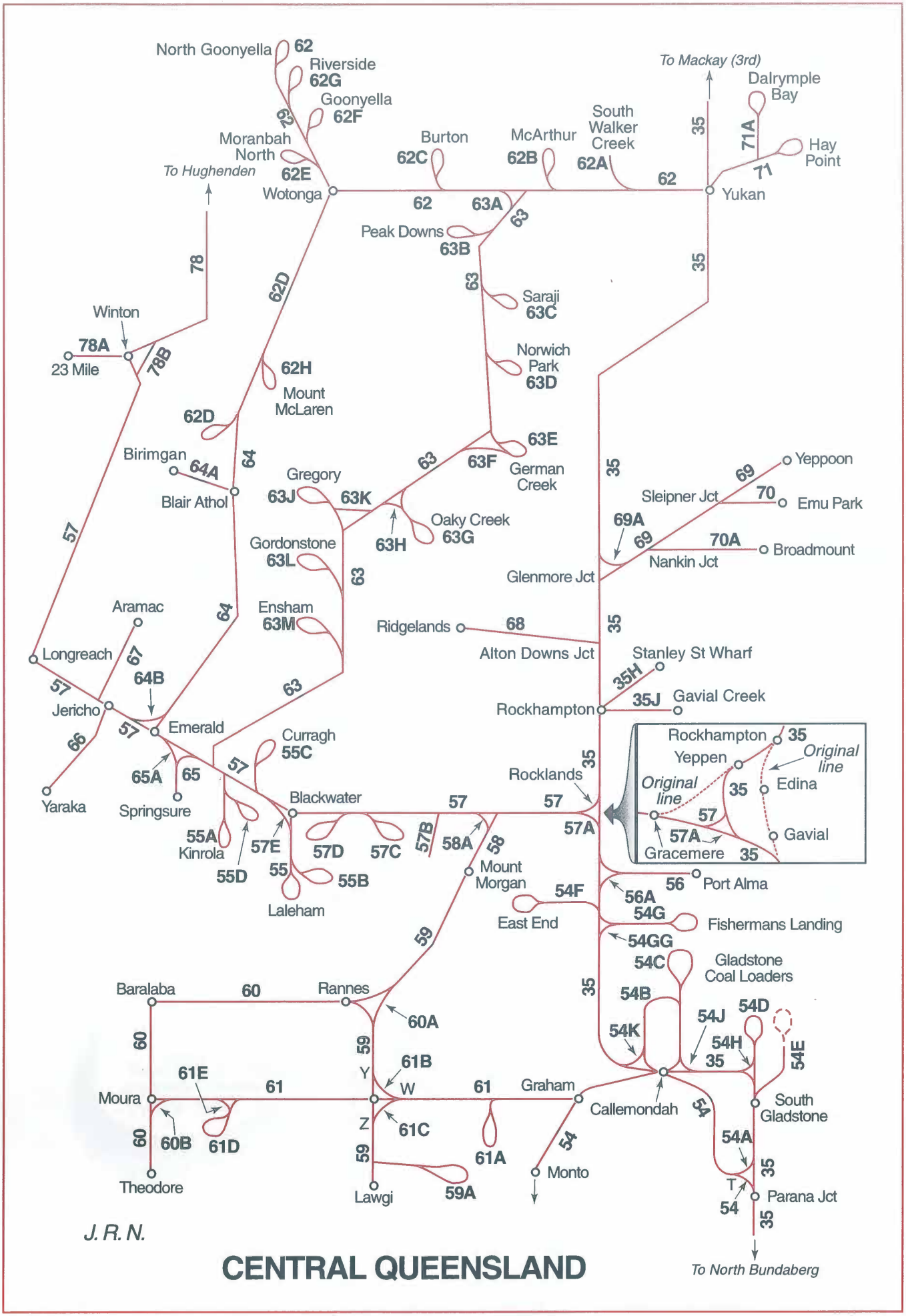
Howard Quinlan
John R Newland

AUSTRALIAN RAILWAY HISTORICAL SOCIETY
NEW SOUTH WALES DIVISION

		km	Opened	Status	Closed
QN42	Theebine - Dickabram	5.3	01 Jan 1886	OA	
	Dickabram - Kilkivan	37.7	06 Dec 1886	OA	
	Kilkivan - Goomeri	27.8	01 Aug 1902	OA	
	Goomeri - Wondai	30.2	14 Sep 1903	OA	
	Wondai - Kingaroy	30.0	19 Dec 1904	OA	
QN42A	Fork at Theebine	0.4	19??	OA	
QN43	Murgon - Byee	12.4	24 Feb 1923	CO	17 Jan 2000
	Byee - Proston	30.1	24 Feb 1923	CL	25 Jan 1993
QN43A	Fork at Murgon	0.2	24 Feb 1923	CO	17 Jan 2000
QN44	Barlil - Windera	19.7	28 Mar 1925	CL	30 Jun 1961
QN45	Kingaroy - Nanango	25.0	13 Nov 1911	CL	30 Jun 1964
QN46	Kingaroy - Saleyards Siding	2.6	15 Dec 1915	OY	30 Jun 1995
	Saleyards Sdg - Tarong	26.4	15 Dec 1915	CL	30 Jun 1961
QN47	Mungar Jct - Brooweena	38.5	29 Jul 1889	OA	
	Brooweena - Boompa	9.2	01 Mar 1891	OA	
	Boompa - Biggenden	19.6	13 Apr 1891	OA	
	Biggenden - Degilbo	5.6	01 Apr 1893	OA	
	Degilbo - Wetheron	34.1	21 Dec 1905	OA	
	Wetheron - Gayndah	18.3	16 Dec 1907	OA	
	Gayndah - Boomerang	21.7	01 Nov 1913	OA	
	Boomerang - Mundubbera	15.4	03 Feb 1914	OA	
	Mundubbera - Ceratodus	52.2	26 Apr 1924	OA	
	Ceratodus - Mulgildie	42.2	20 Jun 1927	OA	
	Mulgildie - Monto	12.7	15 Sep 1928	OA	
QN47A	Fork at Mungar	0.3	29 Jul 1889	OA	
QN48	Colton - Takura	13.0	18 Dec 1896	CO	07 May 1998
	Takura - Pialba	13.6	18 Dec 1896	CL	31 Dec 1993
	Pialba - Urangan	6.6	19 Dec 1913	CL	31 Dec 1993
QN48A	Fork at Colton	0.3?	1896 ?	CO	07 May 1998
QN49	Isis Jct - Childers	18.6	31 Oct 1887	CL	30 Jun 1964
	Childers - Cordalba	11.9	01 Jun 1896	CL	30 Jun 1964
	Cordalba - Dallarnil	49.7	06 May 1913	CL	30 Jun 1955
QN49A	Fork at Isis Jct	0.3?	189?	CL	1964 ?
QN50	North Bundaberg - Gin Gin	44.8	19 Jul 1881	CL	25 Jan 1993
	Gin Gin - Tirroan	4.0	19 Jul 1881	CL	26 Jul 1991
	Tirroan - Moolboolaman	16.4	19 Jul 1881	CL	31 Oct 1960
	Moolboolaman - Gillens Siding	5.3	15 Aug 1882	CL	31 Oct 1960
	Gillens Siding - Boolboonda	17.7	12 Nov 1883	CL	31 Oct 1960
	Boolboonda - Mount Perry	17.8	20 May 1884	CL	31 Oct 1960
QN51	Goondoon - Wallaville	19.7	09 Aug 1920	CL	15 Jun 1964
	Wallaville - Innes	3.0	03 Oct 1931	CL	30 Apr 1964
	Innes - Morganville	7.7	03 Oct 1931	CL	31 Oct 1960
QN52	Bundaberg - Woongarra Jct *	2.5	09 Jul 1894	OY	30 Jun 1995
	Woongarra Jct - Bunda Street #	0.9	05 Aug 1912	OY	30 Jun 1995
	Bunda Street - Qunaba #	8.4	05 Aug 1912	CL	30 Sep 1959
	Qunaba - Pemberton #	10.4	05 Aug 1912	CL	30 May 1948
	* *Line built by Woongarra Shire and taken over by QR on 03 Dec 1912.*				
	# *Line built by Woongarra Shire and taken over by QR on 01 Jan 1918.*				
QN53	Woongarra Jct - Millaquin Mill	0.7	09 Jul 1894	OY	30 Jun 1995
QN54	Parana Jct - Point "T"	0.5	09 Apr 1973	OA	
	Point "T" - Callemondah	12.7	05 Jun 1967	OA	
	Callemondah - Many Peaks	82.5	25 Jul 1910	OA	
	Many Peaks - Barrimoon	23.4	17 Aug 1926	OA	
	Barrimoon - Kalpowar	5.7	22 Jun 1928	OA	
	Kalpowar - Mungungo	28.7	07 Jul 1930	OA	
	Mungungo - Monto	14.4	06 Jul 1931	OA	



SOUTHERN AND NEAR NORTH QUEENSLAND


North Goonyella
62
Riverside
62G
Goonyella
62F
Moranbah North
62E
To Hughenden
Wotonga
Burton
62C
McArthur
62B
South Walker Creek
62A
To Mackay (3rd)
Dalrymple Bay
Hay Point
Yukan
Peak Downs
63B
Saraji
63C
Norwich Park
63D
Winton
78A
23 Mile
78B
62H
Mount McLaren
62D
63E
63F
German Creek
Birimgan
64A
Blair Athol
Gregory
63J
63K
Oaky Creek
63G
63H
Gordonstone
63L
Ensham
63M
Aramac
Longreach
Jericho
64B
Emerald
Curragh
55C
Yaraka
65A
65
Springsure
Blackwater
55A
Kinrola
55D
57E
55
57D
57C
57B
58A
58
55B
Laleham
Mount Morgan
Yeppoon
Sleipner Jct
69
70
Emu Park
69A
70A
Broadmount
Nankin Jct
Glenmore Jct
Ridgelands
68
Alton Downs Jct
Stanley St Wharf
35H
35J
Gavial Creek
Rockhampton
Rocklands
57A
Yeppen
Original line
Edina
Gavial
Gracemere
56
Port Alma
54F
East End
56A
54G
Fishermans Landing
54GG
54C
Gladstone Coal Loaders
54B
54D
54J
54K
54H
54E
Callemondah
South Gladstone
54A
Parana Jct
To North Bundaberg
Baralaba
60
Rannes
60A
59
61B
61E
Moura
61
Graham
60B
61D
61C
61A
Monto
Theodore
Lawgi
59A
J. R. N.
CENTRAL QUEENSLAND

APPENDIX 2

Reduced size copies of 1:25,000 topographic maps of study location

QTOPO

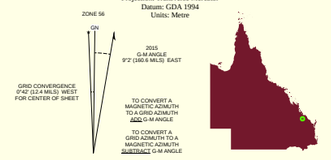
MANY PEAKS
9148-14

1:25,000

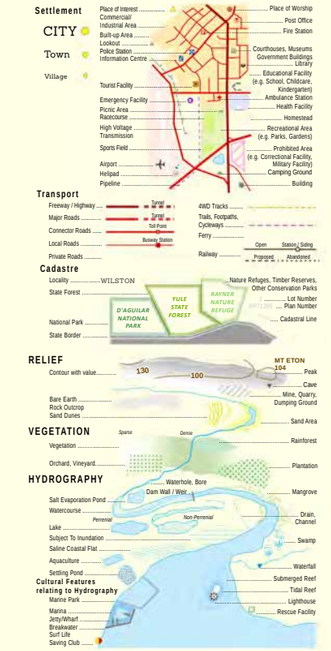
0 250 500 1,000 1,500 2,000

Metres

Coordinate System: GDA 1994 MGA Zone 56
Projection: Transverse Mercator
Datum: GDA 1994
Units: Metre



CULTURAL FEATURES



Reliability: QTopo has been compiled from the best information available to Queensland Government. The accuracy and reliability of this data is known to vary across the different scales. It is planned for this information to improve as more accurate data is sourced. Metadata information can be obtained via the QTopo application.
http://qtopo.dnrm.qld.gov.au

9149-32 Dooboon	9149-23 Ubobo	9149-22 Blacksmans Gap
9148-41 Mount Sugarloaf	9148-14 Many Peaks	9148-11 Bullyan
9148-42 Mount Bucanally	9148-13 Kalpowar	9148-12 Minerva Creek

Vertical Folds

Horizontal Folds

All enquiries:
opendata@dnrme.qld.gov.au
Department of Natural Resources, Mines and Energy
GPO Box 2454, BRISBANE QLD 4001

Queensland Government

Produced by the Department of Natural Resources, Mines and Energy. May 2018. Edition 4.

QTOPO

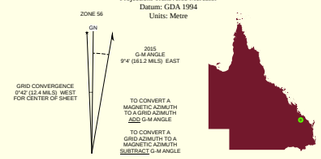
KALPOWAR
9148-13

1:25,000

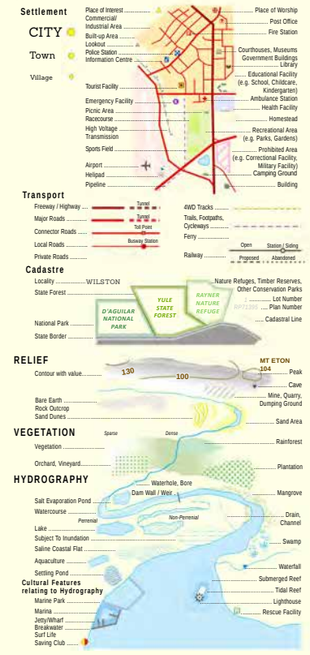
0 250 500 1,000 1,500 2,000

Metres

Coordinate System: GDA 1994 MGA Zone 56
Projection: Transverse Mercator
Datum: GDA 1994
Units: Metre



CULTURAL FEATURES



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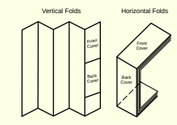
http://qtopo.dnrm.qld.gov.au

9148-41 Mount Sugarloaf	**9148-14** Many Peaks	**9148-11** Bullyan
9148-42 Mount Bucanally	**9148-13** Kalpowar	**9148-12** Minerva Creek
9148-31 Mungungo	**9148-24** Carrondah Creek	**9148-21** Mount Goondicum



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GPO Box 2454, BRISBANE QLD 4001

Queensland Government

Produced by the Department of Natural Resources, Mines and Energy. May 2018. Edition 4.

APPENDIX 3

PLANS OF PROPOSED THREE RAIL TRAILS

Futters Creek

Bridge @ 35.700

Bridge @ 35.700

Awoonga Lake

Bridge @ 41.420

Bridge over Futters Creek

Bridge @ 41.420

Portentia Creek Bridge

Boynedale Bush Camp

Bridge over Portentia Creek

Corridor alongside Awoonga Lake

Boynedale Bush Camp

One of numerous missing bridges

Nagoorin

Ubobo

TRANSPLAN PTY LTD
Planning and Design

Mike Halliburton Associates
Trail Consultants

January 2019

Boyne Burnett Inland Rail Trail Feasibility Study

Plan 1:
Awoonga Lake
Rail Trail

NORTH BURNETT REGIONAL COUNCIL

GLADSTONE REGIONAL COUNCIL

Inside tunnel 3

Hog back sleepers in tunnel 2

Typical scenery along corridor

Typical scenery along corridor

Typical scenery along corridor

Tunnel 6

Bridge over Glassford Creek

Builyan

Many Peaks

Golembil Siding

Glassford Creek Bridge

Tunnel 1

Tunnel 2

Tunnel 3

Tunnel 4

Tunnel 5

Tunnel 6

Barimoon Siding

Kalpowar

TRANSPLAN PTY LTD
Planning and Design

Mike Halliburton Associates
Rail Consultants

January 2019

Boyne Burnett Inland Rail Trail Feasibility Study

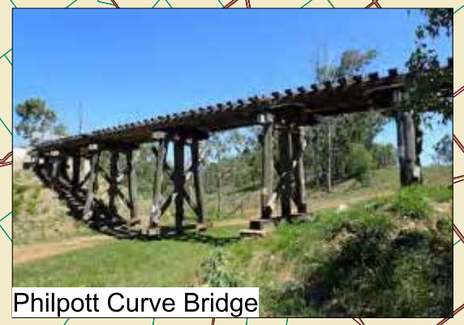
Plan 2:
Kalpowar Tunnels
Rail Trail

NORTH BURNETT REGIONAL COUNCIL

GLADSTONE REGIONAL COUNCIL

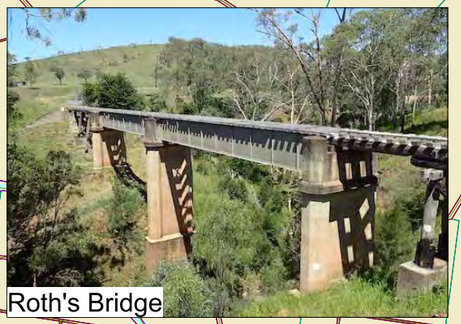
Red Gully Bridge

Philpott Creek Bridge



Philpott Curve Bridge

Slab Creek Bridge



Roth's Bridge

Humphrey #1 Bridge

Mundubbera Station
Red Gully Bridge
Philpott Creek Bridge
Philpott Curve Bridge
Slab Creek Bridge
Anderson's Gully Bridge
Castor Oil Creek Bridge
Baynton's Bridge
Humphrey #2 Bridge
Humphrey #1 Bridge
Roth's Bridge
Possible circuit trail using portion of railway corridor
Mt Debateable Siding
Gayndah Station

Anderson's Gully Bridge

Castor Oil Creek Bridge

Baynton's Bridge

Humphrey #2 Bridge

TRANSPLAN PTY LTD
Planning and Design

Mike Halliburton Associates
Trail Consultants

January 2019

Boyne Burnett Inland Rail Trail Feasibility Study

Plan 3:
Burnett River Bridges
Rail Trail

NORTH BURNETT REGIONAL COUNCIL

GLADSTONE REGIONAL COUNCIL