Mareeba SHIRE COUNCIL

MAREEBA TO WALKAMIN RAIL TRAIL

FEASIBILITY STUDY – FINAL REPORT

DECEMBER 2019

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1. Executive Summary

The Mareeba to Walkamin Rail Trail is a 15 km section of former rail line between Mareeba and Walkamin. An established rail trail already exists between Walkamin and Atherton and the completion of the linkage to Mareeba would add to the network creating a key linkage between the major towns on the Tablelands. As rail trail planning has been in place for some time on the Tablelands and the region is developing a strong reputation for trails-based tourism, Mareeba Shire Council recognised the need to investigate the feasibility of developing the rail trail.

This 15 km section of trail runs parallel to the Kennedy Highway and initial planning by the Department of Transport and Main Roads (DTMR) identified the need for a principle cycling network which was initially proposed adjacent to the highway. Discussions with the Department have indicated strong support for the rail trail corridor to become the principle cycle network. This adds additional impetus for the project which will offer commuter, recreation, tourism and health benefits.

Currently the rail corridor remains in state ownership and most of the rail infrastructure has been removed except for two old timber bridges. The corridor is already used by walkers, mountain bike riders, horse riders and runners, but there is no wayfinding or other trail infrastructure provided. Council currently maintains vegetation along some parts of the trail under contract from DTMR.

The feasibility investigated the options for developing the trail, the likely construction costs and the cost of maintaining the infrastructure. The potential return on investment was reviewed in terms of tourism, recreation and community health. The analysis found that the trail was feasible with a construction cost of $1.3m to $1.8m[1] for the preferred options, which includes a major crossing on Byrnes St and hard surfacing to create a safe cycle route to St Stephens High School, Wylandra and the Airport. The cost of maintaining the trail is likely to be around $90,000 per year which could not be funded via grants.

There was strong support from a number of stakeholder groups in the community and a positive return on the investment would accrue through economic, health and recreation benefits. However, it is unlikely that the full cost of the trail could be funded from external grants and therefore a considerable capital contribution from Council would be required to progress the project.

This report has provided four options for Trail Development and Management.

[1] Costing undertaken for the feasibility study indicated a likely capital cost of $1.6m for Option One- however recent pricings received for road works have indicated that costs could be up to $200,000 more for Options 1-3 and this upper figure has been used for the Executive Summary.

1.1 Trail Assessment

In general, the trail corridor is in good condition with sufficient width available for a multi-use trail. Key improvements needed include two creek crossings and improving the surface in several locations. The corridor between Mareeba and the airport is also ideally suited to become the principle cycle network improving safety for school children and commuters, but this would require a trail construction to include a hardened surface such as asphalt.

An assessment of the existing trail corridor identified a number of opportunities and constraints:

Table 1: Trail Corridor Opportunities and Constraints

Opportunities	Constraints
• There are two old bridges/ creek crossings which could be retained as historical features or retrofitted to be used as part of the rail trail. • The rail trail can provide a cycle commuter link, particularly for school students, residents of Wylandra Estate and those working at the airport. Providing a much safer environment than the highway. • The rail trail offers an opportunity to highlight heritage and culture of Mareeba and surrounds. • There is a long-term opportunity to link the trail to active transport networks in Mareeba and other recreation trails proposed in the future.	• There are a number of local road crossings that will require signage and safety treatment. • There are some access easements and informal access points which need to be addressed with signage. • The highway crossing at the Airport requires an appropriate crossing for the 100 km/h zone. • The main trail head crossing at Byrnes St requires an appropriate crossing. • The trail exits the Mareeba LGA boundary short of the Walkamin Township, increasing the important of collaboration with TRC in terms of signage and wayfinding. • There are two Creek crossings which will need to be stabilised and improved.

1.2 Community & Stakeholder Engagement

A targeted engagement program established that the general community and key stakeholders are generally supportive of the development of the Mareeba to Walkamin Rail Trail. Key outcomes of consultation include:

- The rail trail is important to the overall tourism product of the region.
- The proposal has the potential to expand the existing Atherton to Walkamin trail product and complement the current development of the Atherton-Herberton link providing a trail link from Mareeba to Herberton.
- The trail would provide a safe commuter route, removing most cyclists from the highway which has proven to be dangerous.
- Multiple stakeholders raised their interest in further investigating potential partnerships with the trail manager to support operation and maintenance. These included the Department of Corrections, TRACQS, Mareeba Mountain Goats and Mareeba Heritage Museum and Visitor Information Centre
- There are a range of existing and potential events that could utilise the rail trail if it was formalised.
- The community and stakeholders recognised the importance of providing suitable linkages to schools, places of work and residential areas that the rail trail would provide.
- The health and safety benefits of active transport and providing the trail were raised by several stakeholders.

1.3 Economic Benefit

An economic impact assessment was undertaken to determine the scope and size of potential benefits of development of the rail trail. Two scenarios were developed based on a conservative estimate of use (assumed that 2% of locals and visitor would use the trail) and a more optimistic case (assuming 5% use). The analysis found that even the conservative case produced a net benefit. The conservative case (low estimate) assumed that at least 430 residents would use the trail about 10 times a year (4,300 visits).

However, the available tourism data used to project non-resident use was "whole of shire" tourism information which includes Kuranda. This could be considered to skew the estimates of non-resident use particularly day visits and creates some uncertainty on what level of use can be projected from this data. The low case assumed that trail could attract around 6,900 non-resident visits a year. A recent survey of visitors to Mareeba, while not able to provide visitor number projections, does confirm that the estimates of overnight stay expenditure are realistic. The Economic Benefits Assessment found:

Estimated visits by riders and walkers for 1- 10 years
- **Low estimate rising from 5,625 to 12,699 per year**
- **High estimate visits rising from 16,217 to 36,527 per year**

Employment created:
- 6.5 FTE jobs created in construction phase
- Operational phase (low)- 5.1 jobs rising to 11.5 after 10 yrs
- Operational phase (high)- 13.4 jobs rising to 30 after 10 yrs

Spending in the local economy on food, services and accommodation over 10 years:
- $778,407 to $1.753m (low)
- $2.03m -$4.57m (high)

Benefits returned over 10 years (10% discount) include:
Low-
- $5.63m in direct benefits
- $1.2m in health benefits

High-
- $14.7m in direct benefits
- $4.25m in health benefits

Economic modelling shows that the trail is expected to generate positive economic benefits for the Mareeba region during the construction and operations phases as illustrated in Table 2.

Table 2: Economic analysis of proposed trail (low case)

Trail Development: 10 Year Operations Period	Discount Rate 4%	Discount Rate 7%	Discount Rate 10%
Costs (10 Years)			
Total Costs	$2,979,254	$2,979,254	$2,979,254
Benefits to Region (10 Years)			
Total Benefits (2019 Prices)	$6,841,696	$6,841,696	$6,841,696
Present Value			
Total Benefits ($) Present Value	$5,652,733	$4,950,475	$4,377,122
Benefit Cost Ratio (BCR)	**1.9**	**1.7**	**1.5**

Table 3: Economic analysis of proposed trail (high case)

Trail Development: 10 Year Operations Period	Discount Rate 4%	Discount Rate 7%	Discount Rate 10%
Costs (10 Years)			
Total Costs	$2,979,254	$2,979,254	$2,979,254
Benefits to Region (10 Years)			
Total Benefits (2019 Prices)	$18,961,944	$18,961,944	$18,961,944
Present Value			
Total Benefits ($) Present Value	$15,638,221	$13,695,840	$12,107,984
Benefit Cost Ratio (BCR)	5.2	4.6	4.1

1.4 Trail Development Plan

Four development options have been prepared as follows:
Option 1: Rail Trail and Commuter Use Prioritised
Option 2: Rail Trail and Commuter Use (lower quality)
Option 3: Rail Trail Focus
Option 4: Basic Option – Status Quo

Table 4: Summary of trail options and potential 2 stage approach

Trail Aspect	Option 1	Option 2	Option 3	Option 4
Surface	Combination 8.2 km Asphalt 7.6 km Deco Finish	Combination 8.2 km Bitumen 7.6 km Deco Finish	Stabilised Earth/ Decomposed Granite	No surface treatment is applied, minor works to improve small sections of trail
Crossings	1 x major road crossing 9 x minor road crossings 5 x easement crossings 1 x bridge crossing 1 x ford crossing 1 x Trail head Crossing at Byrnes St	1 x major road crossing 9 x minor road crossings 5 x easement crossings 2 x ford crossing 1 x Trail head Crossing at Byrnes St	1 x major road crossing 9 x minor road crossings 5 x easement crossings 2 x ford crossings 1 x Trail head Crossing at Byrnes St	Stabilise 2 creek crossings No major or minor road crossings
Signage and Wayfinding	Wayfinding and interpretive signage along trail	Wayfinding signs, warning signage at old bridges and crossings.	Wayfinding and interpretive signage along trail	Wayfinding signs, warning signage at old bridges and crossings.
Trail Heads	4 trail heads (one main trail head and three secondary trail heads) Includes additional parking developed at Centennial Park	3 trail heads (one main trail head and two secondary trail heads)	3 trail heads (one main trail head and two secondary trail heads)	No trail heads to be provided.
Stage 1 Construction Cost (Mareeba CBD to Mareeba Airport)	$1,356,420	$1,043,420	$500,000	$21,000
Stage 2 Construction Cost (Mareeba Airport to Walkamin)	$242,500	$232,500	$242,500	$144,400
Construction Costs	**$1,598,920**	**$1,275,920**	**$742,500**	**$165,400**

Note: very recent construction tenders received by MSC for road works have indicated that the cost of Options 1-3 could increase by around $200,000.

As the main trail head is to be located at Centennial Park and take advantage of the existing café, visitor centre, parking water and amenities, the crossing treatment for Byrnes Street will be critical. Council has estimated up to $250,000 for this treatment. As the rail trail could become the principle cycle network and the road crossing involves state responsibilities it is anticipated that DTMR may assist with funding.

If funding permits, it would be preferable to construct the entire trail as one project, as this will realise maximum economic and community benefit to the region. However, should this not be achievable, it would be possible to construct the trail in stages, either as per the two-stage approach above or an alternative staging program as required, dependent on funding availability.

If a staged approach is undertaken it is recommended that the following program be implemented. It is important to note the staging strategy should only be used as a guide and where there are opportunistic funding streams available these should be pursued.

Table 5: Possible Expanded Staging Approach to Construction

Section	Rationale
Section A, B & C	Section A should be of the highest priority, as this would provide a connection to McIver Road and the main streets of Mareeba, including Rankin St, providing a safe commuter route between schools, places of work and residential properties. This should include the Highway crossing to enable safe crossing of highway for residents travelling to and from Mareeba towards Atherton. Section B & C would connect a major residential development (Wylandra Estate) and point of employment (Mareeba Airport).
Section D and E	Section D requires work on the existing trail surface to remove ballast and would further encourage users between the two LGA's and visitors to use the trail by improving the surface. Section E has a creek crossing that would require works to treat. However, this is an important link to connect Mareeba to Walkamin and further to Atherton. Ensuring a suitable treatment of the creek crossing will enable use of the trial during and after wet weather event.

Figure 1 The trail heading towards the Airport from McIvor Road

1.5 Rail Trail Management

1.5.1 Management Model

Different models are operating in Australia. Usually the local council is the trail "owner" either under lease from the state agency or in some cases as a trustee or freehold landowner. However, planning, management and maintenance often involves collaboration with community-based organisations.
The main management models for rail trails include:

- Council managed – Council is solely responsible for the management and maintenance of the trail, infrastructure and approving "non-ordinary" (i.e. event) use of the trail.
- Collaborative C&C (Council and Community)- Council manages the rail trail but collaborates with one or more community groups or other agencies in promoting and maintaining the trail.
- Community-based – a community based not for profit group (either established or formed for the purpose) manages and maintains the trail. An agreement is established between the council and the group via a lease or other mechanism. The agreement includes details on respective responsibilities and resource requirements. Most often the council would have representation on the group's management committee.

Mareeba Shire has expressed a preference for community based and collaborative approaches. A community-based model could be viable if a new incorporated, not for profit, group could be established within the community and that requires sufficient interest and impetus in the community for such an organisation to be sustainable.

During the community and stakeholder engagement for the project, a number of groups and organisations expressed interest in supporting the trail and collaborating on aspects such as promotion, history, management and maintenance. There were no established groups who were willing or capable of, taking on the trail management. It is possible these groups, along with individual community members, could be the catalyst for the development of a new community-based management entity. There would need to be an investment of time and support from council to establish such a group. There are strong community development benefits in such an approach which potentially would deliver a more creative, flexible and sustainable management model for the rail trail.

Although the establishment of community-based management has some uncertainties and may take time to establish it should be the end goal if the project proceeds. In the interim, a collaborative model with council and community groups working together to establish and manage the trail is recommended.

Therefore, the most feasible approach is for Council to manage the trail initially with a view to establishing the collaborations and community capacity to transfer to a community managed model.

1.5.2 Operational Cost

The operational cost of the rail trail has been estimated based on current costs, advice from Tablelands Regional Council and reviews of other studies. Largely trails can be managed around reactive maintenance (i.e. responding as maintenance issues arise) and a few core activities such as vegetation maintenance.
An average annual cost of around $85,000 to $90,000 has been used for modelling. This does assume some level of user group and community support in monitoring the trail and identifying issues. It is also likely that some years will require less and some more as much depends on the level of use and climate risks such as fire and flood. The Department of Transport and Main Roads have indicated they will continue to contribute towards vegetation maintenance.

The operational budget is comprised of:

Vegetation maintenance	$ 30,000 - 40,000
Trail surfaces and crossings	$40,000- $45,000
Signage and power	$5,000

1.6 Assessment of Feasibility and Recommendations

The development of the Mareeba to Walkamin Rail Trail is considered feasible, however the sourcing of capital for the project may be challenging when considered against other priorities in the Shire.

There are four development options proposed, all options will return a benefit. The greatest benefit to the community and local economy will be realised from implementing Development Options One or Two.

The key factors supporting the feasibility of this project are:

- There is already some use of the old trail and community engagement indicated strong community support for the project.
- There are a several community groups who would be willing to be involved in supporting the operation and management of the trail.
- A number of partnerships with other organisations and agencies for the maintenance, promotion and management of the trail were identified.
- The trail will complete a link to Atherton and beyond and will add new product to active tourism opportunities in the region.
- Cost Benefit analysis of the project indicates a positive return of 1.5 to 1.9 based on a conservative case.
- The trail will improve safety for school students and commuters by offering a separated cycle corridor and an alternative to the dangerous Kennedy Highway.
- The trail provides multiple benefits including recreation, health and local economy.
- The development of the trail can build on the existing infrastructure at Centennial Park and support additional activity for the Mareeba Heritage Museum and Visitor Centre increasing sustainability of the centre.
- The Rail Trail adds to the active transport network for Mareeba and will be able to link to future recreation trails that will expand active tourism potential.

The Major Recommendations Arising from the Study are:

1. Planning for the trail should continue to seek external funding to support the development of the rail trail and Council should consider what level of capital contribution may be possible to help progress the project.
2. The preferred development option is Option One, however Options 2 and 3 will also provide significant benefit.
3. Negotiations should commence with the Department of Transport and Main Roads (DTMR) to designate the corridor as the Principle Cycle Network (PCN) and for funding to be expedited for the Airport to Mareeba section, due to the safety concerns for students and others.
4. A community-based trails committee should be established and empowered to drive the development of the trail and support council in securing capital funding for the trail development.
5. In the short term, basic directional signage should be established along the trail, and improved vegetation maintenance should occur 100m either side of the highway crossing at the Airport to increase safety.
6. Enter negotiations with DTMR to determine an acceptable design of the crossing between the main trail head at Centennial Park and the rail trail. As a proposed PCN it is proposed that funding for the crossing could be the responsibility of DTMR.
7. Development of the trail is desirable in a single stage, however, if limited capital funding requires staging then the priority section is from Mareeba to the Airport.
8. Management of the trail once established should be under a Community Based Committee model.

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2. Introduction

Mareeba, along with the majority of the wider Tablelands and Cairns Region is becoming an outdoor recreation and cycling destination. With major events including the RRR Mountain Race, Union Cycliste Internationale (UCI) Mountain Biking (MTB) Championships at Smithfield, continued investment in trails on the Tablelands and the recent commitment to build the Wangetti trail, the potential to capture and grow the outdoor recreation tourism market in a regional context continues to grow.

Through funding from the Department of Transport and Main Roads, Mareeba Shire Council is investigating the feasibility of developing a 15 km rail trail on the old rail corridor, from Rankin Street in Mareeba to the township of Walkamin. The study has investigated the possible trail development options, management options and the feasibility of the potential model. The investigation focused on the following areas:

- Surface type
- Road crossings
- Signage
- Maintenance responsibilities
- Management opportunities
- Partnerships and Funding opportunities.

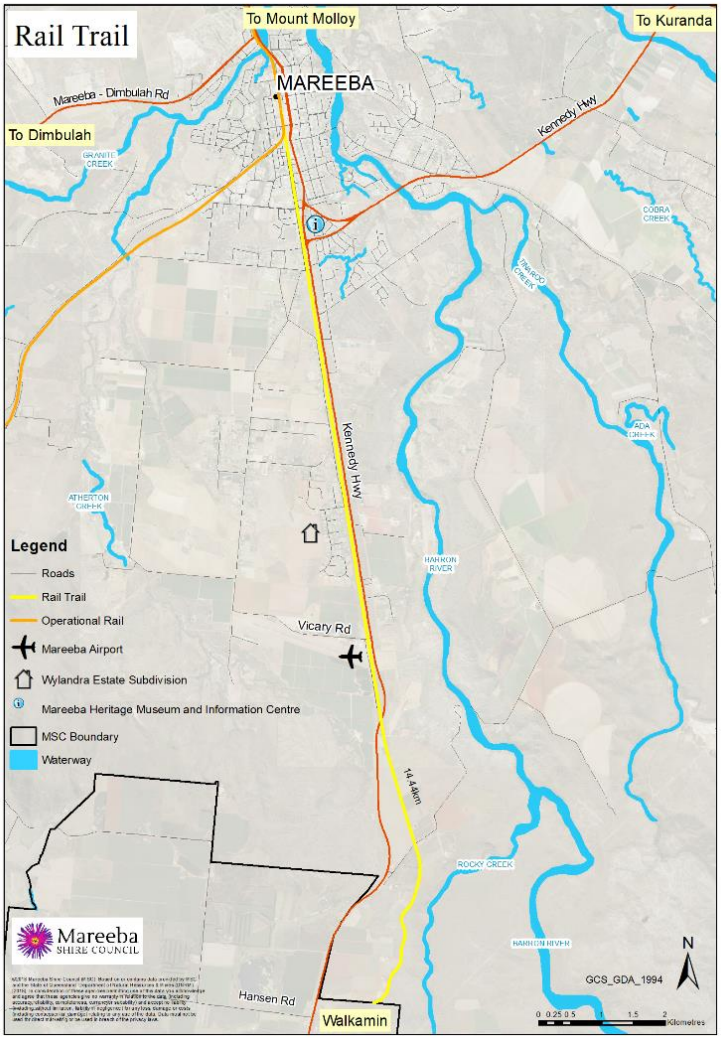

Figure 2: Location of Rail Corridor (yellow line)

2.1 Study Methodology

Inception and background research → Trail Audit → Consultation → Draft Concept Plan and Feasibility Analysis → Review and Final Concept plan and Feasibility Analysis

3. Background

3.1 What is a Rail Trail?

Rail Trails Australia describes a rail trail as *"shared-use paths recycled from abandoned railway corridors. They can be used for walking, cycling and horse riding"*[2].

These trails come in many different forms and can be constructed from a variety of surface types, and, if the corridor provides, opportunities to use existing rail infrastructure, including bridges and railway cuttings enhance the experience for users. Rail trails are now a key "active tourism" drawcard with tourists travelling across the globe to ride or walk trails in desirable destinations.

New Zealand has developed numerous rail trail products that underpin vibrant tourism markets across the South and North islands. In Australia rail trails drive tourism in a number of regional areas including Victoria, Western Australia, Tasmania, NSW and Qld. In Far North Queensland, the continued development of the Atherton-Walkamin, Atherton-Herberton (in progress) and Atherton-Tolga Rail Trails add to other outdoor and adventure/ active tourism product to further enhance the region's profile as a destination. Rail Trails Australia's Establishment Guide also highlights that "r*esearch indicates that the money spent by visitors to rail trails is of significant financial benefit to the local community*".

3.2 Planning Context

The following documents were reviewed to understand the planning context across national, state, regional and local levels.

Table 6: Document Review

Impact Level	Source	Key Information	Potential Impacts
Federal	Mountain Bike Australia (MTBA) Press Release	MTBA was officially been recognised as a National Sporting Organisation (NSO) by Sport Australia in 2017. However, MTBA is currently an unfunded NSO.	Increased opportunity for funding for MTBA to promote the growth of MTB
	The Future of Australian Sport: Megatrends shaping sports sector over coming decades *Australian Sports Commission*	A number of the mega trends identified in this document have relevance to mountain biking. • A perfect fit – individualised activities are on the rise. • More than sport – the broader benefits of sport, including crime prevention, social development and inclusion are being increasingly recognised. • Everybody's game – an ageing population, means sports will need to cater for senior citizens	These trends are likely to guide federal (and all other levels) in their planning and funding for sport and recreation into the future. A number of the trends have strong links and opportunities for cycle-based tourism and increased participation in outdoor recreation including activation of rail trails.
State	Queensland Ecotourism Plan 2016-2020 *Dept. National Parks, Sport and Racing*	Vision: Queensland is an internationally celebrated ecotourism destination, delivering world-class interpretation and experiences that support the conservation of special natural places and unique Indigenous and cultural heritage.	Creating a link between Atherton and Mareeba will increase the potential tourism opportunities for both Mareeba Shire Council

[2] https://www.railtrails.org.au/what-are-rail-trails/introduction

Impact Level	Source	Key Information	Potential Impacts
		Strategic directions: • Driving innovation in ecotourism experiences. • Showcasing the world-renowned Great Barrier Reef. • Stimulating investment in new and refurbished • ecotourism opportunities. • Expanding authentic Indigenous ecotourism • experiences. • Promoting Queensland's world-class ecotourism experiences.	and Tablelands Regional Council. Multi-day walk/ ride opportunities, especially those linking across communities in desirable destinations would be priority opportunities for investment.
	Queensland MTB Strategy 2018 *MTBA*	Commissioned to gain an understanding of the existing and projected demand for MTB trails, identify gaps, constraints and opportunities, and provide strategies to guide trail investment decisions. Provided a Strategic Prioritisation Framework using a Multi Criteria Analysis incorporating criteria under three main categories: • **Scale** – existing and future populations, proximity to airports and highways, existing tourism market, additional activities and desirability. • **Opportunity** - potential land availability, elevation range and spread, landform character and trail diversity and opportunity. • **Deliverability** – established demand, existing trail and infrastructure supply, governance, land holder and stakeholder objectives and planning constraints and sensitivities. The Tropical North Queensland Region was given high priority and the strategy identified the Tropical North Queensland Regional Mountain Bike Strategy as the key document and recommends its implementation.	It will be critical to ensure key links across the region are made to establish a regional cycling product. This suggests the integration of the rail trail across the Tablelands region is a positive for all councils.
	Queensland Cycling Strategy 2017-2027 *Dept. Transport and Main Roads*	This document outlines a direction for cycling over a 10-year horizon. The Mareeba-Walkamin Rail Trail aligned with four of the five priorities of the Queensland Cycling Strategy: **Priority 1:** Building and connecting infrastructure to grow participation consult, collaborate on network improvements, infrastructure projects and maintenance needs. **Priority 2:** Encourage more people to ride	The Strategy acknowledges the economic opportunities cycling tourism presents and expresses commitment to supporting efforts to deliver these opportunities.

Impact Level	Source	Key Information	Potential Impacts
		Provide up to date and consistent signage to help way finding. Promote and support technologies to make it easier to plan and navigate. Prioritise education programs that reach people who need more support to start riding e.g. children, women, older people. Promote cycling and its benefits. Support events, education and behaviour programs. Adapt regulations to safety requirements for e-bikes will enhance safety for all users. **Priority 4:** Powering the economy Getting more people cycling contributes to the economy through health, employment, tourism and local businesses. Support cycle tourism – funding to build and promote rail trails and touring routes. Provide advice to help regions identify and develop new trails and investigate ways to support growth of active tourism. Support communities to identify and grow cycling events to attract visitors. Investigate opportunities to make holding cycling events easier. **Priority 5:** Using research and data in decision making Will use research and data as the basis of decision-making and investment in cycling infrastructure, programs and education.	
Regional	Tropical North Queensland Regional Mountain Bike Strategy	The Strategy identified a number of possible 'hero trails' that have the potential to attract a significant level of new mountain bike tourism. One of the options was improving the Tablelands linkages. The aim was to link existing resources across the Tablelands and Cairns together, with the link between Atherton and Mareeba identified as a priority to achieve this goal.	Connecting the region's 'hubs' will be critical in establishing Tropical North Queensland as a 'must visit' cycling destination, which includes connecting Mareeba to Walkamin then to Atherton.
Local	Davies Park Master Plan	As part of the study, an existing non-formalised trail was identified to be formalised, connecting Bicentennial Lakes to Mountain Goats Skills Park.	Future implementation of proposed trail plans, such as the Sunny Savannah Track and the Mareeba City Loop, would further increase the opportunities serviceable across the Tablelands.
	Atherton Tablelands Rail Trail Feasibility Study	The study did identify the link between Atherton and Mareeba as an important commuter link.	The Atherton to Walkamin section of the identified link has been

Impact Level	Source	Key Information	Potential Impacts
	Tablelands Regional Council, 2008		completed by Tablelands Reginal Council. The Mareeba to Walkamin section is the missing link connecting the two regional centres.

3.3 Demographics

The Mareeba LGA has a population of 21,557 and a median age of 43 years of age. However, as the rail trail will connect to the neighbouring township of Walkamin, and further to Atherton, the project has the potential to provide an active transport link for approximately 30,000 residents on the Tablelands and a wider recreational user group base across Cairns, Tablelands and Mareeba Council area.

3.3.1 Population Characteristics of Mareeba (2016)

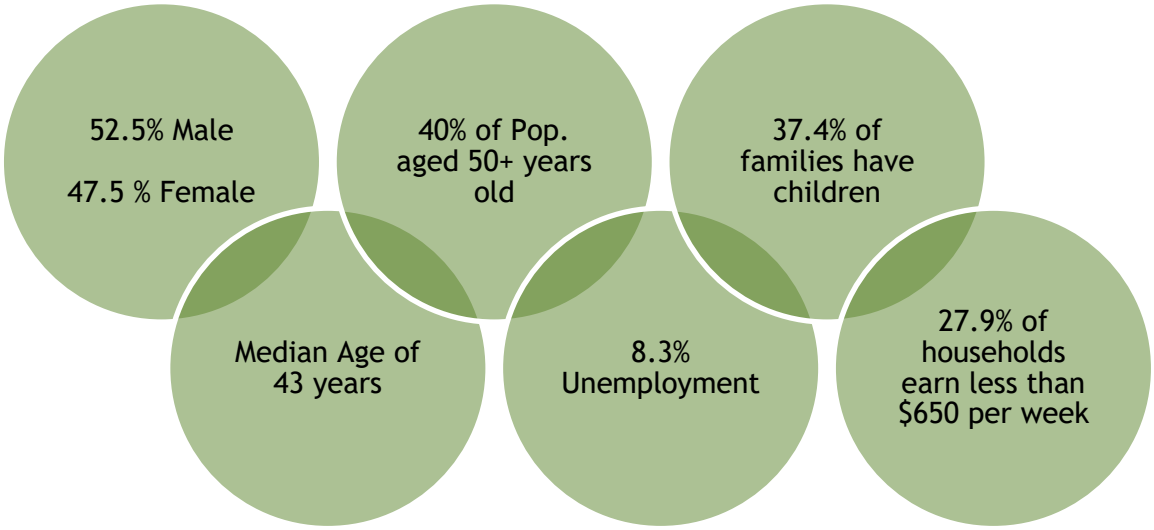

Figure 3: Population Characteristics of Mareeba LGA[3]

[3] https://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/LGA34880

4. Rail Trail Trends

4.1 Recreation trends in Walking and Cycling

The National Cycling Strategy 2011-2016 sets out the objective to double cycling participation by Australians between 2011 and 2016. To measure performance towards this objective, the Australian Bicycle Council commissions a National Cycling Participation Survey which has been conducted in 2011, 2013, 2015 and in 2017.

In June 2017 the Australian Bicycle Council released the results of the National Cycling Participation Survey 2017. The survey shows that around 3.74 million people in Australia ride a bicycle for recreation or transport in a typical week.

The survey provides estimates of cycling participation (measured in the past week, month and year) across Australia and for each state and territory.

Key findings from the 2017 study were as follows:

- 15.5% of the Australian population had ridden in the previous week, 21.8% had ridden in the previous month and 34.2% had ridden at least once in the previous year.
- Participation rates are highest in the Australian Capital Territory and the Northern Territory.
- Young children have high levels of cycling participation, with 43.8% of males and 37.4% of females aged under ten years having ridden in the previous week. Male participation increases in the 10-17 year age bracket, with 50.4% having ridden in the previous week. However, female cycling participation falls markedly in the 10 to 17-year age bracket, with 16.9% having ridden in the previous week.
- Of those who cycled in the past month, a much higher proportion did so for recreational purposes (80.6%) compared to those who cycled for transport purposes (30.7%). This divide is not significantly different to 2011 when 80.9% of those who cycled did so for recreational purposes and 32.2% did so for transport purposes.
- Males are significantly more likely to participate in cycling than females with 20.4% of males and 10.7% of females having ridden in the past week.
- Among those who had ridden in the past week, the average time ridden was 2 hours and 32 minutes.
- Around 55.8% of households have at least one bicycle in working order.

Between 2001 and 2010 data on participation in sport and recreation was collected via the Exercise, Recreation and Sport Survey (ERASS)[4]. Between 2011 and 2014, similar data was collected by the ABS[5], however in 2014 the ABS decided to cease collection of sport and recreation data. The AusPlay[6] survey was subsequently introduced by the Australian Sports Commission to collect data that would:

- Provide insights to help sports grow participation and track trends;
- Provide data that informs government investment, policy and program delivery; and
- Identify and describe links between sport participation and other influential factors.

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[4] Participation in Exercise, Recreation and Sport Surveys (ERASS). 2003, 2006 and 2010 survey periods. Funded by the Australian Sports Commission and state and territory government agencies responsible for sport and recreation through the Standing Committee on Recreation and Sport. Surveys are conducted of persons aged 15 and over.

[5] Participation in Sport and Physical Recreation, Australia. Produced by Australian Bureau of Statistics for the Committee of Australian Sport and Recreation Officials (CASRO) Research Group

[6] Ausplay Survey. Australian Sports Commission. Most recent survey period January to December 2016 (data released April 2017)

The AusPlay Survey collects sports participation data for children aged 0-14 and adults aged 15 years and over. While it supersedes previous data collection undertaken by ERASS and the ABS, due to differences in data collection methods, the AusPlay data should not be compared with ERASS or ABS data.

4.1.1 Historical Trends (15 and over)

Between 2001 and 2012[7], walking and cycling were activities frequently participated in by Queenslanders aged 15 years and over. It regularly features in the top 10 activities participated by adults in the ERASS survey, which was later replaced by the AusPlay Survey. Walking was the most popular activity during that time.

4.1.2 2018 Data (15 and over)

According to the latest AusPlay data, the top activities participated in by Queensland adults are:

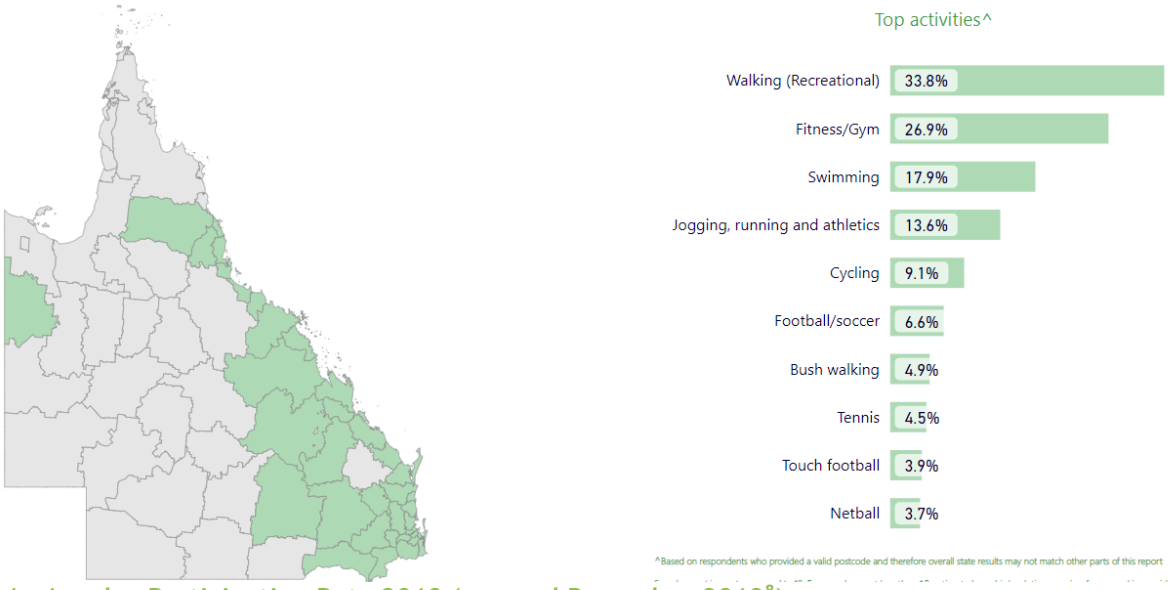


Figure 4 - Ausplay Participation Data 2019 (sourced December 2019[8])

Participation data in Mareeba had sufficient data for two activities:
Walking 38.4%
Fitness/Gym 28%

4.2 Benefits of Rail Trails

4.2.1 Economic Benefits

Numerous contemporary studies have demonstrated that trails generate economic benefit for the communities in which they are located, and that local communities and businesses benefit directly from the development of rail trails. Rail trail users are known to visit local stores and stay in the local accommodation. A review of research into the economic benefits of rail trails is summarised below.

- The Victorian Trail Strategy noted that trails have great potential to boost regional economies and generate business opportunities and jobs if they are developed into quality, well-marketed tourism experiences. The following benefits were identified:

7 2014 ABS data only included Australia as a whole and not State data.

8 https://app.powerbi.com/view?r=eyJrIjoiYzJiNzYxZDEtOTAzOC00ZjI2LWIzYjYtMDk0MTM1N2I1ZjkwIiwidCI6IjhkMmUwZjRjLTU1ZjItNGNiMS04ZWU3LWRhNWRkM2ZmMzYwMCJ9

- Economic – nature-based tourism, trail-based events and commercial activities provide economic benefit through visitors, competitors and participants spending in local townships and through job creation.
- Environment and heritage – connecting users to heritage values and providing opportunities to experience a cultural and natural environment.
- Social – trails encourage social interaction, physical activity and improved health and provide opportunities for community and voluntary involvement in trail maintenance and conservation.
- Liveability – trails can enhance the liveability of an area through providing well planned and connected active transport networks and providing inviting spaces and opportunities to connect with nature.

- **A study on the economic impact of three rail trails in Victoria found that, on average for every visitor day at the rail trail, $51.10 of expenditure is injected into the economy.**
- A separate study found that the average expenditure per person per day for the Murray to the Mountains Rail Trail in northern Victoria was $483.00, with the majority of cycling users spending two to three days cycling the trail. **The same study also found that the overall economic contribution of the rail trail had increased from $203 in 2003 to $483 in 2006**.

4.2.2 Social Benefits

- Trails and greenspaces give the opportunity for walking and hiking groups to be formed.
- Safe dedicated walking trails allow for increased participation in social walking groups which reduces social isolation and increases overall mental health.
- Groups allow for new connections to be made within the community giving rise to a greater sense of community togetherness.
- This is extremely beneficial to older demographics within communities as studies show that creating new connections in later life carries a higher benefit for mental health and well-being than for those still in full time employment or study.

4.2.3 Health Benefits

- Access to trails and greenspace has been shown to be an important pathway to better physical and mental health for individuals and communities.
- Provide places for active recreation, space to relax, and places to meet other people and socialise.
- Large green spaces such as bushland and parks, containing walking trails, are positively associated with better physical function of residents - as living within close proximity to these spaces encourages users to be more physically active, thus lowering the risk of diseases such as cardiovascular disease.
- Having an area that can be utilised for social interaction acts as a mediator to reduce feelings of loneliness and lack of social support.
- Valuable aid to maintaining positive mental health for those who live nearby.
- Cycling and walking trails can reduce the need for car trips by providing active transport options, improving health of residents, and air quality.

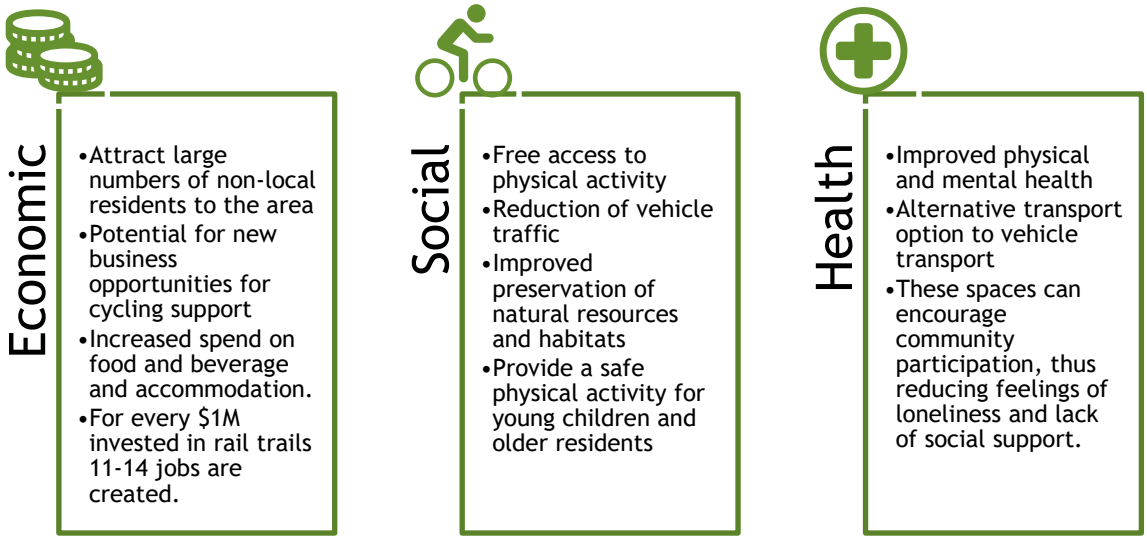


Figure 5: Benefits of Rail Trails

5. Existing Trail Corridor Analysis.

A detailed trail corridor analysis and trail audit was undertaken which identified the following opportunities and constraints.

5.1 Opportunities

5.1.1 Bridges and Creek Crossings

The smaller of two bridges along the trail presents an opportunity to use a prefabricated bridge to replace cover the existing bridge and would create a unique element along the trail. Although the larger bridge is unlike to be used in any trail development, it provides a significant feature along the trail, and signage could be used to highlight the history of the rail line.

5.1.2 Commuter Links

The trail has the potential to provide a safe, off road link between Mareeba and Atherton, as well as a commuter link from the Airport, St Stephens and Wylandra to the Mareeba CBD. The existing corridor is used by residents in its current condition which further highlights the potential of a developed rail trail, especially if portions of the trail were developed to a higher standard, using bitumen, to facilitate increase commuter demands. Beyond the trail there are also nearby points of interest, particularly at the Rankin St end. Suitable signage at this end of the trail would further enhance the commuter strengths of the trail.

As a commuter link, the priority sections are to McIver St and St Stephens School and further to Wylandra Estate and the Airport. This use can best be enabled with the proposed sealing of the trail surface. Ensuring most northern sections are sealed will also provide a safe link to the Mareeba High School, Mareeba Primary School and St Thomas School. These would be accessed through a combination of Mareeba Town loop and the Rail Trail.

5.1.3 Heritage and Culture

The location of the Visitor Information Centre provides a number of unique opportunities for the rail trail. Firstly, is the existing café and amenities provide a trail head opportunity within an existing facility, reducing the capital costs of the trail. The VIC could also provide information about the trail and nearby attractions that can be access from the trail.

The trail also passes a number of sites that could be highlighted as potential stopping points, such as the Mareeba Airport and the Warbirds Museum. Incorporating these features into the trail and advertising them within the MHMVIC will promote existing businesses, which could invest back into the trail.

The linkage between the MHMVIC and the heritage centre and local history can greatly enhance the appeal of the trail.

5.1.4 Links to other features

There are various nearby features and points of interest that could be leveraged to increase the attractiveness of the trail. As a commuter link the trail would connect all of Wylandra Estate to the CBD and provide a safe passage for a number of students and workers.

There are also natural features that can be access, including Davies Creek from Henry Hannam Drive, although this would be a significant distance to travel. The trail could also kick start other walking and cycling trails, including the Mareeba Mountain Goat's plan for the Sunny Savannah Trails, and these could be accessed within a day's ride from residents across the tablelands.

5.2 Constraints

5.2.1 Minor Easement Crossings

There are a number of easement crossings, both formalised and crossings made by nearby residents for access to their property. In many spaces a single easement could be used across the various sections and all illegal crossings closed using moon rocks or a similar product. A treatment would also need to be applied to the section between McIver Road and Costin Street to stop vehicles crossing or parking on the trail.

5.2.2 Road Crossings

There are multiple minor road crossings, particularly at the Mareeba end of the corridor. It will be important to ensure that the onus is put on the trail users to slow and stop before crossing.

5.2.3 Highway Crossing

There is one crossing of the Kennedy Highway in a 100km/h zone. This crossing currently has limited vegetation maintenance, which is impacting the visibility for trail users. Although it is only a 2-lane highway it will be critical that any treatment forces trail users to stop before the crossing, and that road users are aware of potential trail users crossing ahead.

The second significant crossing is at the proposed main trail head (Centennial Park) in Mareeba. The trail head is on the eastern side of Byrnes Street and the trail on the west. Centennial Park is the logical choice for the main trail head as it already has all the facilities and amenities required (e.g. café, water, toilets, parking, information centre). Speed limits here are 60 Km/h but there are high vehicle volumes on this stretch of road (approx. 13,000 per day) and some form of crossing treatment is required to ensure safety of users.

5.2.4 Creek Crossings

There are 2 creek crossings within the corridor. One is a minor crossing which already being crossed by commuters. A simple ford crossing would provide a weather resistant crossing. The second crossing is significantly larger and is currently used by 4WDs, which is damaging the trail. A suitable treatment will need to assist in making the crossing weather resistant, however it is likely that any crossing treatment would need to be investigated after a major weather event. It will also be important to ensure that vehicles are restricted from using this section of the trail.

5.2.5 LGA Boundaries

The corridor crosses the boundary between Tablelands Regional Council (TRC) and Mareeba Shire Council, which will impact on the maintenance, consistency of trail surface and management if the Mareeba section is to be developed. It will be important that discussions with TRC are undertaken to reach an agreed standard of the trail at this point, suitable signage to indicate that the trail is crossing the LGA boundary and who the applicable manager is.

5.2.6 Vegetation maintenance

Council currently undertakes maintenance of the corridor north of McIver Road. The southern section is overgrown and creates some safety concerns, particularly at the highway crossing. It will be critical to the success of the rail trail that a vegetation maintenance plan is developed that both ensure the rail trail is attractive to visitors and reduces any safety concerns.

5.2.7 Trail Surface

As the corridor is currently not a developed rail trail some sections of the 'trail' is in poor condition. A section south of the Mareeba Airport has significant remnant ballast rock which would need to be removed before any other surface treatment was applied. Similar to the vegetation management plan it will be important that a maintenance plan be developed for the maintenance of the surfaces, particularly after significant weather events and high use events.

6. Engagement Overview

The engagement process for the feasibility study included the activities for both the general community and key stakeholders, as outline in the figure below:

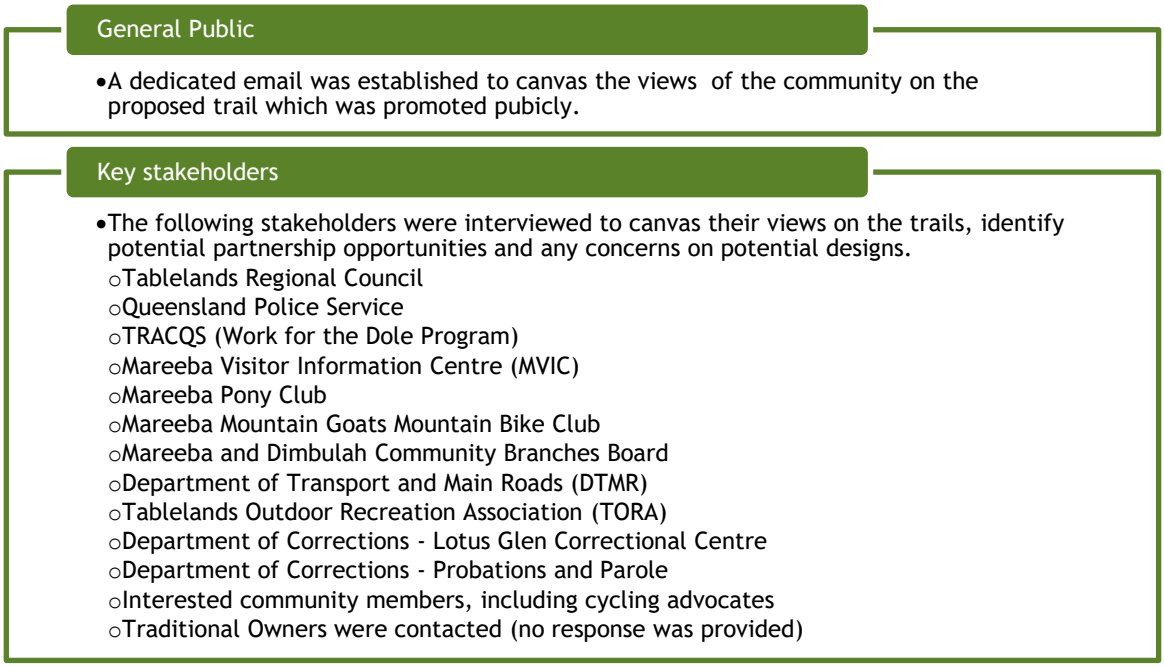


Figure 6: Engagement activities and key stakeholders

6.1 Key Stakeholders

6.1.1 Tablelands Regional Council

Tablelands Regional Council (TRC) recognise the importance the rail trail plays in the overall tourism product mix for adventure and active tourism in the region. This proposal has the potential to expand the existing Atherton to Walkamin trail product and complement the current development of the Atherton-Herberton link (developed by the Tablelands Outdoor Recreation Association (TORA). TRC staff acknowledge that the Walkamin-Mareeba trail is the missing link in connecting a large number of trails across the region and would also provide a safe commuter option for residents of both Councils.

TRC's management and maintenance of the rail trail leading into Walkamin is not currently at a high standard, however this is in part due to the Walkamin-Mareeba section of the trail not yet being formed and therefore limiting the usage of the trail. However, TRC staff do see the economic benefit of completing the Mareeba-Walkamin section of the trail, as it is seen as a priority link in marketing the region as a MTB and outdoor recreation tourism destination. TRC would also like to see a more regional approach, including Cairns and Cassowary Coast to market the region as an adventure sport destination.

6.1.2 Queensland Police Service

Overall the QPS were supportive of the development of a trail. The areas of concern for QPS were poor visibility of any section of the trail that backed on to residences which may provide a location for anti-social behaviour, and the crossing at the Kennedy Highway. The QPS were also supportive of moving cyclists and walkers from the road shoulder, and establishing the safe commuter link the trail would provide for school students at St Stephens and those in Wylandra heading towards Mareeba.

6.1.3 TRACQS (Work for the Dole Program)

Although Rise Ventures and TRACQS are interested in participating in the construction of the rail trail, ongoing maintenance is generally outside the scope of the program as it must be contracted at the award rate. An alternative solution for ongoing maintenance, identified by TRACQS was a hosting arrangement, in which Council would enter into an arrangement to host workers for a training period, with the intention of the hosted person to be employed at the end of the period. Hosting would be subsidised via a fee from the agency.

TRACQS, who took over the Work for the Dole program in July 2019, are supportive of the proposal and believe there is potential to assist in the construction of the trail and the work involved in maintenance of the trail.

6.1.4 Mareeba Heritage Museum and Visitor Information Centre (MHMVIC)

The MHMVIC supports the location of the main trail head located next to the Jackaroo Motel, across the road from the MHMVIC. Anecdotally the MHMVIC has seen an increase in the number of visitors, particularly the "grey nomads", asking where they can ride bikes in the Tablelands. The MHMVIC has also identified the need for a regional approach to trail development and marketing, particularly with the regional development of trails, crossing multiple local government boundaries.

The MHMVIC identified potential issues with presenting the rail trail as part of a tourism product, namely the lack of accommodation available in Mareeba. However, the development of the rail trail will open the potential for business development opportunities associated with increased cycling and walking tourism.

The MHMVIC indicated that they are strong supporters of the trail and are willing to work with the trail manager to make the MHMVIC a central point of contact, including establishing commercial opportunities such as bike hire, maps showing links to points of interest from the trail, and restructuring that MHMVIC to better support trail users. The MHMVIC also highlighted the potential to develop a levy system, where portions of sales on trail related sales could be paid to the trail manager to contribute towards maintenance and promotion. Details would need to be discussed between the MHMVIC and the trail manager.

6.1.5 Mareeba Pony Club

The Mareeba Pony Club are generally supportive of the rail trail and are currently using the corridor for social rides. The major concern for horses, particularly on existing rail trails was the interaction between bike riders and horse riders, with the need for bike riders to announce their presence when passing a horse. They also favoured good multi-use design that provided "b" lines for horse riders separating them from other users wherever possible.

For any creek crossings, gabions are not a suitable crossing for horses as they create a safety hazard for 'shoed' horses. The club also identified the potential use of the trail by horse and carts. These users would require additional consideration, particularly at road crossings, to allow sufficient space to manoeuvre the cart through barriers and slowing points, without allowing vehicles an entry point onto the trail.

The Pony Club also identified that it would like to be able to park up to 15 horse floats near a key trail head and agreed that it is most likely not suitable for the parking to be with the main parking area. They would like to have access to drinking water and a tap to fill buckets for the horses.

In reference to the possibility of assisting in maintenance or management of the trail there were concerns around the liability and insurance, and how that would be managed by volunteers along the trail.

6.1.6 Mareeba Mountain Goats Mountain Bike Club

Overall there was strong support for the development of the trail, including initial discussions around the best approach to develop a community organisation to assist in the management and maintenance of the trail. The main concerns for the MMG relate to the cost incurred by the group to undertake the management and maintenance of the trail. For example, the club already spent approximately $35,000 last year at Davies Creek mountain bike trails on maintenance (equipment plus volunteer hours at $50 per hour).

Council support may also be required to identify solutions to reduce the insurance costs that may be incurred through public liability.

The Club sees the rail trail as an important link connecting the major townships in the Tablelands (Mareeba and Atherton) and would provide the potential for developing a regional trail network across multiple local government areas, including Tablelands Regional Council and Cairns Regional Council. The members identified that within the Mareeba LGA there are existing links to Davies Creek and Emerald Creek, through on road options off Henry Hannam Drive, and the potential to link to the Sunny Savannah Trails, should they be developed in the future.

This link may also encourage more commuter riders between the townships and provide a safe route for programs like 'bike bus', which encourages students to ride to school. The club identified that, although cycling may be larger in Atherton, many riders wanted to access links to Mareeba and the surrounding area. This would be complimented by possible events that would make use of the trail, including:

- Audax;
- Croc Trophy;
- Cairns to Karumba; and
- Reef to Reef and RRR events.

6.1.7 Mareeba and Dimbulah Community Branches Board (Bendigo Bank Community Benefit Fund)

The Mareeba and Dimbulah Community Branches Board is a community project funding source across the Mareeba and Dimbulah area, and have in the past expressed an interest in supporting the proposed rail trail. There is strong support from the chair for the trail, particularly if the trail could provide suitable commuter opportunities for the community. Although the Community Board could not guarantee any funding for ongoing maintenance of the trail, it did suggest that a community organisation could apply annually to the community benefit fund, for funding to assist with maintenance.

The board also identified a number of other, similar groups and organisations that could assist a community group in maintaining the trail, either financially or in-kind support. These included various work for the dole programs, Lions Club, Rotary, Sports North, Mareeba Mountain Goats Mountain Bike Club, Mareeba Pony Club. However, the Community Board raised concerns about the longevity of basing a management model on a community run organisation given that the rail trail would be significant regional tourism infrastructure and there could be potential long-term impacts on viability if the rail trail was not managed by Council and the community model struck difficulties with recruiting volunteers as so many are currently.

6.1.8 Department of Transport and Main Roads (DTMR)

As custodians for the corridor and funding contributors for this study, DTMR, were engaged to discuss a range of aspects about an initial concept plan. The Department indicated that they would continue to provide funding, although they were unclear on the amount, for vegetation maintenance along the alignment. Council is currently undertaking vegetation maintenance under such an agreement for a section of the rail trail corridor, and it is reasonable to expect this to increase if the allocated area is increased.

DTMR were consulted to refine the concept plan for a safe crossing of the Kennedy Highway, and the final design needed to consider a slowing treatment, on-trail signage, on-road signage, clearing on the north western section of the trail crossing, altering the vertical alignment to meet the roads edge.

The proposed main trail head at Centennial Park and the MHMVIC would also need considered design of a future crossing in that area and subsequent discussions with DTMR have indicated that a substantial treatment with road widening , a refuge island in the middlea and lighting is required. Future supplementary crossing at the proposed traffic signals at the corner of Byrnes and Costin Street was also discussed.

The Department were also very supportive of the rail trail forming part of the overall Principle Cycling Network, and indicated that due to regional circumstances, sections could remain unsealed in the short term. Further discussions would need to be held with DTMR when detailed design is available. DTMR also noted that there was an existing funding program (Rail Trail Local Government Grants program to support local councils to fund rail trail developments.

6.2 General Community Views

The community was invited to make comments to the project team via a dedicated email address. A total of 43 emails were from the community, with all of those indicating their support for the proposed rail trail. No emails indicated opposition to the development of a rail trail. The general community also identified that there may be a large number of users that are currently avoiding the trail as it is not formalised, or who do not have access to the infrastructure that the trail would provide.

Figure 7: Existing Bridge in Section E, north of Walkamin

7. Economic Benefits of the Mareeba-Walkamin Rail Trail

To determine the potential economic benefits of the proposed rail trail Michael Connell and Associates (MCa) were engaged to provide an economic impact assessment of the trail. The full MCa report can be found in Appendix 1.

The economic impact assessment is designed to show the scope and potential size of the benefits to the region, which could be realised with the development of the Mareeba-Walkamin Rail Trail.

The trail will be used by walkers and MTB riders. The economic modelling in this report is based on estimates of annual users of the trail and other assumptions that are utilised in quantifying spending in the region. The Mareeba-Walkamin Rail Trail development will generate substantial positive economic benefits for the Mareeba region during the construction phase and in the operations phase.

7.1 Economic Benefit and Jobs

The following table shows the benefits and costs of the operations of the trail and precinct over a ten-year period. The benefits are measured by the increase in regional income generated by trail users and by the estimated health benefits (over a 10-year period). The costs include construction costs (which have some contingency built in so are higher than the breakdown estimates), asset maintenance costs and depreciation. For the comparison, the present value of the benefits is calculated using 3 discount rates (4%, 7% and 10%).

Table 7: Benefits and Cost Analysis - Trail Development option 1 - 10 Year Period (Low Case)

Trail Development: 10 Year Operations Period	Discount Rate 4%	Discount Rate 7%	Discount Rate 10%
Costs (10 Years)			
Capital Costs 2019 ($)	$1,637,888	$1,637,888	$1,637,888
Costs - Maintenance (10 years)	$850,000	$850,000	$850,000
Costs - Depreciation (10 Years) <3% per year>	$491,366	$491,366	$491,366
Total Costs	$2,979,254	$2,979,254	$2,979,254
Benefits to Region (10 Years)			
Direct Benefits - users (assumes no trail fees)			
Regional Benefits (increase in regional income generated)	$5,627,914	$5,627,914	$5,627,914
Indirect Benefits (health benefits)	$1,213,782	$1,213,782	$1,213,782
Total Benefits (2019 Prices)	$6,841,696	$6,841,696	$6,841,696
Present Value			
Regional Benefits (increase in regional income generated)	$4,651,645	$4,073,692	$3,601,951
Indirect Benefits (health benefits)	$1,001,088	$876,783	$775,171
Total Benefits ($) Present Value	$5,652,733	$4,950,475	$4,377,122
Net Present Value ($)	$2,673,478	$1,971,220	$1,397,867
NPV/ Costs	0.9	0.7	0.5
Benefit Cost Ratio (BCR) <Total Benefits: Present Value/Total Capital Costs>	1.9	1.7	1.5

Source: MCa modelling and estimates, November 2019. Note: Direct benefits are the value to users of a facility; usually this is measure by user payments/fees. In this case it is assumed that there are no user charges for the trail, therefore benefits are the increase in regional income generated by visitor spending and the health benefits of exercise activity.

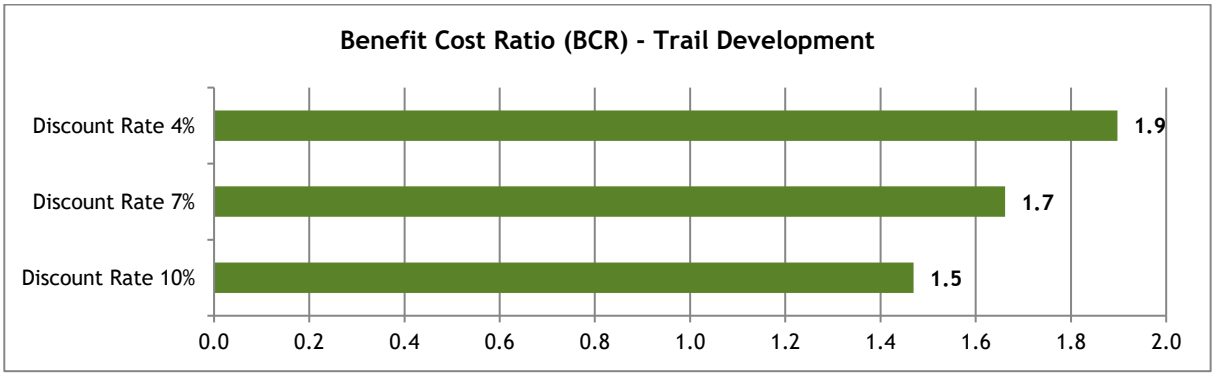


Figure 8: BCR for Trail Development - Source: MCa modelling and estimates, November 2019

The high case which assumed a 5% use rate for residents and visitors returns a significantly higher level of benefit.

Table 8: Economic analysis of proposed trail (high case)

Trail Development: 10 Year Operations Period	Discount Rate 4%	Discount Rate 7%	Discount Rate 10%
Costs (10 Years)			
Total Costs	$2,979,254	$2,979,254	$2,979,254
Benefits to Region (10 Years)			
Total Benefits (2019 Prices)	$18,961,944	$18,961,944	$18,961,944
Present Value			
Total Benefits ($) Present Value	$15,638,221	$13,695,840	$12,107,984
Benefit Cost Ratio (BCR)	5.2	4.6	4.1

The development of the trail is also expected to deliver the following job opportunities, which have been included in the above analysis.

Construction Phase Jobs

- A total of 6.5 FTE jobs (5.4 direct jobs and 1.1 indirect/induced jobs) would be generated during the construction period. The direct jobs comprise 4.7 jobs in on-site construction and 0.7 jobs in materials/equipment supply.[9]

Operations Phase Jobs

The ongoing growth in user numbers will support an increasing number of jobs in the region.

- The operation of the trail would generate a total of 5.1 full time equivalent jobs in year 1 (4.3 direct jobs and 0.8 indirect/induced jobs), increasing to 11.5 FTE jobs in Year 10 (9.6 direct jobs and 1.9 indirect/induced jobs).
- Of the total 11.5 jobs (direct & indirect/induced) in year 10 – local /regional users and day visitors would account for 5.9 FTE jobs and overnight visitors for 5.6 FTE jobs.
- On a sector basis, the jobs (FTE-direct and indirect) generated by trail users are mainly concentrated in recreational services and other visitor services; accommodation; food service; and other retail.
- The High Case estimate projected - 13.4 jobs rising to 30 after 10 yrs

[9] Note some differences due to rounding,

7.2 Anticipated Visitation and Use

Based on conservative estimates of use by local and regional residents and visitors to the region (2%), annual use of the trail is expected to result in at least 11,000 visits by the fourth year.
A more optimistic projection (High Case) based on 5% would deliver over 32,000 trail uses per year.

The **conservative case** used the following assumptions:

- **Around 2% of resident population will use the trail (431) an average of 10 times per year**. *Note: this is a very conservative estimate. Based on community feedback around the trail and the likely commuter use of some sections use is expected to be far higher. Across Qld cycle participation was 9.1% far higher than those who play soccer (4%). When potential walking (33.8%) and running (13.6%) uses are added it is highly likely the trail will be used far more.*
- **Around 2% of day or overnight visitors[10] will ride or walk the trail once per year (6,938).** *Note: this is also considered conservative given the regional visitation to use trails products on the tablelands and that many users will visit more than once. For inbound visitors- there are tour operators which may facilitate use or hire. Tourism numbers are based on Whole of Shire data that includes Kuranda day visitors. This could create some uncertainty in projections. There is more certainty for overnight visits and expenditure as this has been confirmed in recent visitor surveys for Mareeba.*

Figure 9- View to Main Trail Head in Centennial Park from trail corridor.

[10] 2017 tourism data for Mareeba LGA 3 year average used (346,902).

8. Future Rail Trail Development Options

The following design considerations have been used to develop the trail design options.

8.1 Trail Surface Treatments

There are two main sections of the proposed rail trail, Rankin St to the Mareeba Airport, which will service the local community and act as a commuter route for the residents of Wylandra, students at St Stephens and workers at the Airport, while the section between Walkamin and the Mareeba Airport is part of an overall connector between Mareeba and Atherton, and will form part of a larger tourism product for the Mareeba and Tablelands Councils.

Discussions with DTMR indicated that they are supportive of the Rail Trail forming part of the Principle Cycling Network (PCN) (as opposed to having a lane on the road shoulder), and potentially that in the short term, the rail trail would not have to meet the surface requirements of a PCN in a metropolitan area. Although in the future the entire PCN may need to be upgraded to a higher standard however that would need to be confirmed by DTMR.

The three trail surfaces that are identified as part of this feasibility study are Asphalt, bitumen and stabilised earth using decomposed granite or similar treatment. The proposed standard of asphalt is DG10 (30mm), and it is anticipated that alternative colour aggregates could be used to reduce the heat impacts of black aggregate. Bitumen would be a 10mm chip seal with a 5mm lock coat. The stabilised earth surface depth would be dependent on the current state of each section and the remaining ballast, but a 100mm average depth has been assumed.

General path width is 3 meters, it is proposed to take advantage of the wide corridor available and provide secondary alignments that provide a dirt/ natural surface, especially where asphalt has been used for the main trail. These secondary lines should be encouraged as the main alignment for horse riders and can offer some variety for MTB riders.

8.2 Level Crossings and Intersections

There are 4 types of crossings present along the rail trail.

- Major Road Crossing – Highway crossing with a speed limit of 100 km/h
- Minor Road Crossing – Local road crossings, general speed limit of 60 km/h
- Easement access – Access to formal easements and farming properties.
- Illegal access crossings – Access to properties as a point of convenience.

For each of the crossing types, treatments have been recommended and are detailed in the sections below. Full versions of the engineering concept plans can be found in appendix 2

8.2.1 Major road crossing

There are two major road crossings. The first is at the main trail head (see Section 8.4.1) and the second, where trail users would have to cross the Kennedy Highway near the Airport, in a 100km/h zone.

Options and variations were discussed with DTMR and their requirements have informed the proposed design.

In brief, the design involves a combination of improving cyclist visibility, warning signage and slowing mechanisms for trail users.

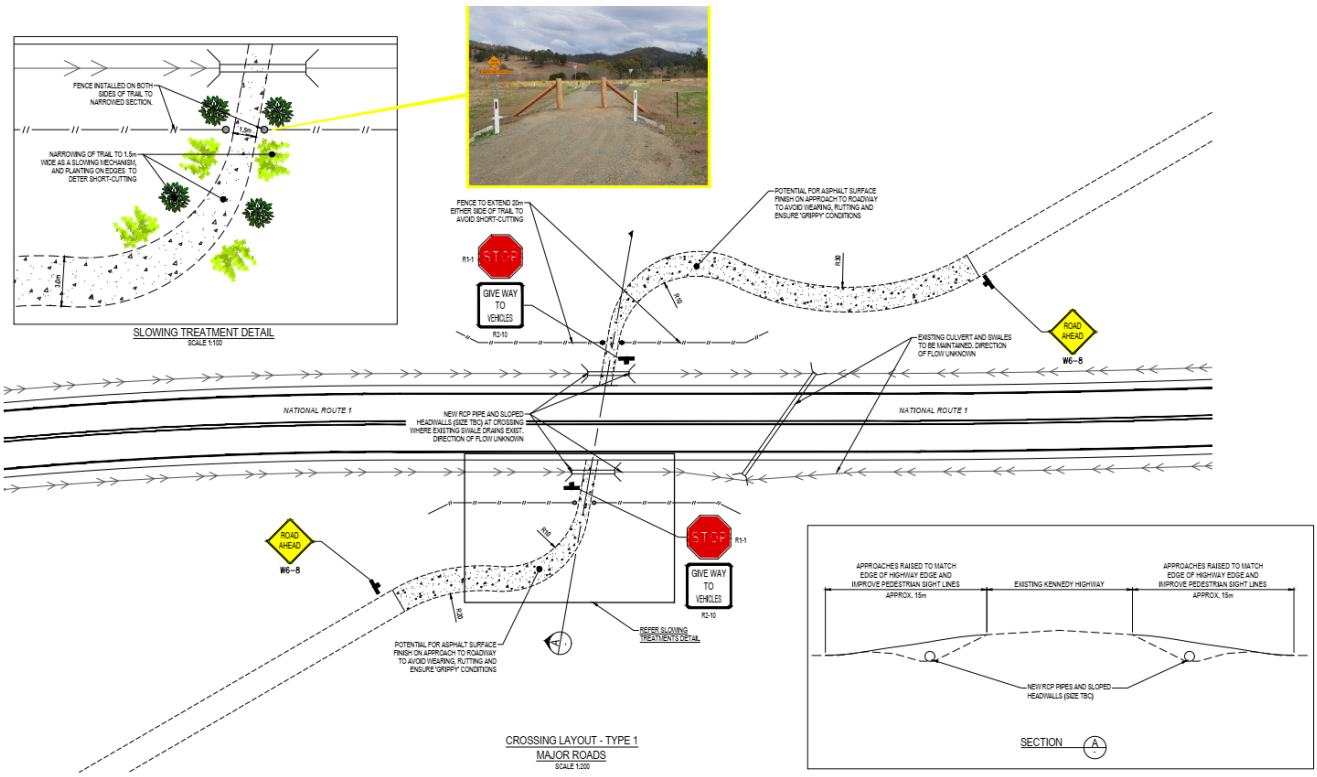
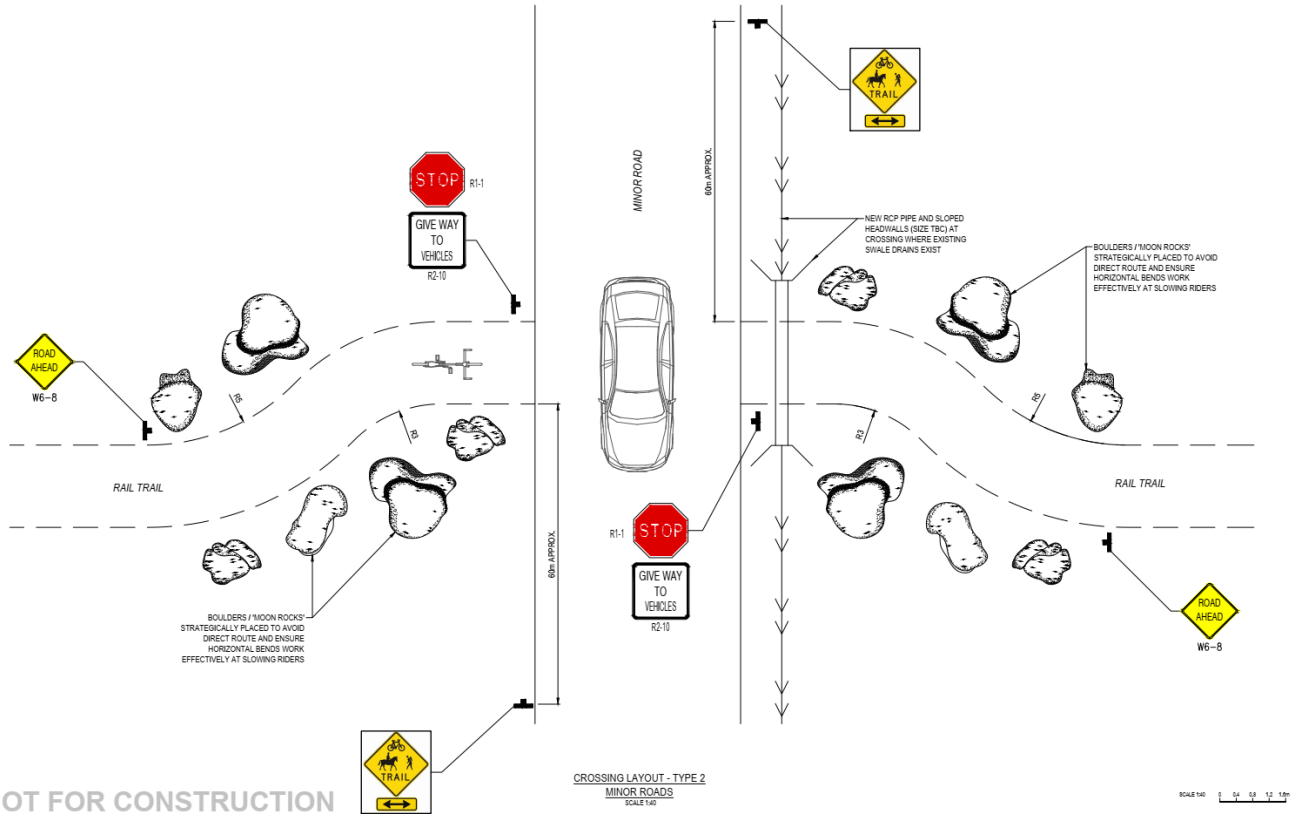


Figure 10: Major Road Crossing Option

8.2.2 Minor Road Crossings

Two options have been developed for minor road crossings:

- Option A is an engineered solution, designed to slow trail users down, using a S-bend, with right of way given to the vehicles. The installation of moon rocks has been used to stop trail users, particularly cyclist from deviating off the trail. This style of crossing should be used on high volume roads and roads where visibility may be poor.
- Option B is to sign the trail as per the drawing below; however, no other elements would be included. This option would only be used on low volume roads, mainly at the Walkamin end of the trail.



NOT FOR CONSTRUCTION

Figure 11: Minor Crossing Option A

8.2.3 Easement access

The easement crossing option A is to install signage at the crossing to stop the vehicle and give right of way to the trail user. Option A also includes an earth speed hump to slow the vehicle down. [Depending on the anticipated frequency of vehicle crossings, reinforcement of the rail trail at these points may be required, particularly if the section is an asphalt surface. The most likely treatment would be to provide additional road base at these points, if further investigation determines it is necessary.

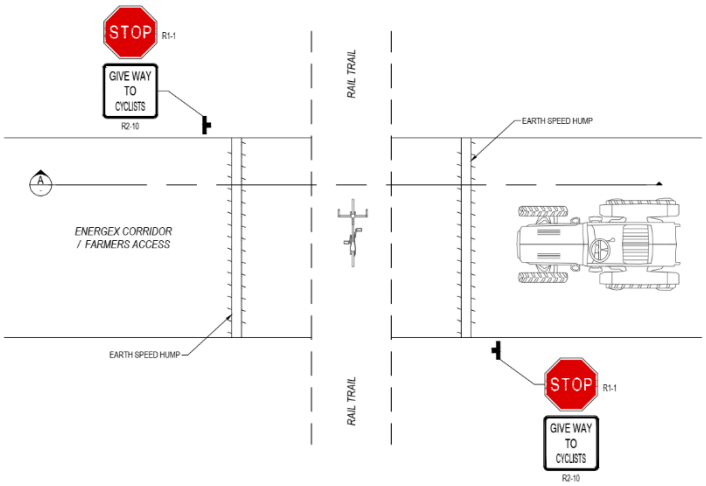


Figure 12: Easement Crossing Option A

Option B for easement crossings is to only sign the easement crossing, indicating trail users have right of way, as per the above figure, however no speed hump will be installed in this case.

8.2.4 Illegal access crossing

It is recommended that where illegal crossings are identified these are closed off, through tree planting and moon rock placement to improve user safety. This treatment can also be used along Section A of the rail trail to limit illegal vehicle use along the trail.

8.2.5 Pathways intersections

For any pathway intersection with the rail trail it is recommended that a one metre flair be used at the intersection point, from the intersecting path. This should be accompanied with signage indicating the intersection and give way signs.

8.3 Bridges

There are two bridges within the trail corridor, one a minor swale crossing, the other a large creek crossing. The larger bridge, located just to the north of Walkamin, would require significant works to rectify to comply with safety standards. A more feasible option is to install an at grade crossing using concrete culverts and a deco finish along the existing alignment. The bridge should be retained as a feature on the trail with safety measure installed to stop users from crossing the bridge.

There are two options for the second bridge. The first is an at grade crossing, the same as suggested for the large bridge, using a culvert and at this bridge an asphalt top. An alternative option is to use a prefabricated bridge on top of the existing structure, providing a heritage element to the trail.

8.4 Trail Head Locations

There will be two (2) trail head types for the Mareeba-Walkamin Rail Trail. The main trail head will be located in Centennial Park near the Mareeba Heritage Museum and Visitor Information Centre (MHC). The MHC has expressed interest in supporting the ongoing development of the trail through the introduction of MTB and trail goods and services, updating the facility to be more cycle friendly, and the potential for a bike hire service. The MHC, and the nearby public toilets will also provide the amenities for the majority of trail users.

All main trail head infrastructure would be located on the eastern side of the highway including:
- Overall trail map and wayfinding signage and information about the trail
- Water (available in Centennial Park)
- Shade structure (optional and already available in Centennial Park)
- Parking will be provided by the existing parking, with a possible expansion of the existing parking area by 15 spaces (estimate of $130,000 provided by MSC).

Having the main trail head in Centennial park is the logical choice and makes use of the existing infrastructure but does mean a crossing treatment is needed for Byrnes St.

There are 3 secondary trail head locations, located at the Rankin St end of the trail, the Walkamin end of the trail, and at the McIver Road Intersection.

- The Lyons St (Rankin St end of the Trail) secondary trail head will provide directional signage to the main trail head, nearby areas of interest, such as Davies Park, Schools, The MTB skills park and how to access the Mareeba Active Transport Network.
- The Walkamin Trail Head would indicate that the Trail will change management, provide contact information about the 2 managers and distances to the next location, in both directions.
- The McIver Road Trail Head will provide suitable, informal parking for horse floats, water and shade, and signage to the main trail head and points of interest.

8.4.1 Main Trail Head and Linkage Crossing over Byrnes St.

Regardless of option used for the trail development, a safe pedestrian crossing is required between the trail and Centennial Park which is proposed as the main trail head.
Initial discussions with DTMR around the trail had been on the basis of the main trail head being on the western side of Byrnes St. They had indicated that some form of basic crossing treatment was desirable.

With Council's preference for the main trail head to be located within Centennial Park, which allows better shared use of existing infrastructure, the original design approach showing parking on the western side was revised and additional advice was sought from DTMR as to what treatment they would now prefer.

Their advice has indicated that:

- A central refuge or user activated signal crossing is required
- To install a refuge would require road widening
- Additional edge treatments to improve visibility such as "blisters" on the road side and warning signs
- Lighting of the crossing

8.5 Signage and Wayfinding

Rail Trails Australia have developed a signage guideline to assist trail managers and local governments. Within that documents Rail Trails Australia state "*Signs play an invaluable public relations role in trail design by identifying the trail, giving directions, clarifying rules of safe usage and providing both basic and unique information relating to the trail*"[11].

8.5.1 Signage Styles and Design

Indicative signage locations have been identified in the concept plan (see Appendix 3) for identification, directional and interpretive signage locations, including:

- Primary identification signage at main trail head
- Secondary identification signage at secondary trail heads, Mareeba Airport, highway crossing, and southern creek crossing (section E)
- Directional signage at the main trail head, Rankin St, McIver Road, Gallo Dr, Mareeba Airport, Kennedy Highway Crossing, and Henry Hannam Drive
- Interpretive signage at the main trail head, Mareeba Airport and southern creek crossing (Section E)

Design ideas for signage include the following:

[11] https://www.railtrails.org.au/images/documents/ra_signs_ver_1.0.1.pdf

Directional Panel

- 200mm SQ H4 Hardwood post
- 1.2mm thick printed aluminium directional panel fixed with adhesive to bollard face as required
- Allow min. 50mm concrete mowing strip to base

Interpretive Panel

- Matt 2pac clear coated printed vinyl applied to 1.2mm aluminium panel 350mm x min. 700mm
- Angled section welded steel frame (100x100mm) with 300x100mm H4 hardwood panel supports

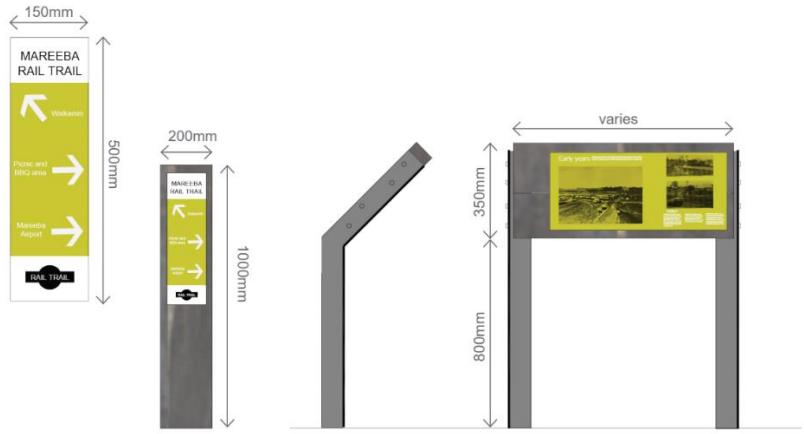


Figure 13: Directional and Interpretive Signage Concepts

Figure 14: Identification Signage Concepts

8.5.2 Warning and Etiquette Signage

Warning signs will be needed for the road crossings, path intersections and to stop users accessing the old bridges. These should be consistent with existing rail trail products in use on the Walkamin to Atherton section which are essentially scaled down road signs and generally compliant with DTMR recommended signage for cycle networks [12] and the Railtrails Australia Signage Guide.[13]
In addition, Trail etiquette should be reinforced at trail heads. The style used on the Atherton section is shown below.

Figure 15 Example Signage from DTMR (Qld) Signage Guide for Cycleways)

Figure 16 Existing Etiquette Signage on Walkamin to Atherton Rail Trail

8.5.3 Potential Interpretive Themes

There are a number of key themes that could be presented as part of the interpretive signage suite. At a minimum signage should provide details on the history of the old rail line, with other opportunities to include:

- Local history
- Indigenous Culture and history
- Farming
- Airport history.

The Mareeba Heritage Centre has indicated it is willing to help develop the history theme along the trail and would have a number of contacts and resources to prepare a interpretive plan for the trail.

[12] https://www.tmr.qld.gov.au/-/media/Travelandtransport/Cycling/Bike-user-guide/Technical-information/Pdf_guide_to_signing_cycle_networks.pdf?la=en

[13] https://www.railtrails.org.au/images/documents/ra_signs_ver_1.0.1.pdf

It will also be important that the trail managers work with Tablelands Regional Council to ensure that TRC install wayfinding and information signage in Walkamin, detailing information about the change in trail management and contact information for both trail managers.

8.5.4 Summary of Proposed Signage Plan

The following table summarises the proposed signage plan for the trail:

Table 9 - Proposed Signage Plan

Section	Primary Identification Signage (Number of signs)	Secondary Identification Signage (Number of signs)	Directional Signage (Number of signs)	Interpretive Signage (Number of signs)	Warning/Safety
Section A: Rankin St to McIver Road	1	1	3	1	3
Section B: McIver Road to Gallo Drive	0	0	1	1	4
Section C: Gallo Drive to Mareeba Airport	0	1	1	1	3
Section D: Mareeba Airport to Henry Hannam Drive	0	2	3	1	5
Section E: Henry Hannam Drive to Walkamin	1	1	1	1	1
Total	2	5	9	5	16
Estimated Cost (allowance only)	$10,000	$2,500	$4,500	$25,000	$8,000

Per sign estimates based on supply and install:

Primary Signage	$5,000
Secondary	$ 500
Directional	$ 500
Interpretive	$5,000
Warning/Safety	$ 500

9. Development Options for the Mareeba-Walkamin Rail Trail

The Rail Trail has been separated into 5 sections, as detailed in Appendix 3. In general, the recommended minimum width is 3 metres, however for many sections it is anticipated there will be space adjacent to the main trail which forms a secondary line suitable for horses and MTB riders. In some cases, this means the corridor could have a width of 7 metres or more, with the overall corridor with of approximately 10 m.

There are 4 trail design options going from most to least expensive, with the preferred option being Option 1, which includes the asphalt surface to the Mareeba Airport. Option one is preferred as it will maximise both commuter and tourism/economic benefits and will be the most robust design minimising recurrent maintenance. Along the trail there are five sections and within each section different options for surface treatment and other improvements are possible.
In summary the four options are:

Option one - Rail Trail and Commuter Use Prioritised

- Trail Construction $1,036,920
- Trail Crossings $122,000
- Signage $50,000
- Parking $130,000 (approx. 15 spaces in Centennial Park)
- Trail head crossing $250,000[14] (Kennedy Highway- from Centennial Park to start of Rail trail)
- Trail head Shelter $10,000
- **TOTAL** **$1,598,920**

Option two - Rail Trail and Commuter Use Prioritised (lower construction grade)

- Trail Construction $913,920
- Crossings $87,000
- Signage $25,000 (wayfinding and safety only)
- Trail head crossing $250,000 (as above)
- **TOTAL** **$1,275,920**

Option three - Rail Trail Focus

- Trail Construction $355,500
- Crossings $87,000
- Signage $50,000 (includes interpretive signs)
- Trail head crossing $250,000 (as above)
- **TOTAL** **$742,500**

Option four - Basic Option – Status Quo

- Trail improvements $140,400
- Crossings Nil
- Signage $25,000 (no interpretive signs, safety and direction only)
- Main Trail Head Nil
- **TOTAL** **$170,400**

***Note**: a very recent road works tender has indicated that costs could be up to $200,000 more for Options 1-3, based on road costs. As construction costs will be lower due to differences in road construction/works versus trails construction, more certainty is difficult until works are designed and tendered. Final trail design will be a function of budget and desired outcome / standard of the trail and issues such as surface treatment and depth of base material can have a significant impact on costs.*

These options are detailed further below. Section 9.2 summarises the treatments used in the four options.

[14] Council estimate for crossing treatment in 60Km/h zone

Although it would be possible to develop the rail trail in sections; it is important to note that to achieve maximum benefit for the community and Council, the entire rail trail should be developed in one stage.

9.1.1 Trail Option 1 – Combination Surface

Surface Treatments

Table 10: Surface Treatment Option 1 (includes preparation and surface)

Section	Approximate distance	Option 1	Option 1 cost per metre	Section Cost
Section A: Rankin St to McIver Road	2300 m	Asphalt (DG10)	$105.60	$242,880
Section B: McIver Road to Gallo Drive	3800 m	Asphalt (DG10)	$105.60	$401,280
Section C: Gallo Drive to Mareeba Airport	2100 m	Asphalt (DG10)	$105.60	$221,760
Section D: Mareeba Airport to Henry Hannam Drive	3200 m	Deco Finish	$22.50	$72,000
Section E: Henry Hannam Drive to Walkamin	4400 m	Deco Finish	$22.50	$99,000
Subtotal	15,800 m	Nil	Nil	$1,036,920

Crossing Treatments

Table 11: Crossing Treatment Option 1 (excludes Byrnes St)

Section	Major Road Crossing - $20,000 each[15]	Minor road Crossing A - $3,000 each	Easement Crossing A - $2,000 each	Creek Crossings
Section A: Rankin St to McIver Road	• Nil	• 3 x minor road crossings	• Nil	• Nil
Section B: McIver Road to Gallo Drive	• Nil	• 2 x minor road crossing	• 1 x service easement crossing	1 x bridge crossing ($50,000)
Section C: Gallo Drive to Mareeba Airport	• Nil	• 1 x minor road crossing	• 1 x service easement crossing	• Nil
Section D: Mareeba Airport to Henry Hannam Drive	• 1 x major road crossing	• 2 x minor road crossing	• 3 x easement crossing	• Nil
Section E: Henry Hannam Drive to Walkamin	• Nil	• 1 x minor road crossing	• Nil	1 x ford crossing and approach ($15,000)
Total	$20,000	$27,000	$10,000	$65,000

Signage and Wayfinding

Due to the importance of signage and wayfinding for safety of users it is recommended that the same signage approach for direction and wayfinding be used for both options 1,2 and 3.
Trail Option 1 and 3 would provide both wayfinding signage and interpretive signage along the trail. The wayfinding signage would include distances to nearby points of interest and the remaining distance to the end of the trail.

The Interpretive signage would be developed along the trail, the information could include history along the trail, natural species found along the trail. This signage could also include sponsorship signage if that type of signage was to be included in the management structure.
Costs estimated with signage are subject to a more detailed plan and decisions on a signage style and construction method. The estimates used are explained in Table 9. The estimate for all signage is $50,000.

Trail Heads and Byrnes St Crossing

Trail Option 1 would feature 4 trail heads. One main trail head and three secondary trail heads as outlined in Section 8.4. **This includes the development of the main trail head crossing treatment at Byrnes Street estimated at $250,000.**

[15] Excludes Main Trail Head on Byrnes St

9.1.2 Trail Option 2 – Combination Surface (lower grade surface)

Surface Treatments

Table 12: Surface Treatment Option 2

Section	Approximate distance	Option 1	Option 1 cost per metre	Section Cost
Section A: Rankin St to McIver Road	2300 m	Bitumen Chip Seal	$90.60	$208,380
Section B: McIver Road to Gallo Drive	3800 m	Bitumen Chip Seal	$90.60	$344,280
Section C: Gallo Drive to Mareeba Airport	2100 m	Bitumen Chip Seal	$90.60	$190,260
Section D: Mareeba Airport to Henry Hannam Drive	3200 m	Deco Finish	$22.50	$72,000
Section E: Henry Hannam Drive to Walkamin	4400 m	Deco Finish	$22.50	$99,000
Subtotal	15,800 m	Nil	Nil	$913,920

Crossing Treatments

Table 13: Crossing Treatment Option 2

Section	Major Road Crossing - $20,000 each	Minor road Crossing A - $3,000 each	Easement Crossing A - $2,000 each	Creek Crossings
Section A: Rankin St to McIver Road	• Nil	• 3 x minor road crossings	• Nil	• Nil
Section B: McIver Road to Gallo Drive	• Nil	• 2 x minor road crossing	• 1 x service easement crossing	1 x ford crossing and approach ($15,000)
Section C: Gallo Drive to Mareeba Airport	• Nil	• 1 x minor road crossing	• 1 x service easement crossing	• Nil
Section D: Mareeba Airport to Henry Hannam Drive	• 1 x major road crossing	• 2 x minor road crossing	• 3 x easement crossing	• Nil
Section E: Henry Hannam Drive to Walkamin	• Nil	• 1 x minor road crossing	• Nil	1 x ford crossing and approach ($15,000)
Total	$20,000	$27,000	$10,000	$30,000

Signage and Wayfinding

Due to the importance of signage for wayfinding and safety of users it is recommended that the same signage approach for direction and wayfinding be used for options 1,2 and 3.

Trail Heads

Trail Option 2 would feature 3 trail heads. One main trail head and two secondary trail heads as outlined in section 7.4 without the Lyons Street trail head. This includes the development of the main trail head crossing treatment at Byrnes Street estimated at $250,000.

9.1.3 Trail Option 3 – Stabilised Earth Surface/ Decomposed Granite

Trail option 3 focuses on a lower capital investment, however it will likely, over the life of the asset, have a higher maintenance cost especially following extreme weather event. As with trail option 1 and two, these are options only and alterations could be made dependent on the level of use Council expect.

Surface Treatments

Table 14: Surface Treatment Option 3

Section	Approximate distance	Option 1	Option 1 cost per metre	Section Cost
Section A: Rankin St to McIver Road	2300 m	Deco Finish	$22.50	$51,750
Section B: McIver Road to Gallo Drive	3800 m	Deco Finish	$22.50	$85,500
Section C: Gallo Drive to Mareeba Airport	2100 m	Deco Finish	$22.50	$47,250
Section D: Mareeba Airport to Henry Hannam Drive	3200 m	Deco Finish	$22.50	$72,000
Section E: Henry Hannam Drive to Walkamin	4400 m	Deco Finish	$22.50	$99,000
Subtotal	15,800 m			$355,500

Crossing Treatments

Table 15: Crossing Treatment Option 3

Section	Major Road Crossings - $20,000 each	Minor road Crossings - $3,000 each	Easement Crossings - $2,000 each	Creek Crossings
Section A: Rankin St to McIver Road	• Nil	• 3 x minor road crossings - Option A	• Nil	• Nil
Section B: McIver Road to Gallo Drive	• Nil	• 2 x minor road crossing - Option A	• 1 x service easement crossing – Option A	1 x ford crossing and approach ($15,000)
Section C: Gallo Drive to Mareeba Airport	• Nil	• 1 x minor road crossing – Option A	• 1 x service easement crossing – Option B	• Nil
Section D: Mareeba Airport to Henry Hannam Drive	• 1 x major road crossing	• 2 x minor road crossing – Option B	• 3 x service easement crossing – Option B	• Nil
Section E: Henry Hannam Drive to Walkamin	• Nil	• 1 x minor road crossing – Option B	• Nil	1 x ford crossing and approach ($15,000)
Total	$20,000	$27,000	$10,000	$30,000

Signage and Wayfinding

Due to the importance of signage for wayfinding and safety of users it is recommended that the same signage approach for direction and wayfinding be used for both options 1,2 and 3.

The Interpretive signage would be developed along the trail, the information could include history along the trail and natural species found along the trail among other opportunities. This signage could also include sponsorship signage if that type of signage was to be included in the management structure.

Trail Head

Trail Option 2 would feature 3 trail heads. One main trail head and two secondary trail heads, one at the Rankin Street end of the trail, and one at the Walkamin End of the trail as stated section 7.4. This includes the development of the main trail head crossing treatment at Byrnes Street estimated at $250,000.

9.1.4 Trail Option 4 - Status Quo

The fourth trail development option is to leave the trail as is, with limited trail improvements apart from signage, simply screeding off the ballast rock in the sections south of the airport and trimming and shaping the trail, at an estimated cost of $125,400. There would need to be work done to stabilise the two creek crossings (estimated at $20,000), and Council would need to install basic wayfinding and warning signage at the existing bridges (to stop users crossing bridges) and at road crossings (estimated at $25,000) . This model does not provide any treatment for the crossing of the highway, which would pose a major safety concern for trail users. The total estimate is $170,400. No allowance for highway crossing treatments at the Airport or Byrnes Street have been included.

Figure 17 Farm Service Access and Trail Crossing

9.2 Trail Development Options Summary

As outlined in section 9, four potential development options have been identified. However, there are various areas where multiple treatment options could be provided, and these can be interchanged between any of the options or sections. There are certain aspects where there is only one option provided and should be implemented in any development option, including:

- Major Trail Head – Detailed in Section 8.4
- Major Road Crossing – Detailed in Section 8.2.1
- Signage and Wayfinding – These can be developed on an as needed basis, with design ideas provided in section 8.5.

The summary table below details the developments as outlined in section 9., across the three identified options. Trail Option 1 has also been drawn as a concept plan, which is in Appendix 3.

Legend:

Surface Options	Level Crossings treatments	Bridges/ Creek Crossings	Trail Head	Easement Crossing
● Asphalt	● Option A	● Prefabricated bridge	● Main Trail Head	● Option A
● Bitumen				
● Stabilised Earth	● Option B	● Ford Crossing	● 'Soft Trail Head'	● Option B

Table 16: Trail Design Options

Section / Trail Option	Approximate distance	Surface Options				Minor Road Crossing*				Bridges/ Creek Crossings				Trail Head*				Easement Crossings*			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Section A: Rankin St to McIver Road	2300 m	●	●	●	×	●●●	●●●	●●●	×	◊	◊	◊	◊	●●●	●●	●●	×	◊	◊	◊	◊
Section B: McIver Road to Gallo Drive	3800 m	●	●	●	×	●●	●●	●●	×	●	●	●	×	◊	◊	◊	◊	●	●	●	×
Section C: Gallo Drive to Mareeba Airport	2100 m	●	●	●	×	●	●	●	×	◊	◊	◊	◊	◊	◊	◊	◊	●	●	●	×
Section D: Mareeba Airport to Henry Hannam Drive	3200 m	●	●	●	●	●●	●●	●●	×	◊	◊	◊	◊	◊	◊	◊	◊	●●●	●●●	●●●	×
Section E: Henry Hannam Drive to Walkamin	4400 m	●	●	●	×	●	●	●	×	●	●	●	×	●	●	●	×	◊	◊	◊	◊

*Note: Dots indicate number of treatments requirements.
× - Indicates that no treatment is applied to the feature
◊ - indicates this feature is not present in this section

9.3 Linkage to Other Opportunities

Acknowledging the status of the trail as a commuter link connecting two regional centres it will be important for future planning to connect points of interest at the end of the trail and along the trail. The Principal Cycle Network identifies Rankin Street as a major connector to schools, commerce and other recreation pursuits. It will be important to link the following areas to the rail trail, via suitable signage and route markers, shown in the figure below:

- Walsh St, via the PCN (which also connects to the hospital, via Lloyd Street) (Figure 18)
- MTB Skills, via Hales St
- Borzi Park, via Chewko Road
- Davies Park, via Hopkins Avenue

Council have noted that dependent on the development of the lot 78 on SP298287m, which connects the rail corridor to Rankin Street, alternatives may need to be investigated. It is recommended that Council and any management body work with any developer to provide an easement to ensure access for the trail users to Rankin Street.

In the case that an easement cannot be provided alternative options should be investigated. These include:

- Rankin Street access via Lyons Street and Lawson Street to provide access to:
    - MTB Skills Park
    - Borzi Park
    - Mareeba Pony Club
    - Davies Park
    - Mareeba High School
- Access to Walsh Street provided by anticipated traffic signal development at the intersection of Byrnes Street and Herberton Street. This would the connect to the PCN as outlined above.

The following map highlights potential linkages to the Rail Trail.

Figure 18: Recommended Connectors to the Rail Trail

10. Rail Trail Management Models and Benchmarking

In effect management considers asset ownership, asset maintenance and management of use.

There can be a difference between asset ownership and asset management. Just as many sporting fields and facilities will be managed by a not for profit sporting club or association, the underlying asset ownership is usually with council as the landholder or trustee for the crown. Maintenance of these assets may comprise models where council is solely responsible, responsibilities are split between council and user groups or all responsibility sits with a lessee/ user group. In terms of managing use, this can be a complex mix of both legislation/ local laws and agreements with lessees or licenced users.

Rail trails can be on a mix of tenures but often are sited on state owned corridors or easements. In the case of Mareeba to Walkamin, the department's preference is for leasing/ trusteeship of the corridor to Council as the main asset owner. Current levels of support already provided to council for vegetation maintenance would continue and, if developed as the principle cycle network additional funds could be made available.

Broadly there are three common management models for rails trails in operation across the country. These include:

- Council managed – Council is solely responsible for the management and maintenance of the trail, infrastructure and approving "non-ordinary" (i.e. event) use of the trail.
- Collaborative C&C (Council and Community)- Council manages the rail trail but collaborates with one or more community groups or other agencies in promoting and maintaining the trail.
- Community-based – a community based not for profit group (either established or formed for the purpose) manages and maintains the trail. An agreement is established between the council and the group via a lease or other mechanism. The agreement includes details on respective responsibilities and resource requirements. Most often the council would have representation on the group's management committee.

Although council would be the asset owner, the management and maintenance of the trail and it's infrastructure could be subject to agreements with a number of partners or a single rail trail committee established for the purpose of promoting, improving and maintaining the trail.

The options are discussed further below.

10.1 Council Managed

Under the Council managed model, Council is solely responsible for the management and maintenance of the trail, the infrastructure and any associated non-ordinary use approval (e.g. events) of the trail. This model puts the financial burden onto Council and does not engage community groups and others in partnership to add value and support the trail. It also tends to reduce opportunities for community-based action and ownership. Experience of successful trails elsewhere (particularly in Victoria) indicates that successful trails have strong community involvement though partnerships or community management models.

This model ensures the asset is maintained to an agreed standard and can be incorporated into forward operational budgets. In most cases local governments readily take on the maintenance of rail trails as they recognise the ongoing economic and health benefits for their resident communities. However, even in the cases where council is solely responsible for the maintenance there are usually partnerships in management of the trail. Particularly in promoting and activating the trail and in forwards planning and the ever-present search for funding to improve the trail.

10.2 Collaborative Management

Collaborative management recognises that there are a range of ways to contribute to a rail trail. For Mareeba this approach could include:

- Council is asset owner and has overall responsibility for maintaining the trail
- Council has agreements in place with Corrective Services or Employment Agencies for work release or work training that maintains some sections of the trail.
- Council has an agreement with a local community group (e.g. MTB club) to undertake some of the trail maintenance or management activities.
- Promotion of the trail and production of information guides and interpretive guides is undertaken by the Mareeba Heritage Museum and Visitor Centre.
- Other user groups deliver walking or riding programs or social rides or runs along the trail (under an agreement with council)
- A "Friends of the Rail Trail" group is established to help plan for implementation and improvements and also to help seek funding for the trail.

While overall, council has the responsibility for the trail and would coordinate and collaborate on all management activity, this approach allows for multiple groups to contribute.

10.3 Community Based Committee

The Community Based Committee (CBC) model is based on the establishment of a community based not for profit incorporated group to be responsible for trail management and maintenance. Like many sporting facilities, the ultimate asset owner is still council (or possibly the state), but a formal agreement such as a lease is implemented to transfer an agreed set of responsibilities to the Community Committee. This approach
allows a community group to manage and maintain the trail or trails and for them to be proactive in seeking funds for further development or improvement from a range of external sources.

In many cases these community-based organisations would have representation from a number of stakeholder groups which could include:

- Local council
- Local user groups or clubs
- Tourism interests and Local Businesses
- Progress Association / Chamber of Commerce
- Key supporter groups such as Service Clubs (Lions/ Rotary)
- State Government Agencies

The role of the CBC is to ensure that the trail is maintained to the desired standard, and if necessary, undertake upgrade works. The MTB Regional Solution Report, developed by MTB Queensland, identified that '*long term trail care, governance and support can be managed through establishing a foundation that assists in maintaining and marketing the trails. This puts the emphasis on the tourism potential of substantive and quality MTB trails, and allows for coordinated management of trail assets with the support of volunteer groups.*'

This model also allows for the establishment of a volunteer "trail care group", who contribute key community support for the ongoing maintenance and preservation of the trail. Those volunteer hours can also be used to provide a notional economic benefit to the community, showing the community willingness to support the trail.

In many cases, the CBC will receive funding and in-kind support from the local government or there will be some responsibility retained by council (such as maintenance of specific assets) or provision of specific services(such as water and rubbish bins).

The risk with this model is the sustainability of the CBC. If there is an active an engaged community and several stakeholder groups who will contribute and keep the CBC viable and effective then this can be a highly successful model that encourage significant community ownership and pride. If the viability of such a group is uncertain, council can risk gradual degradation of trail as well as eventually having to step in and take control of management. From a tourism perspective this is a significant issue as the trail product relies on its reputation and if a failing management model results in the trail becoming degraded and unattractive then visitors will stop coming and the tourism economy will suffer.

10.4 Rail Trail Benchmarking

Benchmarking of other trails throughout Australia was undertaken to understand the management models in place. The results are summarised in the tables below.

Table 17: Southern Flinders Rail Trail (SA)

Southern Flinders Rail Trail (SA)	
Trail Description	34.5 km rail trail with coarse gravel and fine gravel surface and flat, undulating terrain.
Management-	Northern Areas Council; Mt Remarkables Council
Direct Revenue Sources:	Permit fees (I of 2 LGAs)
Direct Revenue to Council (p.a.)	Permit fees- (not disclosed)
Usage (p.a.) contributing to direct revenue:	N/A
Fees & Charges	Mt Remarkables Council charges $30 for a permit to use the trail.
Events	The Mt Remarkables mountain bike store runs two events a year. These do not use the trail per se but operate on single tracks branching off the trail. Key event details: **18-hour mountain bike event** • Attracts up to 200 entrants • $100 - $125 entry fee per person **Fat Tyre Race (open to families)** • Attracts 500 -1,000 people • $60 entry fee per person
Other information/ comments:	Councils do not have counters to track usage. Council does not undertake marketing of the trails. This is undertaken by the regional tourism board. The focus is on economic benefit for the region, not on revenue generation for individual councils. Northern Areas Council philosophy is that they would prefer people to use the trail rather than the roads. Other advice: • Constructing the trail correctly from the outset is critical to future use. • Keep the trail clean and well maintained and usage will be high. • Work closely with cycling/ active recreation groups. • Know your target market (e.g. single-track mountain bike market attracts 30-55 year olds, rail trail market attracts 55-75 year olds looking for soft adventure). • E-bikes are gaining in popularity (electric pedal assist bikes can travel up to 28km/hour suitable for rail trails of a gradient that isn't strenuous).

Table 18: Murray to the Mountains Rail Trail (Vic)

Murray to the Mountains Rail Trail (Vic)	
Trail Description	116km rail trail 250km from Melbourne. Sealed surface with mostly flat terrain and one steady climb.
Management-	City of Wangaratta; Alpine Shire Tourism North East are responsible for the marketing and strategic planning for the trail.
Direct Revenue Sources:	Leases to local graziers. Currently have about 20 permits.
Direct Revenue to Council (p.a.)	$2,000-$3,000 + direct savings in mowing costs due to grazing.
Usage (p.a.) contributing to direct revenue:	N/A (direct revenue not generated from trail usage). **City of Wangaratta** -6 counters on the trail - 99.9% of usage is recreational with approx. 20,000-22,000 per annum using the City of Wangaratta section of the trail. **Alpine Shire** – 2 permanent counters on the trail– 60,500 visits from Sept 2015 to Aug 2016 (to various sections of the track). In the more scenic sections of the trail (Bright) there was an average of 3,494, visits per month between June and August 2016.
Fees & Charges	**City of Wangaratta** Grazing permits range from $50-$100 for a 3-year permit. These permits provide grazing opportunities for local graziers while also assisting in keeping trail mowing costs down. Event permit up to $500 per event depending on event scale and purpose. Organised groups camp along the trail as part of a cheese and winery tour. Council obtains photographs from these groups to use in advertising and consider these tours a promotional activity, thus do not charge a fee.
Events	**Marathon -** Attracts up to 2,500 people. **Ned Kelly Chase -** 100km, 50km, marathon, half marathon & bike riding. Council does not consider the events as a revenue source for council but rather as being beneficial for the local economy. Event revenue is not a lot, however there are significant benefits to the local economy through tourists spending money in the town.
Other information/ comments:	**City of Wangaratta** Council manages their portion of the track and allocate about $40k per annum. Actual spending is variable year to year depending on weather. Track is fully sealed; which Council believes is the best surface option. No horses or motorised bikes permitted on the trail. Other advice: • There was previously a management committee, which has recently been dissolved. Council finds it is much easier that everything now sits within council. Council handles all the issues, maintenance, feedback requirements etc. • A Friends of the Trail Group exists who are out on the trail all the time and provide regular feedback to Council. • Trails are significant assets to Council and attract users, but council needs to ensure the surfaces are well maintained. **Alpine Shire** Council maintenance costs include $18,000 per annum in resealing the bitumen surface (approx. $5/m^2) plus $5,000 for repair/ slashing trees/ bridge maintenance. Cost to renew bridges on the track is approx. $23,400 (22 bridges). Other advice:

Murray to the Mountains Rail Trail (Vic)	
	• A sealed path is much better in terms of maintenance than unsealed. Unsealed paths cause numerous complaints and management challenges. • Route generation and linking with existing attractions will help generate greater usage.

Table 19: Bendigo-Kilmore Rail Trail (Vic)

Bendigo-Kilmore Rail Trail (Vic)	
Trail Description	49km rail trail. Mixture of gravel surface types (packed fine to course gravel) plus some asphalt sections in urban areas. Relatively flat terrain.
Management-	Friends of the Trail
Direct Revenue Sources:	Membership fees to Friends of the Trail – not to Council
Direct Revenue to Council (p.a.)	Unknown
Usage (p.a.) contributing to direct revenue:	Unknown
Fees & Charges	Membership of Friends of the Trail Single $20 p.a. Family $40 p.a. Student $15 p.a. Donations to Trail Blazer Funding program Voluntary donations
Events	Relatively new trail, so not a lot of events yet. O'Keefe Trail Marathon (as part of the Healthy Community Games) – joint initiative between the Health Community, Council and Athletics Victoria. No fee as it was a community event. Commercial events have not been held, however if approached a fee would likely be charged.
Other information/ comments:	Council fund maintenance of the surface of the track. Proceeds from the trail blazer initiative provide support infrastructure such as tables and seats, railway history (i.e. station main board heads where they used to be located, rails and sleepers, old trains), sign posting of historical markers for train enthusiasts, sign posting of areas of environmental history.

Table 20: Collie-Darkan Trail (WA)

Collie-Darkan Trail (WA)	
Trail Description	47km rail trail 202km south of Perth. Compacted earth and coarse gravel surface with flat and undulating terrain.
Management-	Shire of Collie
Direct Revenue Sources:	Nil
Direct Revenue to Council (p.a.)	Nil
Usage (p.a.) contributing to direct revenue:	Not measured however estimate the trail is used mainly by recreational walkers, bike riders and the occasional horse group (maybe up to 20 users/day).
Fees & Charges	Nil
Events	Nil
Other information/ comments:	Friends of the Trail Group help with maintenance.

Table 21: Munda-Biddi Trail (WA)

Munda-Biddi Trail (WA)	
Trail Description	600km rail trail in various sections. Compacted earth, coarse gravel, fine gravel and sealed surfaces. Flat and undulating terrain with some steep sections.
Management-	Munda Biddi Foundation Parks and Wildlife (WA Govt.)
Direct Revenue Sources:	Special Permits
Direct Revenue to Council (p.a.)	Estimate $300 in special permits. Otherwise no direct revenue.
Usage (p.a.) contributing to direct revenue:	2010-11 study showed 9,590 people used the trails averaging 2.74 days on the trail = 26,000 visits days.
Fees & Charges	Sponsorship package could potentially bring in $50k per annum.
Events	Bike events. Do not charge fees, however if the event is of a commercial nature, sometimes the organisers will make a donation to the foundation. Generally the events struggle to break even so it would be unreasonable to charge a fee.
Other information/ comments:	Alcoa Mining Group help with maintenance of the track on the section near their site. A study was completed in 2010-11 which estimated the mean expenditure of visits was $56.27 = 1.52 million economic benefit to the region. They have done a recent track survey of the Bibbulum Track 2014-15 and have 302,960 visit days = $13.1 M annual expenditure in the region. The majority of users are Western Australians.

Table 22: Brisbane Valley Rail Trail (Qld)

Brisbane Valley Rail Trail (Qld)	
Trail Description	117km rail trail with coarse gravel and sealed surfaces. Undulating to mountainous terrain.
Management-	Somerset Regional Council
Direct Revenue Sources:	Nil. Do not charge for permits. No advertising on the trail.
Direct Revenue to Council (p.a.)	Nil
Usage (p.a.) contributing to direct revenue:	
Fees & Charges	Nil
Events	Council do not run events or control user groups that run events. Some event organisers inform Council. The community group run social events on the trail once a month. An annual fun run attracted 638 participants. Fees were $30 adult entry, $15 child entry, $70 family entry however there was not revenue returned to Council or put back into the trail as it was a community event.
Other information/ comments	The community group is the driver trying to get businesses on board to help advertise the trail and point rail trail visitors back to the businesses. The community group is run by a group of volunteers. They do not have a marketing or business strategy. Council are negotiating with the state government to take over the management of the entire trail. Currently they are only looking sections of the trail that run through their towns. Once they get management rights for the entire trail then they will work with the community group and the Tourism advisory council to market and advertise the trail more effectively.

Table 23: O'Keefe Rail Trail (Vic)

O'Keefe Rail Trail (Vic)	
Trail Description:	Part of the Bendigo-Kilmore Trail. 50km rail trail with coarse gravel, fine gravel and sealed surfaces. Gentle gradients to flat terrain.
Management-	City of Greater Bendigo
Direct Revenue Sources:	Nil
Direct Revenue to Council (p.a.)	Nil
Usage (p.a.) contributing to direct revenue:	
Fees & Charges	Nil
Events	Community run events.
Other information/ comments:	The shops located on the trail are the ones that will get the revenue. Predominately bike and walkers, horses are allowed on some section but not encouraged. They launched an extensive marketing campaign just before this section of the trail was opened. The campaign included: • Good signage (not advertising) but interpretive and directional. • Advertised the trail in niche publications. • Developed a video (using drones) and posted that online and on social media • Developed brochures • Provide an online overview of the trail. • Worked with shops along the trail to get them to advertise the trail and to include them as 'pit stops' for trail riders Their target market does vary. It was initially predominantly 25-45year olds, however they have seen an increase in the 35-55 group riding with kids/ grandkids. They have the friends of the trail group that are amazing advocates for the trail. Bike Bendigo also advocates the use of the trail. Social media has been their most effective marketing strategy.

Table 24 – Reisling Trail (SA)

Riesling Trail (SA)	
Trail Description	54km rail trail 130km north of Adelaide. Fine gravel surface with gentle gradient.
Management-	Riesling Trail Management Committee
Direct Revenue Sources:	Trail membership Events
Direct Revenue to Council (p.a.)	No revenue is provided to the Council. All revenue generated is used by the Management Committee to fund trail maintenance and upkeep. Revenue to the Management Committee is from memberships (see below).
Usage (p.a.) contributing to direct revenue:	No revenue from usage. In 2015 there were 52,547 trail visits tracked.
Fees & Charges	No fees for use of the trail. "Friends" Membership Package: Membership Type — Details — Fee Individual — Annual Membership — $40 p.a.

Riesling Trail (SA)			
	Friends Forever	One-off family fee that does not expire	$400
	Business Friend	Enables use of the trail name in business marketing, business name on sponsorship board at the trail head, business name of trail website, newsletter updates	$150 p.a.
	Commemorative pavers	Available to purchase with business name displayed under the signboard in the trail car park	$110 per double paver or $70 per single paver
	Business Partner	Signage erected at mutually agreed location on the trail. Limited to 20 signs in total.	$500 p.a.
	Website Business Partner	As above except no signage on the trail. Business advertising on rail trail website.	$500 p.a.
Events	Annual half marathon, Mr Mick's Riesling Pilgrimage (Variety Bash), Clare Valley parkrun, Paws for a Cause.		
Other information/ comments:	Seasonal newsletters are distributed four times a year to all members and on facebook to ensure the community is kept up to date. The facebook page is not only for advertising the trail and events but also for Business Partners and Business Friends to advertise.  There is a commemorative paver drive each year. Pavers are purchased by community members/ businesses and laid under the signboard at the trailhead. Only Business Partners are allowed to advertise on the trail and this is limited to 20 signs along the entire trail. 		

11. Possible Rail Trail Management Option for Mareeba-Walkamin Rail Trail

The following section will outline the proposed management model for the four rail trail development options presented at Section 9. This includes maintenance responsibilities, potential maintenance frequency, high level expected maintenance costs, and funding and partnership opportunities.

11.1 Management of Options 1, 2 and 3

For these options where the existing corridor is developed as a rail trail, it is recommended that the aim be to establish a CBC (Community-Based Committee) management model. However, it is anticipated that this may take time develop the group membership and capacity to take on the management of the rail trail. It is likely that a transitional approach will be needed that establishes a Collaborative model first.

It is expected that Council would enter into a lease agreement with DTMR for the rail trail corridor and subsequently enter into a sublease arrangement with the management committee. Under this arrangement, there would still be some shared responsibilities and a possible model with the majority of the ongoing trail and infrastructure maintenance responsibilities undertaken by the committee, is outlined in the table below.

Table 25: Maintenance and management responsibilities

Management Aspect	Party responsible	Frequency	Potential Cost per year	Potential funding/ partnership
Vegetation Maintenance	Mareeba Shire Council	Monthly	$30,000-$40,000	Existing funding for vegetation maintenance from DTMR. Council currently receives $20,000 for vegetation management from DTMR, this could be expected to increase as the trail becomes part of the Principle Cycle Network(PCN).
Trail Surface maintenance	Community Based Committee	Monthly inspection/ as reported	$40,000	Dependent on the required maintenance, there are a number of maintenance partnership opportunities available, including: • Department of Corrections (Lotus Glen Community Service Program) • Probation and Parole • TRAQS/Work for the Dole Program • Mareeba Mountain Goats.

Management Aspect	Party responsible	Frequency	Potential Cost per year	Potential funding/ partnership
				• Mareeba Pony Club Sponsorship and Merchandise Friends of the Rail Trail
Crossing/ Ford repair	Community Based Committee	Annual	$5,000	Dependent on the required maintenance, there are a number of maintenance partnership opportunities available, including: • Department of Corrections (Lotus Glen Community Service Program) • Probation and Parole • TRAQS/Work for the Dole Program • Mareeba Mountain Goats. • Mareeba Pony Club Sponsorship and Merchandise Friends of the Rail Trail
Infrastructure maintenance and power (signage) Highway lighting at Byrnes St	Community Based Committee	Yearly inspection/ as required	$5,000	Sponsorship and Merchandise Friends of the Rail Trail

The potential costs outlined above are indicative only. It is anticipated that much of the trail maintenance will be undertaken on an "as needed" basis and could be considerably less than indicated above. It is also important to note that if the Rail Trail is part of the principle cycle network then there may be additional funding available to maintain the cycle path (surfaced) component from DTMR, which would need to be negotiated with the Department of Transport and Main Roads.

The economic impact assessment undertaken by MCa (see Appendix 1 – MCa Economics Impact Assessment), identified a likely maintenance cost of around $85,000 per year.

11.2 Management of Option 4

Under option 4 it is anticipated that the corridor would remain a DTMR responsibility. It is recommended that Council negotiate an agreement with DTMR to increase the level of funding for vegetation management along the length of the trail. Council will also improve the existing trail south of the airport to a safer level, as outlined in Section 9.1.4.

This option could include the establishment or engagement of a community group to lobby for funding to support further development and improvement of the trail.

11.3 Opportunities for Partnerships and Funding

11.3.1 Department of Corrections

During consultation with the Department of Corrections, the local manager of the low security section of Lotus Glen "prison farm" outlined that there is potential for a community service program to be developed, however additional detailed information would need to be given to the operator at the Lotus Glen Facility to determine the suitability of such a program. It will be critical for the success of any such program that Council or the management committee is able to supply a supervisor, provide equipment, and organise transfer to the maintenance site.

This was also noted by the Probation and Parole officer, however that program was only able to offer 4 participants at a time. There are also issues with use of vehicles, however these details would be identified when a proposal is put forward to either correction group. Both the low security farm and probation and parole are interested in the potential of the proposal. There Is also a proposal for a work camp in Mareeba, which may increase the potential opportunities to provide assistance for maintaining the trail, however this is not confirmed by the Department of Corrections and is only in initial stage and heavily dependent on funding.

11.3.2 TRAQS – Work for the Dole Program

Consultation with both the outgoing and incoming providers of Work for the Dole program indicated that while there was potential to assist on the construction phase of the trail, however it was more difficult to establish a program for continued work, such as maintenance as there are guidelines restricting the amount of ongoing work that is possible. Without a greater understanding of what such a program would look like TRAQS could not agree to any maintenance programs, however, are interested in working with the management body if the trail is to be developed.

It was also identified that other opportunities existed such as placement programs for which a person in the program is integrated into an existing team at Council, with additional subsidies paid to Council, however there is an expectation that this position would lead to a permanent position.

11.3.3 Sponsorship along the Trail

There are examples of rail trails around Australia that use a sponsorship program to generate income for upkeep of the rail trail. The Riesling Trail in SA sells a small number of signs along the trail for local businesses on an annual basis, with all the money being returned into the trail. This trail also sells opportunities at the main trail head and on their website to increase revenue for trail maintenance. Sponsorship opportunities include:

- Trail signage
- Events
- Merchandise
- Corporate events
- Promotion through social media and newsletters etc.

11.3.4 Friends of the Rail Trail and Donations

Friends of the Rail Trail groups are a resource for many rail trails across the country. They usually have some form of annual fee which offers regular users and supporters a way to contribute as well as providing some benefit in terms of specific merchandise or access to events. They also provide a base from which volunteers can be found to assist in the maintenance of the trail. The fee that is set should be reasonable and marketed as a range of "tiers" appropriate to different supporter groups (such as surrounding businesses).
In a similar approach, some trails have donation models operating where users can chose to make cash or on line donations towards the Trail Management Committee.

11.3.5 Merchandising

Revenue from merchandise sales can contribute to trail funding. With the opportunity of the Visitor Centre co-located at the main trail head, merchandise sales could assist. Common merchandise includes:

- Trail Maps (Mankies printed on microfibre)
- Shirts, hats and other apparel
- Trail guides with historical and cultural interpretation
- Bike accessories
- Stubby Holders
- Water bottles

11.3.6 Grant Funding

There are a number of grant opportunities that could contribute towards the construction of the Mareeba to Walkamin Rail Trail. However, it should be noted that many grants will require a contribution from Council or other parties. Grants also change frequently and policy priorities can shift yearly. A likely scenario for similar projects is a combination and grants and capital contributions.
The availability of grant programs should not be taken as any certainty of funding as they are competitive and most often oversubscribed.

Table 26: Potential grant opportunities

Grant Name	Provider	Maximum $ Available	Percentage Contribution
Cycle Network Local Government Grants Program	Department of Transport and Main Roads	Unknown	50%
Rail Trail Local Government Grants Program	Department of Transport and Main Roads	Unknown	50%-100%
Building Better Regions Fund	Department of Industry, Innovation and Science	$10,000,000	50%-100%
Safer Queensland Community Grants	Queensland Police Service	$10,000	100%
Bendigo Bank Community Grants	Mareeba and Dimbulah Community Branch Bendigo Bank	Unknown	100%
Building our Regions	Department of State Development, Manufacturing, Infrastructure and Planning	$7,000,000	100% but co-contribution is preferred
Active Community Infrastructure	Sport and Recreation Queensland	$1 M	Varies

12. Recommended Approach

This study undertook a number of actions to investigate the feasibility of converting a disused rail corridor between Mareeba and Walkamin into a rail trail. This included background research and trends analysis, a corridor assessment and analysis, key stakeholder consultation, economic impact assessment, trail development options and trail management options.

Overall the study identified that, regardless of the final trail design, the development to convert the disused rail corridor to a rail trail is feasible and will return benefit to the community. The scale of benefit is proportional to the development approach, with Option One likely to provide the highest economic and social benefit and Option Four the least. The feasibility is dependant on the ability of Mareeba Shire Council and the community to source capital funds for construction and staged development. While the trail can deliver a number of benefits, the decision to invest in the trail will rest withy Council and will need to be considered against numerous other projects and priorities.

12.1 Trail Development- Preferred Option

This study recommends Trail Option 1 as the preferred option. Sealing the trail to the airport in the short term and, dependant on future discussions with DTMR, sealing the entire trail will allow it to form part of the principle cycle network and reduce the required level of maintenance following maintenance events. Option One delivers a safe cycling corridor for students, residents and workers. In addition, it creates an active/trails tourism asset that will bring additional benefit to the local economy.

It is also recommended that if funding can be secured that the trail be developed in one stage. This would ensure the rail trail meets its economic and community benefit to the region. If this cannot be achieved a staged approach could be undertaken as outlined below, however where opportunistic funding emerges that it should be pursued and the trail developed.

Table 27: Potential Trail Development Staging

Section	Rationale
Section A	Section A be of the highest priority, as this would provide a connection to McIver Road and main streets of Mareeba, including Rankin St, providing a safe commuter route between schools, places of work and residential properties.
Section B & C	Section B & C would connect a major residential development (Wylandra Estate) and point of employment (Mareeba Airport). This should include the Highway crossing to enable safe crossing of highway for residents travelling to and from Mareeba towards Atherton.
Section D	Section D requires work on the existing trail surface to remove ballast and would further encourage users between the two LGA's and visitors to use the trail by improving the surface.
Section E	Section E has a large creek crossing that would require significant works to treat. However, this is an important link to connect Mareeba to Walkamin and further to Atherton. Ensuring a suitable treatment of the creek crossing will enable use of the trial during and after wet weather event.

12.2 Trail Management

This study recommends that ultimately a community-based committee (CBC), with Council and community stakeholder representation, be established to manage the trail. Council would be the main asset owner and lease the corridor from DTMR and would then establish an agreement with a CBC to undertake a range of management and maintenance activities.

In recognition that the formation, establishment and development of such a group to have the capacity to take on the role may take some time, it is also recommended that in the initial period a collaborative approach to management be adopted and used until such time as the CBC is established and ready.

Council could continue to be responsible for vegetation maintenance and negotiate increased funding from DTMR, preferably to $40,000. The Community-Based Committee would be responsible for surface management, crossing/ ford repair and signage maintenance.

It is critical to recognise that although this option is recommended, it should only proceed if such a group can be established and a funding plan is in place for the life of the rail trail. If this cannot be achieved, Council should consider continuing collaborative management of the rail trail, recognising the overall benefit the trail will provide to the community and region.

13. Warranties and Disclaimers

The information contained in this report is provided in good faith. While Otium Planning Group has applied their own experience to the task, they have relied upon information supplied to them by other persons and organisations.

We have not conducted an audit of the information provided by others but have accepted it in good faith. Some of the information may have been provided 'commercial in confidence' and as such these venues or sources of information are not specifically identified. Readers should be aware that the preparation of this report may have necessitated projections of the future that are inherently uncertain and that our opinion is based on the underlying representations, assumptions and projections detailed in this report.

There will be differences between projected and actual results, because events and circumstances frequently do not occur as expected and those differences may be material. We do not express an opinion as to whether actual results will approximate projected results, nor can we confirm, underwrite or guarantee the achievability of the projections as it is not possible to substantiate assumptions which are based on future events.

Accordingly, neither Otium Planning Group, nor any member or employee of Otium Planning Group, undertakes responsibility arising in any way whatsoever to any persons other than client in respect of this report, for any errors or omissions herein, arising through negligence or otherwise however caused.

Appendix 1 – MCa Economics Impact Assessment

Mareeba-Walkamin Rail Trail

Economic Impact Assessment Report
Report 2

MCa <Michael Connell & Assocs.>

November 5 2019

Revised Dec 17 2019

Table of Contents

Executive Summary

This report provides an economic impact assessment of the proposed Mareeba-Walkamin Rail Trail development. It is designed to show the scope and potential size of the benefits to the region, which could be realised with the development of the rail trail.
The trail will be used by walkers and MTB riders. The economic modelling in this report is based on estimates of annual users of the trail and other assumptions that are utilised in quantifying spending in the region. The analysis in this report is based on the assumption that 2% of locals and 2% of visitors to Mareeba LGA will use the trail (either riding or walking).

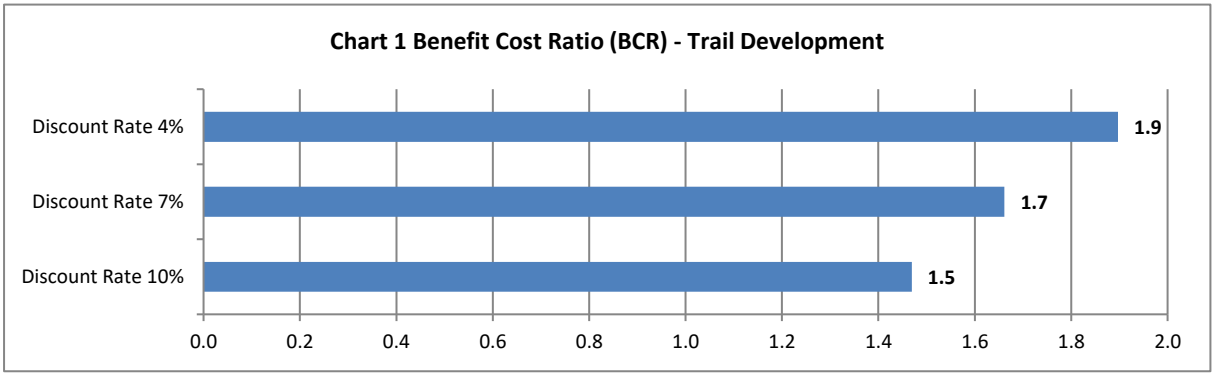
The Mareeba-Walkamin Rail Trail development will generate positive economic benefits for the Mareeba region during the construction phase and in the operations phase.

Construction Phase Jobs
A total of 6.5 FTE jobs (5.4 direct jobs and 1.1 indirect/induced jobs) would be generated during the construction period. The direct jobs comprise 4.7 jobs in on-site construction and 0.7 jobs in materials/equipment supply.[1]

Operations Phase Jobs
The ongoing growth in user numbers will support an increasing number of jobs in the region.

- The operation of the trail would generate a total of 5.1 full time equivalent jobs in year 1 (4.3 direct jobs and 0.8 indirect/induced jobs), increasing to 11.5 FTE jobs in Year 10 (9.6 direct jobs and 1.9 indirect/induced jobs).
- Of the total 11.5 jobs (direct & indirect/induced) in year 10 – local /regional users and day visitors would account for 5.9 FTE jobs and overnight visitors for 5.6 FTE jobs.
- On a sector basis, the jobs (FTE-direct and indirect) generated by trail users are mainly concentrated in: recreational services and other visitor services; accommodation; food service; and other retail.

Benefit/Cost Analysis
The development generates combined benefits that are above the full costs (construction, maintenance and depreciation) over a 10 year period. For these projects a 7% discount rate is appropriate and this project yields a Benefit Cost Ratio (BCR) of 1.7. The present value of total benefits ($4.950 million) generated by the investment exceeds the total costs of the project ($2.979 million) over a 10 year period and is 1.7 times the total project cost.



Source: MCa modelling and estimates, November 2019

1. Introduction

This report provides an economic impact assessment of the proposed Mareeba-Walkamin Rail Trail development. It is designed to show the scope and size of the benefits to the region, which could be realised with the development of the rail trail.

The trail will be used by walkers and MTB riders. The economic modelling is based on estimates of annual users of the trails and other assumptions that are utilised in quantifying spending in the region.

The analysis in this report is based on the assumption that 2% of locals and 2% of visitors to Mareeba LGA will use the trail (either riding or walking).

1 Note some differences due to rounding.

For operations, several types of users are identified: locals from Mareeba LGA and the adjacent areas; day visitors from outside the region; and overnight visitors (domestic and international trail users who stay overnight in the region). The economic impacts of the trail arise from spending by these users/visitors in the towns adjacent to the trail and other spending in the broader region.

Visitors from outside the region (day users and overnight users) generate significant expenditure covering food and beverage, accommodation (for overnight stayers), and recreation and other services.

The economic impact analysis has been undertaken by MCa <Michael Connell & Assocs.>- economic consultants.

2. Trail Users & Spending

2.1 Trail Users/ Visitors

There is limited information on the potential users of the rail trail. Trail user numbers have been estimated for a 10 year period of operations for several user categories. The estimates cover MTB riders and walkers.

These user groups include: local/regional users (residents of Mareeba LGA); and visitors/users comprising domestic day visitors, domestic overnight visitors, and international overnight visitors. The assumptions used in the modelling of user numbers and spending patterns are outlined in the tables below.

- Local/regional users are based on population estimates and the percentage involved in mountain biking/walking (2%) and people undertaking an average of 10 rides/walks per year.[2]
- Other trail users are estimated on the basis of total visitors to the region and assumptions about the percentage that will use the trail during their visit (assumed 2%). Each is assumed to average 1 trail use per visit.
- This analysis yields annual estimates of rail trail users by category and the number of annual uses of the trail.

Total annual trail users in the base year (year 4) were estimated at 431 locals and 6,938 visitors.

Table 1 Assumptions: Local and Regional Trail Users (MTB Riders & Walkers) – Base Year (Y4)

Estimate Trail Users Local & Regional Residents <Base Year 4>	Population (Est. 2016)	Trail Users (2% of Residents)	Ave Use Per Year	Trail Uses Per Year <Base Year 4)
Mareeba LGA	21,557	431	10	4,311

Source: MCa modelling and estimates. November 2019. LGA population estimates from ABS regional population estimates.

Other Trail Users (visitors) estimates are based on a conservative assumption that 2% of visitors to the Mareeba LGA will use the trail during their visit. This percentage has been applied to Tourism Research Australia data on visitor numbers to the LGA (2017).[3] These estimates are designed to be indicative of trail use and by necessity have to be based on available data.[4]

2 The estimate of local resident trail users is based on 2% of local residents of Mareeba LGA. It is assumed that locals will be regular users, with an average of 10 uses of the trail across the year.

3 Local Government Area Profiles, 2017, Mareeba LGA, Tourism Research Australia (TRA). The TRA data averages the visitor numbers across 3 years (ie. years 2015, 2016, 2017).

4 The available tourism data used to project non-resident use was "whole of shire" tourism information which includes Kuranda. This could skew the estimates of non-resident use, particularly day visits. However the participation rate for trail use is conservative. A recent survey of visitors to Mareeba just released, while not able to provide visitor number projections, does confirm that the estimates of overnight stay and expenditure used in the business case are realistic.

Table 2 Assumptions: Other Trail Users (MTB Riders & Walkers) – Base Year (Y4)

Estimate Other Trail Users Visitors <Base Year 4>	Visitor Numbers Mareeba LGA (TRA 2017)	Trail Users (% of visitors)	Trail Users Visitors	Ave uses per visit	Total Trail Uses Annual <Base Year 4)
Domestic Overnights	95,906	2%	1918	1	1,918
Domestic Day	239,727	2%	4,795	1	4,795
International	11,270	2%	225	1	225
Total Visitors	**346,902**		**6,938**		**6,938**

Source: MCa modelling and estimates, November 2019

The 10 year modelling was based on: calculating a base estimate of trail users based on the data and assumptions above which was assumed to apply in year 4 of the trail's operations; allowing for establishment of the trail in the market and initial growth in users (50% of base number in year 1, 65% in year 2 and 80% in year 3); and subsequent increases based on a growth rate of 2% per year from year 5-10. The number of rides/walks (uses) on the trail is based on the estimated number of rides per user category.

Trail users are estimated to increase from 3685 in year 1 to 8299 in year 10. These would account for 5625 trail uses in year 1 growing to 12,669 in year 10.

Table 3 Annual Rail Trail User Estimates Years 1-10 (no.)

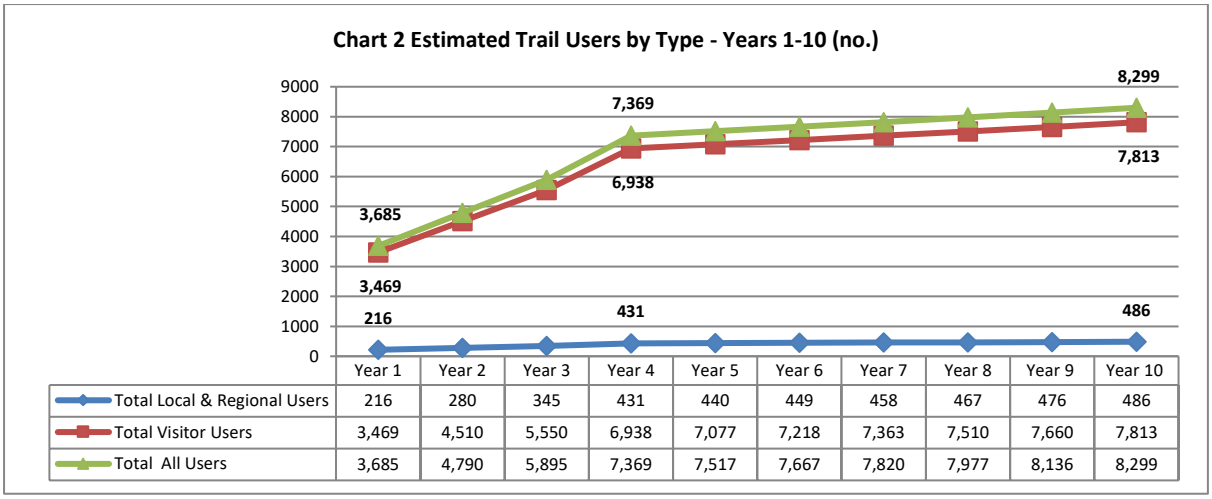
Trail Users (MTB & Walkers)	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
User Estimates (annual)	50% of Base	65% of Base	80% of Base	Base Estimate	2% annual growth					
Local & Regional - Riders										
Total Local & Regional	216	280	345	431	440	449	458	467	476	486
Visitors - Riders										
Domestic O/Night	959	1247	1534	1918	1,956	1996	2036	2076	2118	2160
Domestic Day	2397	3116	3836	4,795	4,890	4988	5088	5190	5294	5399
International	113	147	180	225	230	234	239	244	249	254
Total Visitors	**3,469**	**4,510**	**5,550**	**6,938**	**7,077**	**7,218**	**7,363**	**7,510**	**7,660**	**7,813**
Total Trail Users	**3,685**	**4,790**	**5,895**	**7,369**	**7,517**	**7,667**	**7,820**	**7,977**	**8,136**	**8,299**

Source: MCa modelling and estimates, November 2019

Table 4 Annual Uses of Trail Estimates Years 1-10 (no.)

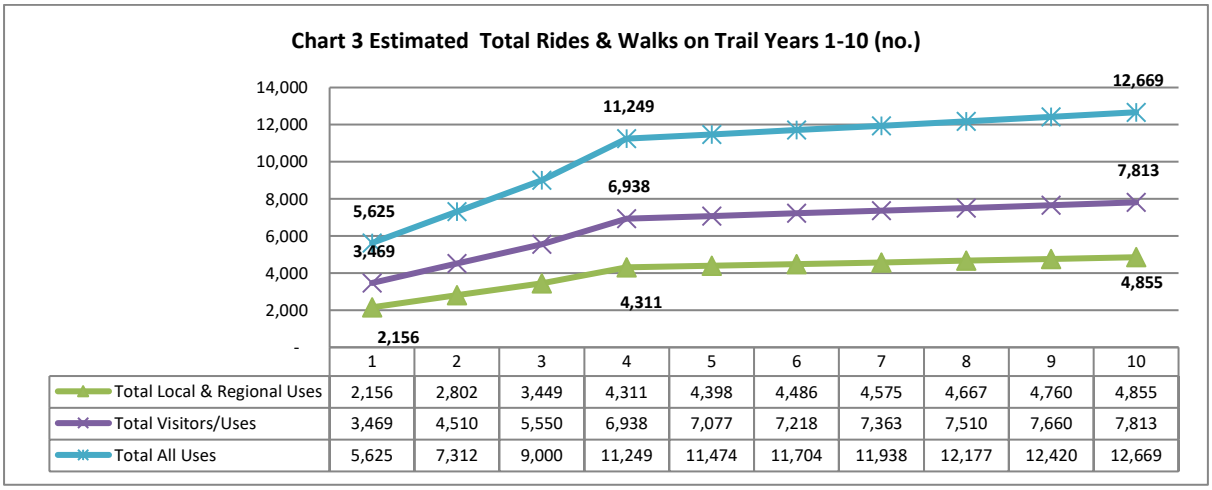
Trail Uses <MTB Riders & Walkers>		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Estimates Uses of Trail (annual)	Ave Trail Uses	Year 1	Year 2	Year 3	Year 4 Base	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Local & Regional – Uses – rides & walks	**Per year**										
Total Local & Regional Uses	10	2,156	2,802	3,449	4,311	4,398	4,486	4,575	4,667	4,760	4,855
Visitor Uses – rides & walks	**Per visit**										
Domestic O/Night	1	959	1,247	1,534	1,918	1,956	1,996	2,036	2,076	2,118	2,160
Domestic Day	1	2,397	3,116	3,836	4,795	4,890	4,988	5,088	5,190	5,294	5,399
International	1	113	147	180	225	230	234	239	244	249	254
Total Visitors/Uses		**3,469**	**4,510**	**5,550**	**6,938**	**7,077**	**7,218**	**7,363**	**7,510**	**7,660**	**7,813**
Total Uses of Trail		**5,625**	**7,312**	**9,000**	**11,249**	**11,474**	**11,704**	**11,938**	**12,177**	**12,420**	**12,669**

Source: MCa modelling and estimates, November 2019. Note local/regional users = average rides per year; visitors = average rides per visit



	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Total Local & Regional Users	216	280	345	431	440	449	458	467	476	486
Total Visitor Users	3,469	4,510	5,550	6,938	7,077	7,218	7,363	7,510	7,660	7,813
Total All Users	3,685	4,790	5,895	7,369	7,517	7,667	7,820	7,977	8,136	8,299

Source: MCa modelling and estimates, November 2019



	1	2	3	4	5	6	7	8	9	10
Total Local & Regional Uses	2,156	2,802	3,449	4,311	4,398	4,486	4,575	4,667	4,760	4,855
Total Visitors/Uses	3,469	4,510	5,550	6,938	7,077	7,218	7,363	7,510	7,660	7,813
Total All Uses	5,625	7,312	9,000	11,249	11,474	11,704	11,938	12,177	12,420	12,669

Source: MCa modelling and estimates, November 2019

2.2 Spending in the Region

Spending in the region was estimated based on a range of information and the recent TRA Local Government Profile for Mareeba LGA.[5] International visitors using the trail are assumed to have the same length of stay as domestic overnight visitors (average 3.1 days).

Table 5 Assumptions used in Modelling Rail Trail User Spending in Region

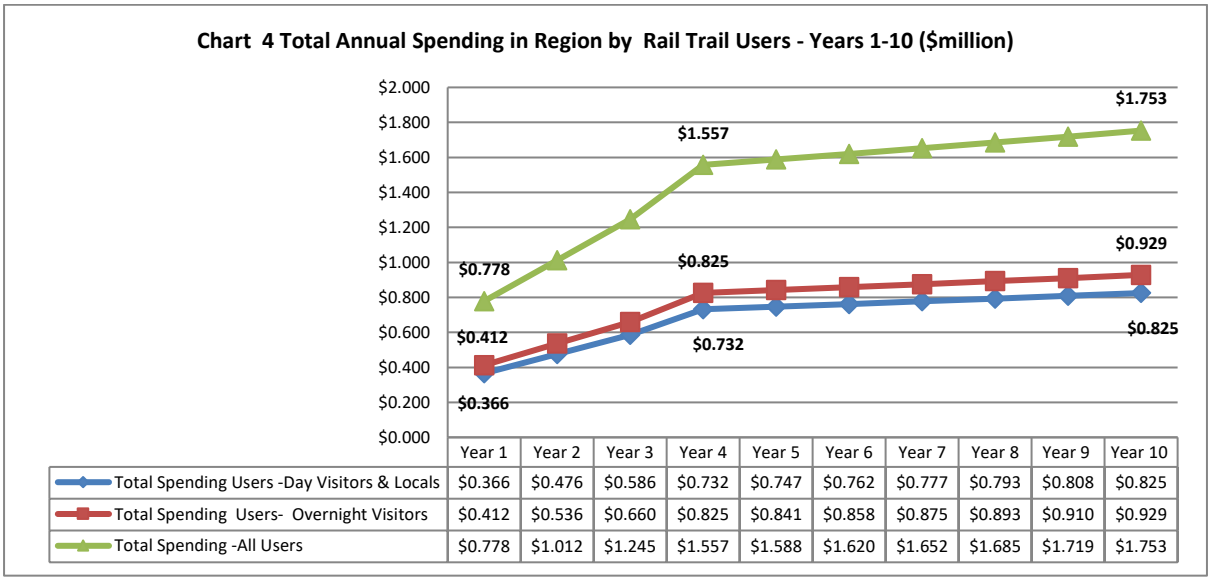
Spending Assumptions (average spending per person/day)	Length of Stay (days)	Food/ Accommod Other Retail $	MTB Bike Hire $ p/p /d	% Using	Guides $ p/p /d	% Using
Local & Regional						
Local Residents Mareeba LGA	1	$30	$40	20%	$40	0%
Visitors (TRA 2017)						
Domestic Overnights	3.1	$119	$40	60%	$40	20%
Domestic Day	1.0	$95	$40	40%	$40	20%
International (estimate)	3.1	$49	$40	80%	$40	40%

Source: MCa modelling and estimates, November 2019. Note food & accommodation spend for visitors is based on Local Government Area Profiles, 2017, Mareeba LGA, Tourism Research Australia.

In the spending analysis local/regional users are included in the day visitor/user category.

The combination of user numbers by type, average spending and average length of stay is used to estimate annual spending (in constant 2019 dollars) in the region. The following chart shows annual spending for each of the user types. Total spending increases from $0.778 million in year 1 to $1.743 million in year 10.

5 Local Government Area Profiles, 2017, Mareeba LGA, Tourism Research Australia



Source: MCa modelling and estimates, November 2019

The following table shows estimates of spending by category for day visitors (local, regional and other users from outside the region)) and for overnight visitors (domestic and international).

Total expenditure comprises: spending on trail-linked activities (including spending on bike related expenses and other spending - food and beverage etc.) in proximity to the trails; spending on accommodation (for overnight stayers) and meals during their stay; spending on other recreational and tourism services; and other retail expenditure.

Table 6 Spending by Rail Trail Users in Region Year 1-10 (estimate constant prices $2019)

Spending by Trail Users in Region	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
(Constant Prices $ 2019)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Total Users - Day Visitors & Locals										
Food	$291,335	$378,735	$466,136	$582,670	$594,323	$606,209	$618,334	$630,700	$643,314	$656,181
Bike Hire	$55,602	$72,282	$88,963	$111,204	$113,428	$115,696	$118,010	$120,371	$122,778	$125,233
Guides	$19,178	$24,932	$30,685	$38,356	$39,123	$39,906	$40,704	$41,518	$42,348	$43,195
Total Spending Users - Day Visitors & Locals	**$366,115**	**$475,949**	**$585,784**	**$732,230**	**$746,874**	**$761,812**	**$777,048**	**$792,589**	**$808,441**	**$824,609**
Total Users - Overnight Visitors										
Food & Accommodation	$376,193	$489,051	$601,909	$752,386	$767,434	$782,783	$798,438	$814,407	$830,695	$847,309
Bike Hire	$26,624	$34,611	$42,598	$53,247	$54,312	$55,398	$56,506	$57,636	$58,789	$59,965
Guides	$9,476	$12,318	$15,161	$18,951	$19,330	$19,717	$20,111	$20,513	$20,924	$21,342
Total Spending Users - Overnight Visitors	**$412,292**	**$535,980**	**$659,668**	**$824,584**	**$841,076**	**$857,898**	**$875,056**	**$892,557**	**$910,408**	**$928,616**
Total All Users										
Total Spending All Users	**$778,407**	**$1,011,929**	**$1,245,451**	**$1,556,814**	**$1,587,950**	**$1,619,709**	**$1,652,103**	**$1,685,146**	**$1,718,848**	**$1,753,225**

Source: MCa modelling and estimates, November 2019

3. Economic Impacts of Mareeba-Walkamin Rail Trail

The economic impacts of the Mareeba-Walkamin Rail Trail development are modelled for both the construction phase and the operations phase. The impacts are measured in terms of: full time equivalent jobs (FTE); and the increase in regional income that is generated by trail users and their spending in the region.[6]

3.1 Construction Phase

Local jobs and an increase in regional income will be generated during the construction phase of the project.

3.1.1 Construction Costs

Trail construction and other infrastructure costs are estimated at $1.638 million (including a 40% contingency).

Table 7 Construction Costs – Mareeba-Walkamin Rail Trail Project (2019)

Trail Construction	Costs (2019)
Total Construction Cost	$1,169,920
Contingency (40%)	$ 467,968.0
Total Cost (incl. Contingency)	**$1,637,888**

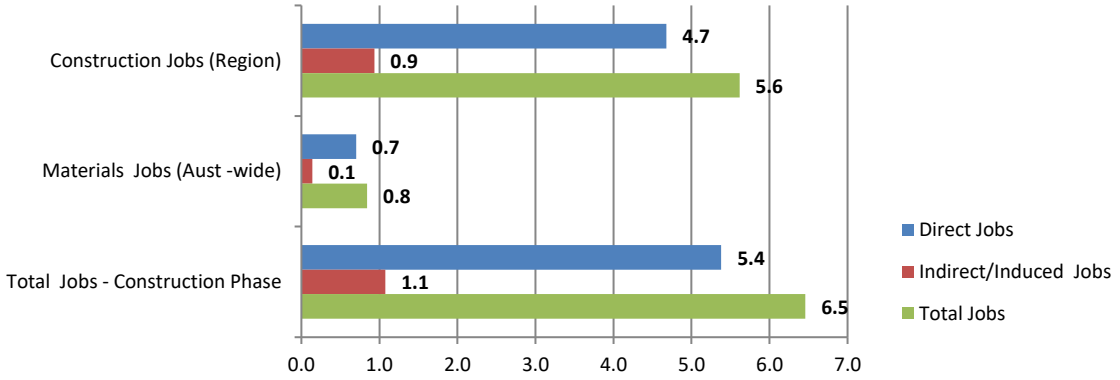
Source: Otium Planning Group Costings, July 2019

3.1.2 Economic Impacts - Construction Phase

Trail Development

A total of 6.5 FTE jobs (5.4 direct jobs and 1.1 indirect/induced jobs) would be generated during the construction period. The direct jobs comprise 4.7 jobs in on-site construction and 0.7 jobs in materials/equipment supply.

Chart 5 Construction Phase - Mareeba - Walkamin Rail Trail Jobs Generated (FTE no.)



	Total Jobs - Construction Phase	Materials Jobs (Aust - wide)	Construction Jobs (Region)
Direct Jobs	5.4	0.7	4.7
Indirect/Induced Jobs	1.1	0.1	0.9
Total Jobs	6.5	0.8	5.6

Source: MCa modelling and estimates, July 2019. Note some differences due to rounding

Table 8 Construction Phase – Mareeba - Walkamin Rail Trail FTE Jobs Generated (no.)

Construction Phase FTE Jobs	Direct Jobs	Indirect/ Induced Jobs	Total Jobs
Construction Jobs (Region)	4.7	0.9	5.6
Materials Jobs (state -wide)	0.7	0.1	0.8
Total Jobs - Construction Phase	**5.4**	**1.1**	**6.5**

Source: MCa modelling and estimates, July 2019. Note some differences due to rounding.

6 Regional income is the total net income generated from the activity and covers wages and salaries of employees and profits of businesses within the region. It includes income generated directly within the business and indirect income, which is generated in other regional businesses (wages and profits) from the multiplier impacts of employee spending on the region. In the modelling of income generated, income tax and GST on spending, are both treated as leakages from the region.

During construction a total of $842,342 in regional income would be generated ($701,952 direct income and $140,390 indirect/induced). [7]

Table 9 Construction Phase – Mareeba - Walkamin Rail Trail FTE Regional Income Generated (no.)

Mareeba - Walkamin Rail Trail	Direct Regional Income	Indirect/Induced Income	Total Regional Income
Construction Phase – Increase Regional Income	$701,952	$140,390	$842,342

Source: MCa modelling and estimates, July 2019.

3.2 Operations Phase

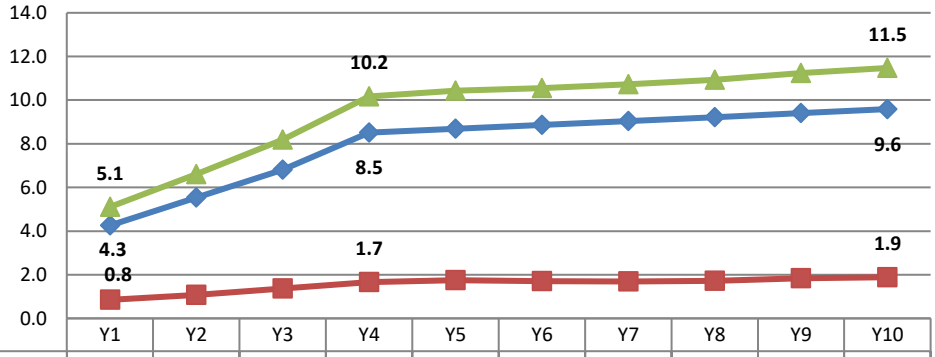
The operations phase economic impacts of the trail are driven by the expenditure of visitors/users in towns adjacent to the trail and in the broader Mareeba LGA. MCa's regional economic model is used to estimate the employment and income impacts of the trail. The model allocates spending across relevant industry sectors and takes account of the significant shares of the gross spending by visitors/ trail users, which leaks out of the region.[8]

3.2.1 Employment Impacts

The charts below show the increase in regional jobs (annual) generated by each of the user/visitor groups. The ongoing growth in user numbers will support an increasing number of jobs in the region.

- The operation of the trail would generate a total of 5.1 full time equivalent jobs in year 1 (4.3 direct jobs and 0.8 indirect/induced jobs), increasing to 11.5 FTE jobs in Year 10 (9.6 direct jobs and 1.9 indirect/induced jobs).
- Of the total 11.5 jobs (direct & indirect/induced) in year 10 – local /regional users and day visitors would account for 5.9 FTE jobs and overnight visitors for 5.6 FTE jobs.
- On a sector basis, the jobs (FTE-direct and indirect) generated by trail users are mainly concentrated in: recreational services and other visitor services; accommodation; food service; and other retail.

Chart 6 Jobs Generated by Trail Operations - Years 1-10 (FTE no.)

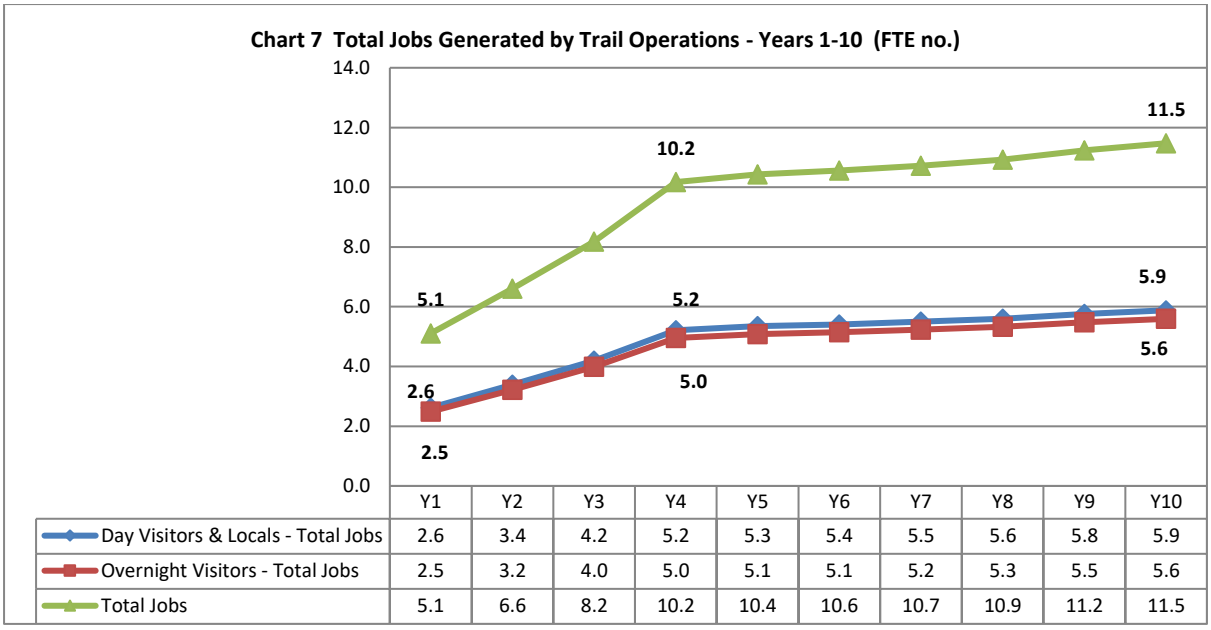


	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Direct Jobs	4.3	5.5	6.8	8.5	8.7	8.9	9.0	9.2	9.4	9.6
Indirect /Induced Jobs	0.8	1.1	1.4	1.7	1.8	1.7	1.7	1.7	1.8	1.9
Total Jobs	5.1	6.6	8.2	10.2	10.4	10.6	10.7	10.9	11.2	11.5

Source: MCa modelling and estimates, November 2019. May be some differences due to rounding

7 This assumes the construction workforce would come from Mareeba LGA and adjacent areas.

8 The spending by trail users is not the economic impact and does not represent the increase in in regional income. There is a major leakage of this spending out of the region due to : the GST (10%); and a significant component of the value of services and products purchased by visitors comes from outside the region (eg. food ingredients, soft drinks, beer , consumer products bought etc.). The model takes account of these leakages and estimates employment impacts and the increase in regional income.



Source: MCa modelling and estimates, November 2019. May be some differences due to rounding

Table 10 Total Jobs Generated by Trail Operations Years 1-10 (FTE no.)

Operations: Jobs Generated by Trail Users/Visitors	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Day Visitors & Local Users										
Direct Jobs	2.2	2.8	3.5	4.4	4.5	4.5	4.6	4.7	4.8	4.9
Indirect/Induced Jobs	0.4	0.5	0.7	0.8	0.9	0.9	0.9	0.9	0.9	1.0
Total Jobs	**2.6**	**3.4**	**4.2**	**5.2**	**5.3**	**5.4**	**5.5**	**5.6**	**5.8**	**5.9**
Overnight Visitors/Users										
Direct Jobs	2.1	2.7	3.3	4.1	4.2	4.3	4.4	4.5	4.6	4.7
Indirect/Induced Jobs	0.4	0.5	0.7	0.8	0.9	0.8	0.8	0.8	0.9	0.9
Total Jobs	**2.5**	**3.2**	**4.0**	**5.0**	**5.1**	**5.1**	**5.2**	**5.3**	**5.5**	**5.6**
Total All Users										
Direct Jobs	4.3	5.5	6.8	8.5	8.7	8.9	9.0	9.2	9.4	9.6
Indirect/Induced Jobs	0.8	1.1	1.4	1.7	1.8	1.7	1.7	1.7	1.8	1.9
Total Jobs	**5.1**	**6.6**	**8.2**	**10.2**	**10.4**	**10.6**	**10.7**	**10.9**	**11.2**	**11.5**

Source: MCa modelling and estimates, November 2019. May be some differences due to rounding. Note local/regional resident users are included in the day user category.

The development of the rail trail is likely to see the development of some local bike and recreational services businesses. The industry analysis highlights that jobs generated by trail users will be in a number of sectors. In year 10 industry jobs are estimated at: recreation services/other services (bike hire, guides, equipment, other services) 4.2 jobs; transport 1.2 jobs; accommodation 1.4 jobs; and food and beverage 2.8 jobs.

Table 11 Jobs Generated by Trail Users by Industry Years 1 -10 (FTE no.)

	1	2	3	4	5	6	7	8	9	10
Total All Jobs	**2022**	**2023**	**2024**	**2025**	**2026**	2027	2028	2029	2030	2031
Day Visitors & Local Users										
Accommodation	0	0	0	0	0	0	0	0	0	0
Food & Beverage	0.7	0.9	1.1	1.4	1.4	1.4	1.5	1.5	1.5	1.6
Recreation Services/Other Services	1.2	1.6	2.0	2.5	2.5	2.6	2.6	2.7	2.7	2.8
Other Retail	0.3	0.4	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.7
Health	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Transportation	0.3	0.3	0.4	0.5	0.5	0.5	0.6	0.6	0.6	0.6
Communication	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Education	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Miscellaneous Services	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total	**2.6**	**3.4**	**4.2**	**5.2**	**5.3**	**5.4**	**5.5**	**5.6**	**5.8**	**5.9**
Overnight Visitors/Users										
Accommodation	0.6	0.8	1.0	1.3	1.3	1.3	1.4	1.4	1.4	1.4
Food & Beverage	0.6	0.7	0.9	1.1	1.2	1.2	1.2	1.2	1.2	1.3
Recreation Services/Other Services	0.6	0.8	1.0	1.3	1.3	1.3	1.4	1.4	1.4	1.4
Other Retail	0.2	0.3	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Health	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Transportation	0.3	0.4	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Communication	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Education	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Miscellaneous Services	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total	**2.5**	**3.2**	**4.0**	**5.0**	**5.1**	**5.1**	**5.2**	**5.3**	**5.5**	**5.6**
Total All Users										
Accommodation	0.6	0.8	1.0	1.3	1.3	1.3	1.4	1.4	1.4	1.4
Food & Beverage	1.3	1.6	2.0	2.5	2.6	2.6	2.7	2.7	2.8	2.8
Recreation Services/Other Services	1.9	2.4	3.0	3.8	3.8	3.9	4.0	4.1	4.2	4.2
Other Retail	0.5	0.7	0.8	1.0	1.1	1.1	1.1	1.1	1.2	1.2
Health	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2
Transportation	0.5	0.7	0.9	1.1	1.1	1.1	1.1	1.2	1.2	1.2
Communication	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Education	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Miscellaneous Services	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
Total	**5.1**	**6.6**	**8.2**	**10.2**	**10.4**	**10.6**	**10.7**	**10.9**	**11.2**	**11.5**

Source: MCa modelling and estimates, July 2019. May be some differences due to rounding

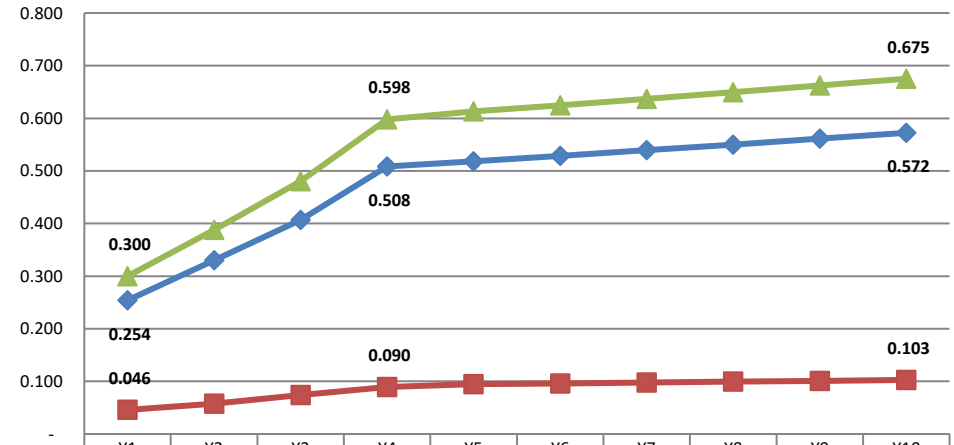
3.2.2 Regional Income Impacts

The increase in regional income generated annually by the operation of the rail trail and visitor/user spending totals $0.300 million in year 1, increasing to $0.675 million in year 10.[9]

The increase in income (direct and indirect/induced) generated by day visitors and local users is $0.151 million in year 1 and $0.399 million in year 10. Overnight users/visitors boost total regional income by $0.149 million in year 1 and $0.337 million in year 10.

9 Regional income is the total net income generated from the activity and covers wages and salaries of employees and profits of businesses within the region. It includes income generated directly within the business and indirect income, which is generated in other regional businesses (wages and profits) from the multiplier impacts of employee spending on the region. In the modelling of income generated income tax and GST on spending, are both treated as leakages from the region.

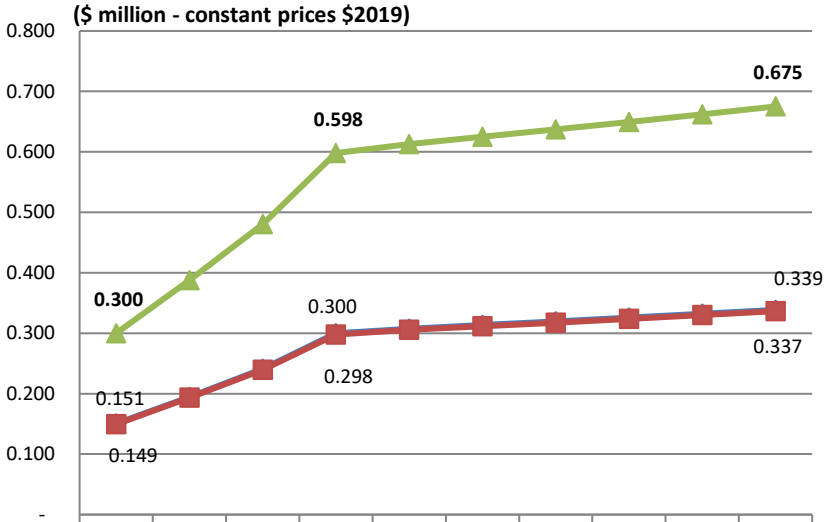
Chart 8 Increase in Regional Income Generated by All Trail Users - Years 1-10
($ million - constant prices $2019)



	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Direct Income	0.254	0.330	0.407	0.508	0.518	0.529	0.539	0.550	0.561	0.572
Indirect/Induced Income	0.046	0.058	0.074	0.090	0.095	0.096	0.098	0.099	0.101	0.103
Total Income	0.300	0.388	0.480	0.598	0.613	0.625	0.637	0.649	0.662	0.675

Source: MCa modelling and estimates, November 2019. May be some differences due to rounding

Chart 9 Increase in Regional Income Generated by Users Type - Years 1-10
($ million - constant prices $2019)



	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Regional Income -Day Visitors & Local Users	0.151	0.195	0.241	0.300	0.307	0.313	0.320	0.326	0.332	0.339
Regional Income - Overnight Visitors/Users	0.149	0.193	0.239	0.298	0.306	0.311	0.318	0.324	0.330	0.337
Total Regional Income	0.300	0.388	0.480	0.598	0.613	0.625	0.637	0.649	0.662	0.675

Source: MCa modelling and estimates, November 2019. May be some differences due to rounding

4. Trail Benefits and Costs

The benefits and costs of are analysed for a 10 year period.

4.1 Trail Costs - 10 Years

The estimated construction cost of the trail project is $1.637 million and the 10 year maintenance costs are $850,000 million (assumed to be $85,000 per year over 10 years), depreciation is assumed to be 3% per year ($491,356 million over 10 years) for a total 10 year cost of $2.979 million.

Table 12 Total Costs of Mareeba Rail Trail Project - 10 Years ($2019 Prices)

Summary	Trail Development <$ 2019 Prices>
Construction Cost	
Rail Trail (includes 40% cost contingency)	$1,637,888
Maintenance Costs	
Annual Maintenance Cost	$85,000
Total Maintenance (10 Years)	$850,000
Depreciation (3% per year - 10 years)	$491,366
Total Costs 10 Years	
Total Construction / Maintenance/Depreciation	**$2,979,254**

Source: Otium Planning Group Costings, July 2019 & November 2019

4.2 Measuring Benefits – 10 Years

The measured benefits of the trail comprise the increase in regional income generated and the health and welfare benefits of cycling activities.

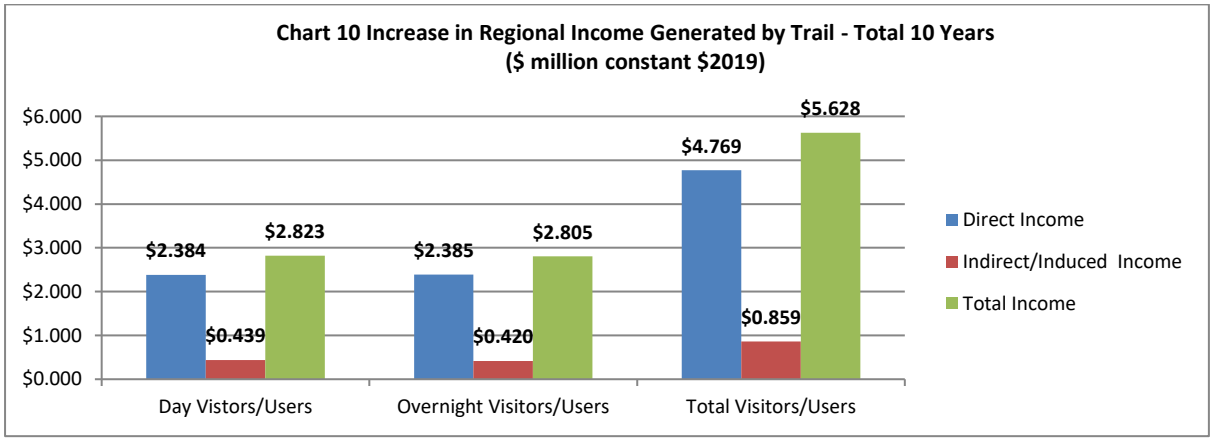
Increase in Regional income

The increase in regional income generated by trail users spending over a 10 year period totals $5.628 million (in constant $2019 prices).

Table 13 Increases in Regional Income Generated by Trail Users - 10 Year Period (constant prices $2019)

Increase in Regional Income -10 Years	Day Visitors $	Overnight Visitors $	Total Regional Income $
Direct Income	$2,384,049	$2,385,280	$4,769,329
Indirect/Induced Income	$438,875	$419,710	$858,585
Total Income	$2,822,925	$2,804,990	$5,627,914

Source: MCa modelling and estimates, November 2019.



Source: MCa modelling and estimates, November 2019. May be some differences due to rounding

Health Benefits

There is limited research available, which quantifies the health benefits of exercise activity on trails. A study was commission by Parks Victoria in 2016 to measure the benefits of activities undertaken in Victorian National Parks. The report by Marsden Jacobs Associates included exercise associated with cycling/active walking as one of the activities. The study estimated net healthcare benefits (in terms of avoided future health costs) at $15 per hour (of exercise). These are based on a reduction of in all lifetime health costs (adjusted for injury) incurred by individuals (private spending and public spending on health).[10] This research has been applied in the analysis of this Queensland trail project. For this project and the likely mix of users of the rail trail, we have used a reduced figure of an average of $10 per hour of exercise.[11]

- Healthcare benefits are measured as the net (adjusted for injury) avoided costs to the healthcare system. These cover private medical costs incurred by individuals and government contributions, including Medicare rebates and other health care subsidies) attributable to nature-based outdoor activity.
- For the analysis of the trails and precinct, we have assumed an average cycle/walk period of 3 hours per trail use (for both categories of users – day visitors & locals and overnight visitors).
- As we are measuring the impacts of the trail on the Mareeba Region, the health benefits only for local and regional users have been included in the benefits analysis.
- This indirect health benefit is estimated at $1.214 million over the 10 year period (in constant $2019 prices) for local/regional users of the trail only.

Table 14 Estimated Health Benefits – Local & Regional Users Only Years 1-10 (Constant Prices $2019)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	
Health Benefits (Local & Regional Users)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total 10 Years
Health Benefits (estimate)	$64,671	$84,072	$103,474	$129,342	$131,929	$134,567	$137,259	$140,004	$142,804	$145,660	$1,213,782

Source: MCa modelling and estimates, November 2019.

4.3 Benefit Cost Analysis

The following table and chart show the benefits and costs of the operations of the trail and precinct over a 10 year period. The benefits are measured by the increase in regional income generated by trail users and by the estimated health benefits (over a 10 year period).[12] The costs include construction costs, asset maintenance costs and depreciation. For the comparison, the present value of the benefits is calculated using 3 discount rates (4%, 7% and 10%).

10 Victoria's Nature-Based Outdoor Economy- Key Estimates and Recommendations, Marsden Jacobs Associates, January 2016 P10 & 21.

11 This reduction is because the trail use is likely to be a mix of active exercise users and more leisurely use.

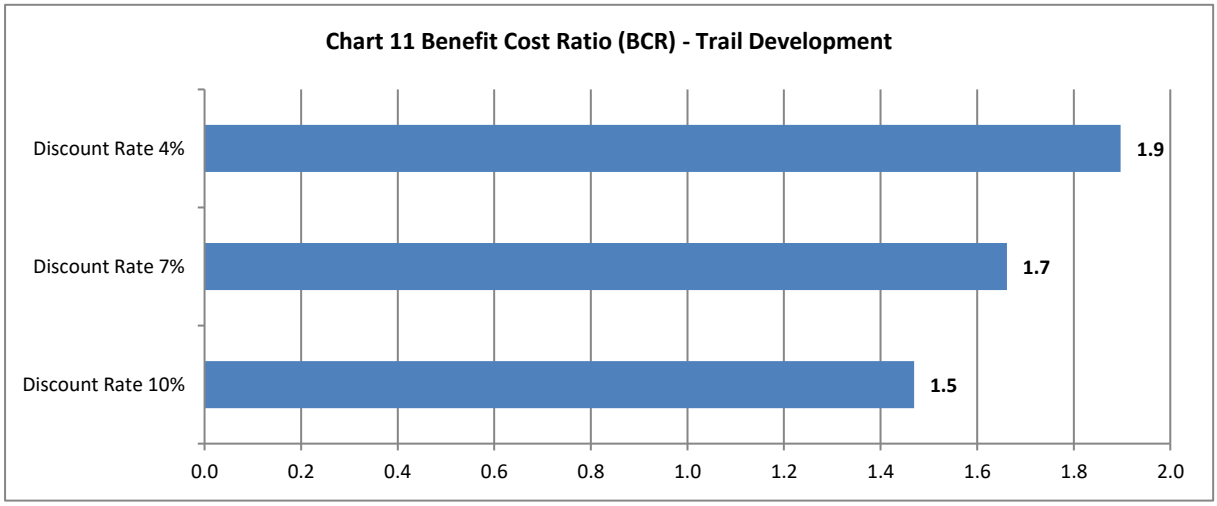
12 The health benefit are those for local and regional users only , as we are measuring impacts on the Mareeba Region.

Table 15 Benefits and Cost Analysis – Trail Development - 10 Year Period (Constant Prices $2019)

Trail Development: 10 Year Operations Period	Discount Rate 4%	Discount Rate 7%	Discount Rate 10%
Costs (10 Years)			
Capital Costs 2019 ($)	$1,637,888	$1,637,888	$1,637,888
Costs - Maintenance (10 years)	$850,000	$850,000	$850,000
Costs - Depreciation (10 Years) <3% per year>	$491,366	$491,366	$491,366
Total Costs	**$2,979,254**	**$2,979,254**	**$2,979,254**
Benefits to Region (10 Years)			
Direct Benefits - users (assumes no trail fees)			
Regional Benefits (increase in regional income generated)	$5,627,914	$5,627,914	$5,627,914
Indirect Benefits (health benefits)	$1,213,782	$1,213,782	$1,213,782
Total Benefits (2019 Prices)	**$6,841,696**	**$6,841,696**	**$6,841,696**
Present Value			
Regional Benefits (increase in regional income generated)	$4,651,645	$4,073,692	$3,601,951
Indirect Benefits (health benefits)	$1,001,088	$876,783	$775,171
Total Benefits ($) Present Value	**$5,652,733**	**$4,950,475**	**$4,377,122**
Net Present Value ($)	**$2,673,478**	**$1,971,220**	**$1,397,867**
NPV/ Costs	0.9	0.7	0.5
Benefit Cost Ratio (BCR) <Total Benefits: Present Value/Total Capital Costs>	**1.9**	**1.7**	**1.5**

Source: MCa modelling and estimates, November 2019. Note: Direct benefits are the value to users of a facility; usually this is measure by user payments/fees. In this case it is assumed that there are no user charges for the trail, therefore benefits are the increase in regional income generated by visitor spending and the health benefits of exercise activity.

The chart below compares Benefit Cost Ratios (BCR) for the 3 discount rates. For a trail project a 7% discount rate is appropriate and the project yields a positive BCR of 1.7. The present value of total benefits ($4.950 million) generated by the investment exceeds the total costs of the project ($2.979 million) over a 10 year period and is 1.7 times the total project cost.



Source: MCa modelling and estimates, November 2019

References

Local Government Area Profiles, 2017, Mareeba LGA, Tourism Research Australia

Victoria's Nature-Based Outdoor Economy- Key Estimates and Recommendations, Marsden Jacobs Associates, January 2016.

Appendix 2 – Bligh Tanner Level Crossing Concepts

LOOKING NORTH

LOOKING SOUTH

MAREEBA

NATIONAL ROUTE 1

ATHERTON

120m

120m

TRIMMING AND PRUNING OF TREE LIMBS TO IMPROVE SIGHT LINES

EDGE OF ROAD CORRIDOR FREQUENTLY OVERGROWN WITH TALL GRASSES. TO BE MOWED LOW TO MAINTAIN CLEAR SITE LINES. APPROX 150m LONG x 7m WIDE

TO PREVENT FREQUENT RE-GROWTH, METHODS SHOULD BE CONSIDERED, SUCH AS POISONING, COVERING WITH MATERIALS NOT CONDUCIVE TO SEED GROWTH SUCH AS THIN LAYER OF COMPACTED ROADBASE MATERIAL.

EDGE OF ROAD CORRIDOR FREQUENTLY OVERGROWN WITH TALL GRASSES. TO BE MOWED LOW TO MAINTAIN CLEAR SITE LINES. APPROX 150m LONG x 7m WIDE

TO PREVENT FREQUENT RE-GROWTH, METHODS SHOULD BE CONSIDERED, SUCH AS POISONING, COVERING WITH MATERIALS NOT CONDUCIVE TO SEED GROWTH SUCH AS THIN LAYER OF COMPACTED ROADBASE MATERIAL.

TRAIL

TRAIL

NOT FOR CONSTRUCTION

SCALE CUSTOM 0 10 20 30m

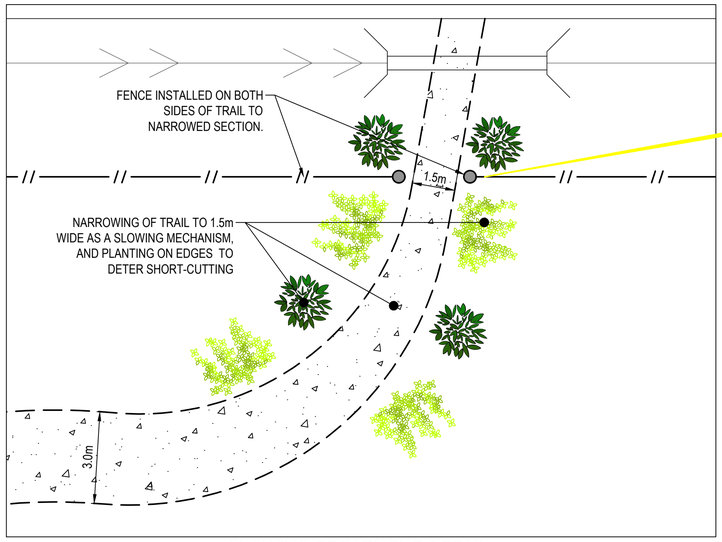
BLIGH TANNER

LEVEL 9, 269 WICKHAM STREET, PO BOX 612
FORTITUDE VALLEY QLD 4006 AUSTRALIA
T 07 3251 8555 F 07 3251 8599

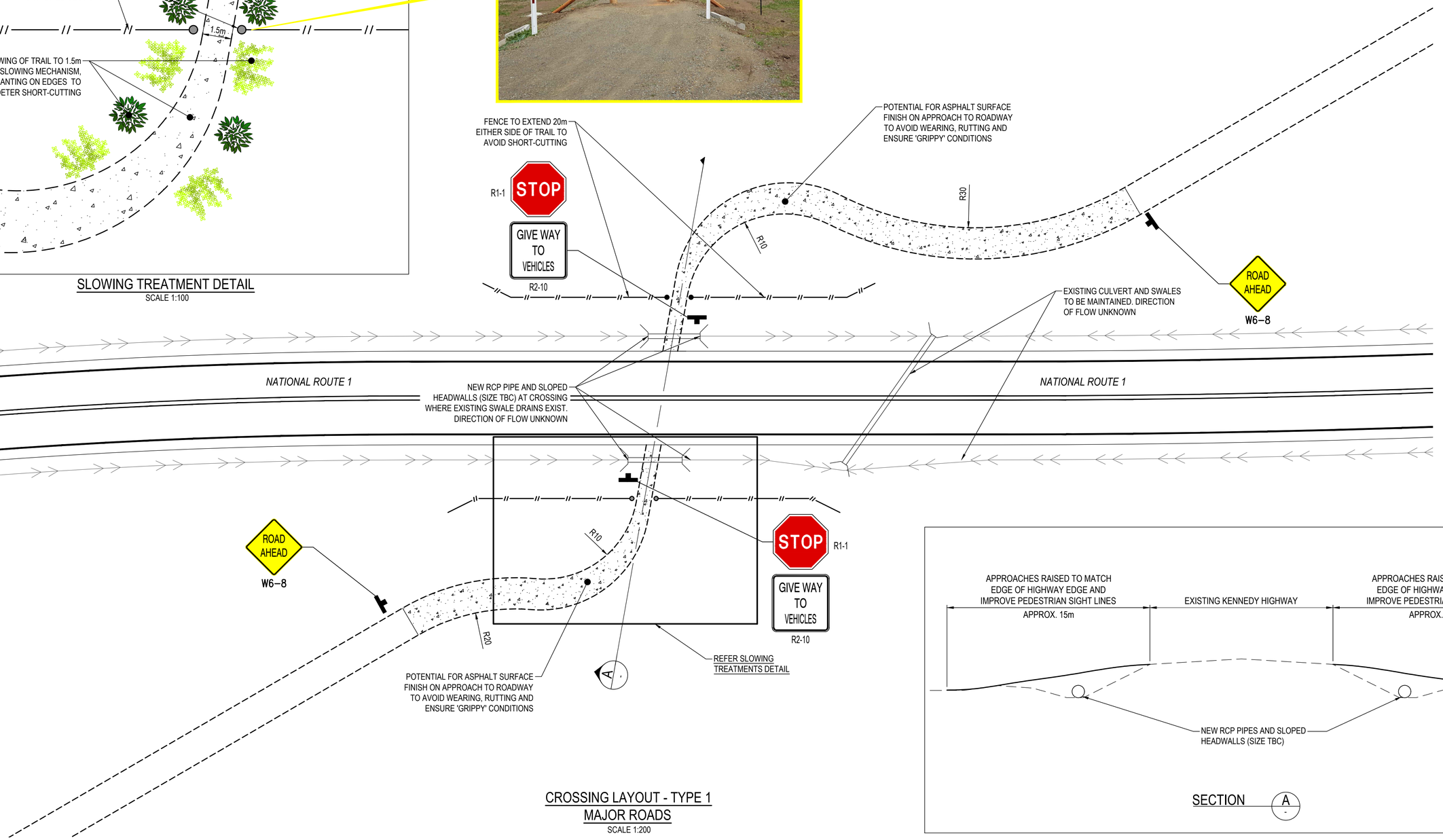
REV	DATE	DESCRIPTION	DESIGN	DRAWN	CHECKED	APPROVED	RPEQ
A	13-06-2019	PRELIMINARY ISSUE	AF	AF			

PROJECT	MAREEBA TO WALKAMIN RAIL TRAIL	DRAWING TITLE	NATIONAL ROUTE 1 - CROSSING SIGHT ASSESSMENT
LOCATION	MAREEBA, QLD	ARCHITECT	
CLIENT	OTIUM PLANNING GROUP		

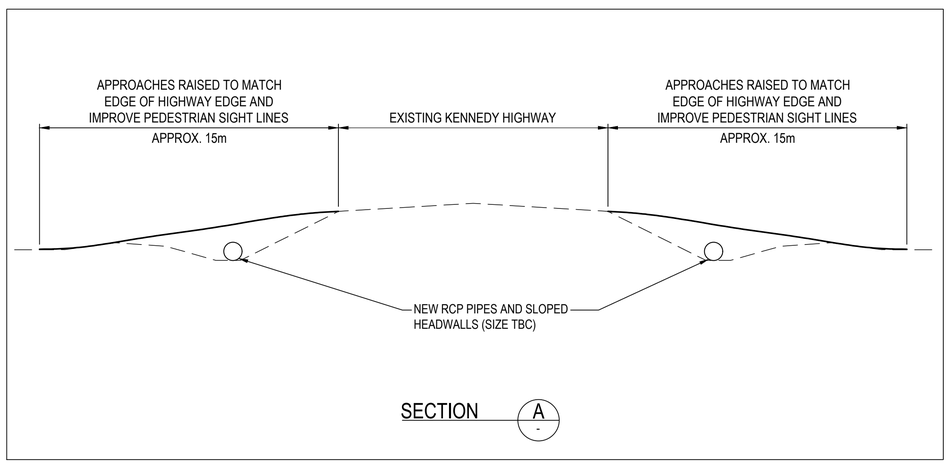
SCALES	CUSTOM
JOB NO	2018.0681
DRAWING NO	SK001
REVISION	A



SLOWING TREATMENT DETAIL
SCALE 1:100



CROSSING LAYOUT - TYPE 1
MAJOR ROADS
SCALE 1:200



SECTION A

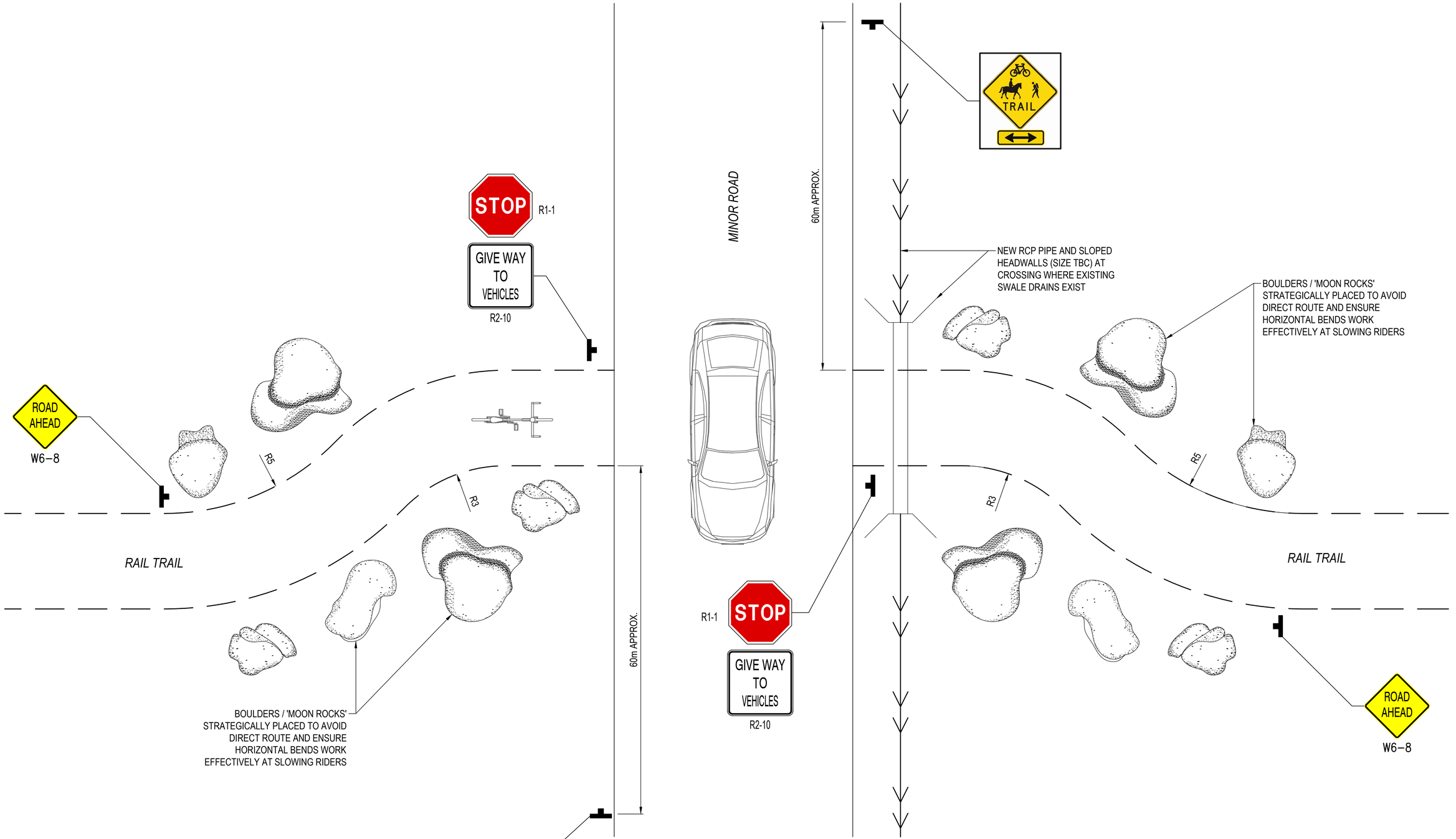
SCALE 1:100 0 1 2 3 4m
SCALE 1:200 0 2 4 6 8m

NOT FOR CONSTRUCTION

BLIGH TANNER
LEVEL 9, 269 WICKHAM STREET, PO BOX 612
FORTITUDE VALLEY QLD 4006 AUSTRALIA
T 07 3251 8555 F 07 3251 8599

REV	DATE	DESCRIPTION	DESIGN	DRAWN	CHECKED	APPROVED	RPEQ
A	13-06-2019	PRELIMINARY ISSUE	AF	AF			

PROJECT: MAREEBA TO WALKAMIN RAIL TRAIL	DRAWING TITLE: CROSSING TYPE 1 - MAJOR ROAD	SCALES: 1:200 @ A1	
LOCATION: MAREEBA, QLD	ARCHITECT:	JOB NO: 2018.0681	
CLIENT: OTIUM PLANNING GROUP		DRAWING NO: SK002	REVISION: A



CROSSING LAYOUT - TYPE 2
MINOR ROADS
SCALE 1:40

SCALE 1:40 0 0.4 0.8 1.2 1.6m

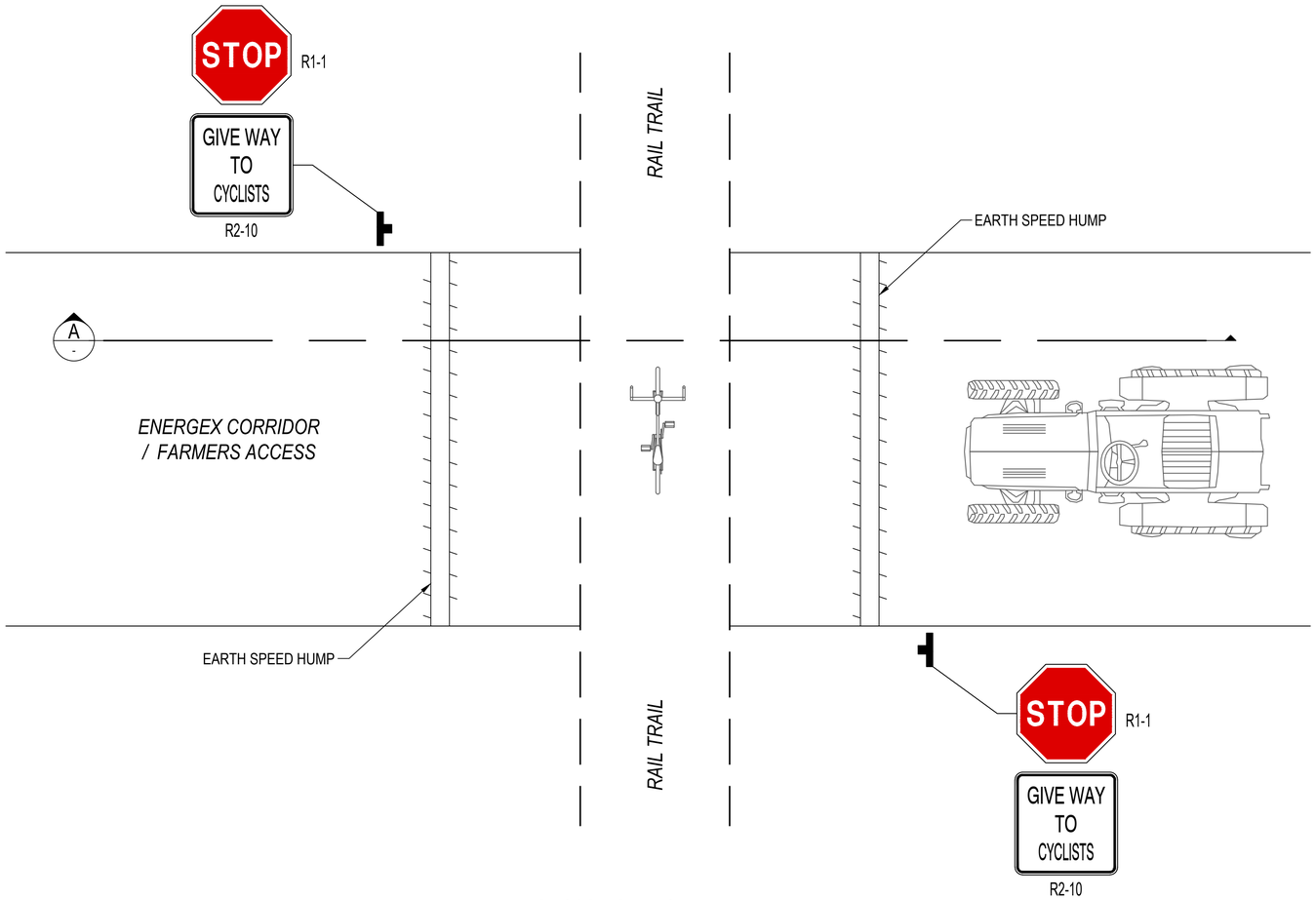
NOT FOR CONSTRUCTION

BLIGH TANNER

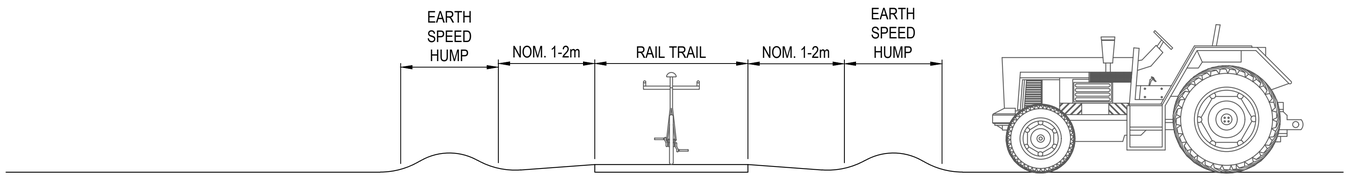
LEVEL 9, 269 WICKHAM STREET, PO BOX 612
FORTITUDE VALLEY QLD 4006 AUSTRALIA
T 07 3251 8555 F 07 3251 8599

REV	DATE	DESCRIPTION	DESIGN	DRAWN	CHECKED	APPROVED	RPEQ
A	13-06-2019	PRELIMINARY ISSUE	AF	AF			

PROJECT	MAREEBA TO WALKAMIN RAIL TRAIL	DRAWING TITLE	CROSSING TYPE 2 - MINOR ROAD
LOCATION	MAREEBA, QLD	ARCHITECT	
CLIENT	OTIUM PLANNING GROUP		
SCALES	1:40 @ A1		
JOB NO	2018.0681		
DRAWING NO	SK003	REVISION	A



CROSSING LAYOUT - TYPE 3
SERVICES CORRIDOR AND EASEMENTS
SCALE 1:40



SECTION A
SCALE 1:40 (A1)

NOT FOR CONSTRUCTION

SCALE 1:40 0 0.4 0.8 1.2 1.6m

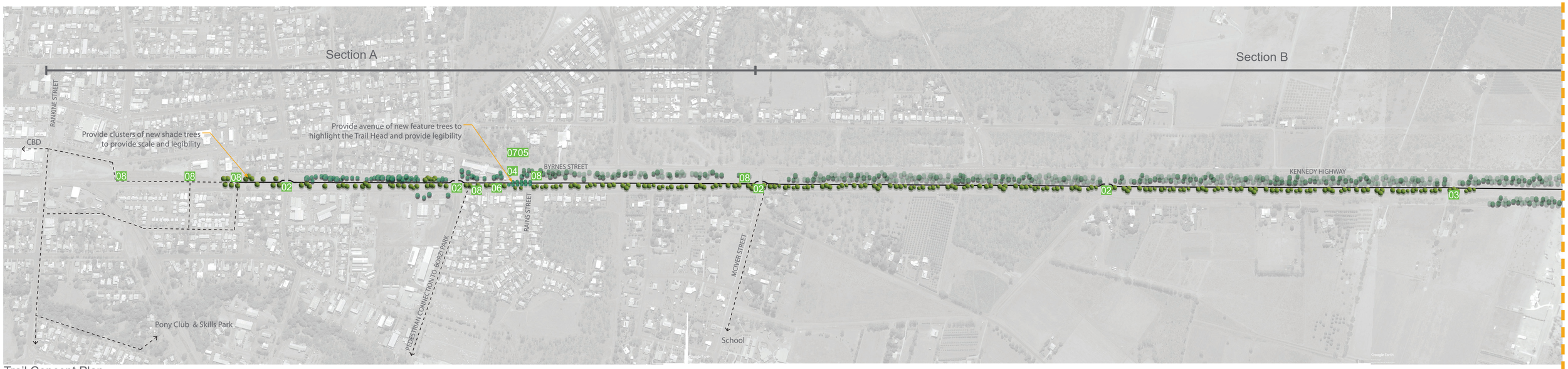
BLIGH TANNER

LEVEL 9, 269 WICKHAM STREET, PO BOX 612
FORTITUDE VALLEY QLD 4006 AUSTRALIA
T 07 3251 8555 F 07 3251 8599

REV	DATE	DESCRIPTION	DESIGN	DRAWN	CHECKED	APPROVED	RPEQ
A	13-06-2019	PRELIMINARY ISSUE	AF	AF			

PROJECT	MAREEBA TO WALKAMIN RAIL TRAIL	DRAWING TITLE	CROSSING TYPE 3 - SERVICES CORRIDOR AND EASEMENTS
LOCATION	MAREEBA, QLD	ARCHITECT	
CLIENT	OTIUM PLANNING GROUP	SCALES	1:40 @ A1
		JOB NO	2018.0681
		DRAWING NO	SK004
		REVISION	A

Appendix 3 – Rail Trail Design Option 1 Concept Plan



Trail Concept Plan

Legend

- 01 Crossing type 1
- 02 Crossing type 2
- 03 Crossing type 3
- 04 Trail Head
- 05 Primary Identification Signage
- 06 Secondary Identification Signage
- 07 Interpretive Signage
- 08 Directional Signage
- 09 Creek crossing
- Existing trees
- Proposed trees

Trail Head Concept Plan

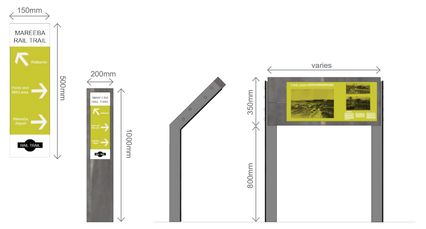
Trail Information shelter - Artist Impression

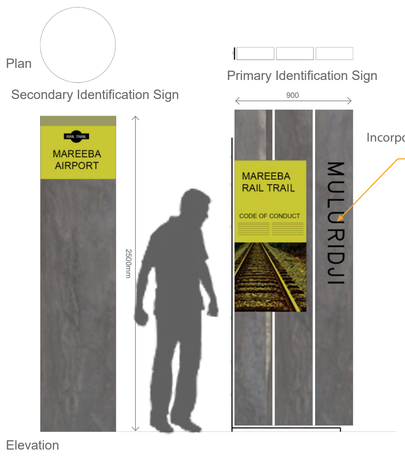
Directional Panel

- 200mm SQ H4 Hardwood post
- 1.2mm thick printed aluminium directional panel fixed with adhesive to bollard face as required
- Allow min. 50mm concrete mowing strip to base

Interpretive Panel

- Matt 2pac clear coated printed vinyl applied to 1.2mm aluminium panel 350mm x min. 700mm
- Angled section welded steel frame (100x100mm) with 300x100mm H4 hardwood panel supports





Signage Suite

MAREEBA RAIL TRAIL
Landscape Master Plan | Rev 3 L1.01

0 5.0 10.0 25.0

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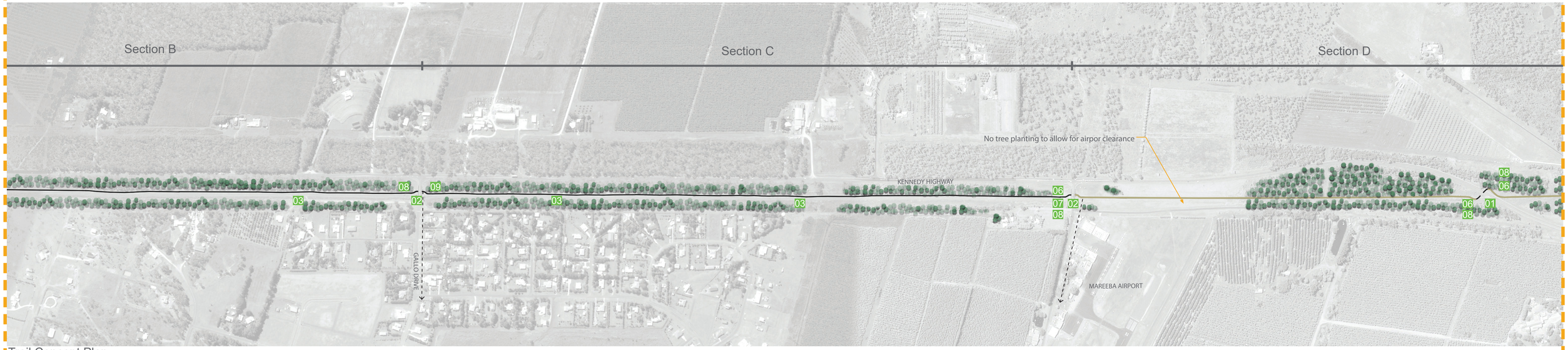
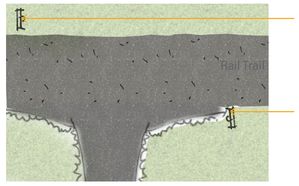


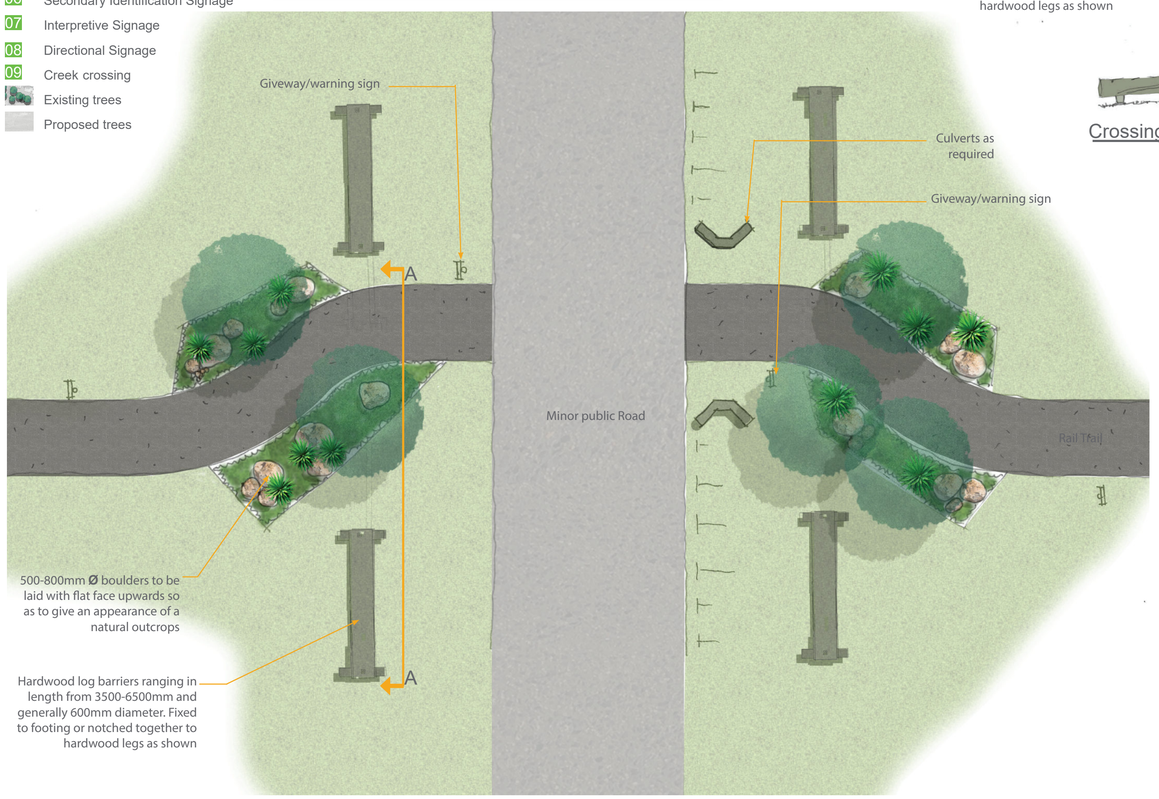
Trail Concept Plan

Legend

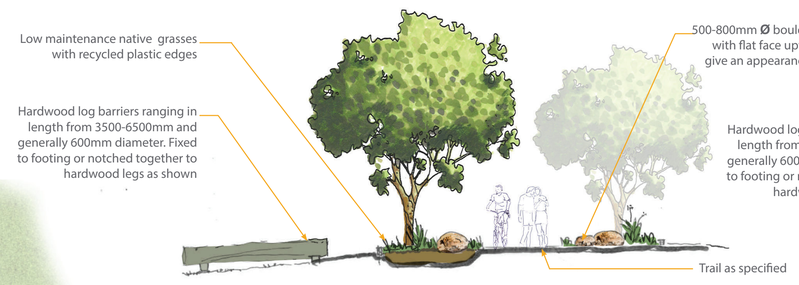
- 01 Crossing type 1
- 02 Crossing type 2
- 03 Crossing type 3
- 04 Trail Head
- 05 Primary Identification Signage
- 06 Secondary Identification Signage
- 07 Interpretive Signage
- 08 Directional Signage
- 09 Creek crossing
- Existing trees
- Proposed trees

Typical intersection

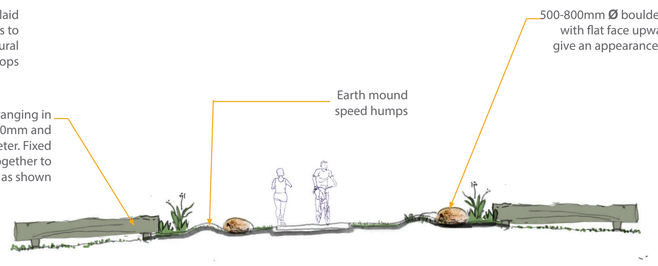




Crossing Type 2 Concept Plan

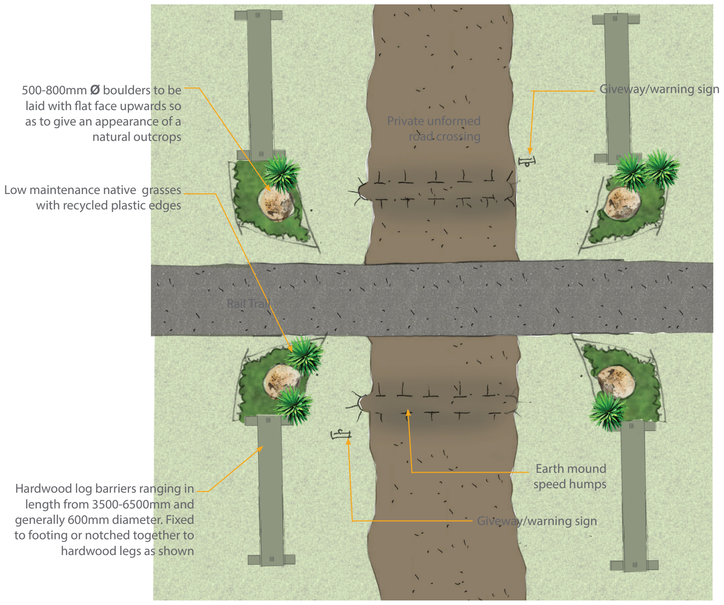


Crossing Type 2 Section - Elevation (A-A)



Crossing Type 3 Section - Elevation (B-B)

Character Images



Crossing Type 3 Concept Plan

MAREEBA RAIL TRAIL

Landscape Master Plan | Rev 3 L1.02

0 50 100 250

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JOINS L1.02

Section D

Section E

No tree planting to allow views of farmland

KENNEDY HIGHWAY

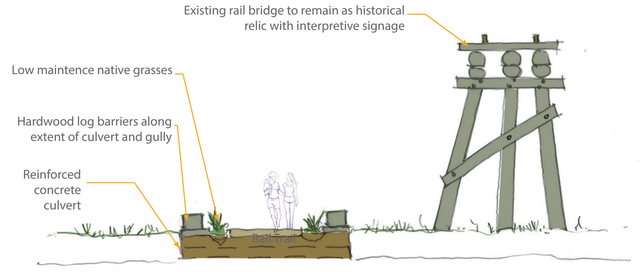
HENRY HANNAM DRIVE

FUTURE LINK TO CREEK

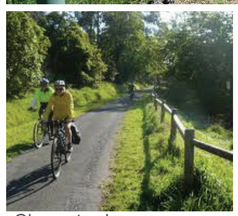
TO WALKAMIN

Legend

- 01 Crossing type 1
- 02 Crossing type 2
- 03 Crossing type 3
- 04 Trail Head
- 05 Primary Identification Signage
- 06 Secondary Identification Signage
- 07 Interpretive Signage
- 08 Directional Signage
- 09 Creek crossing
- Existing trees
- Proposed trees



Typical Creek Crossing Section



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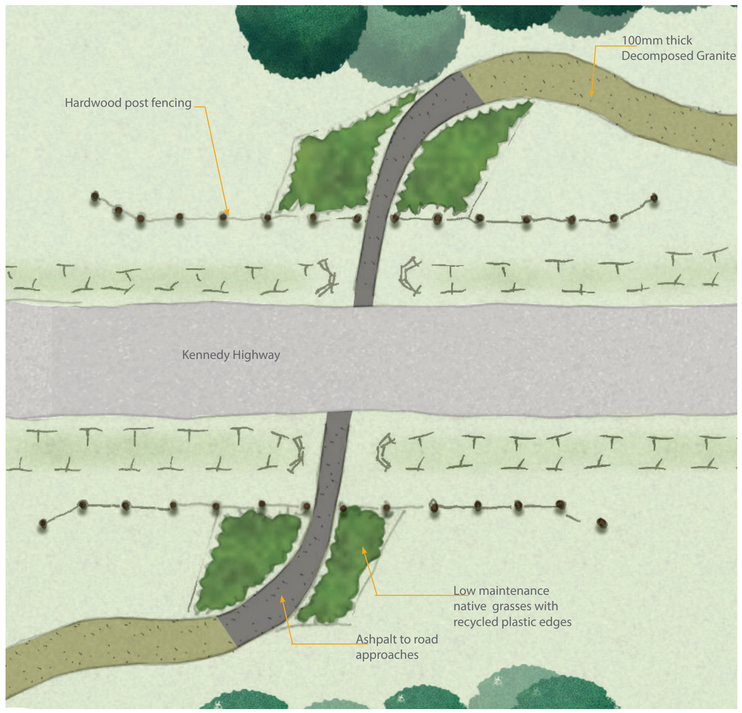
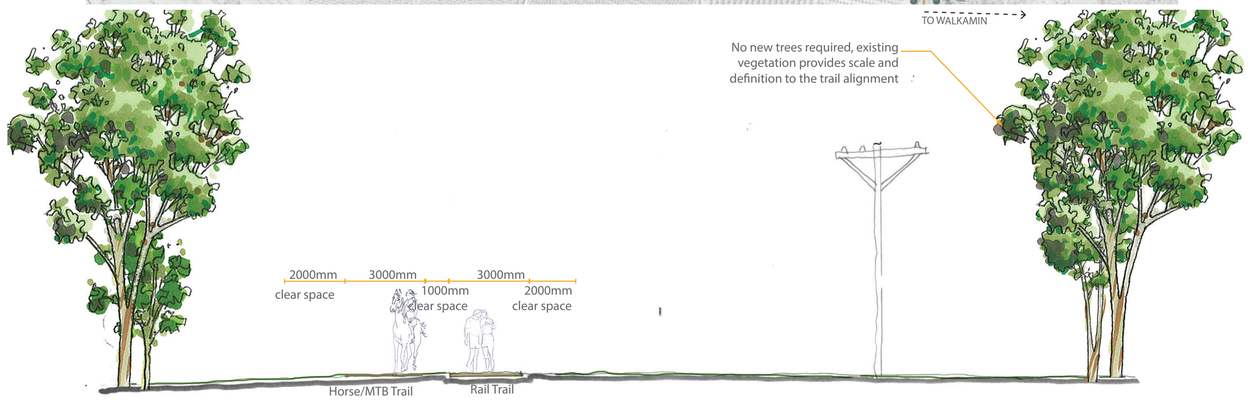
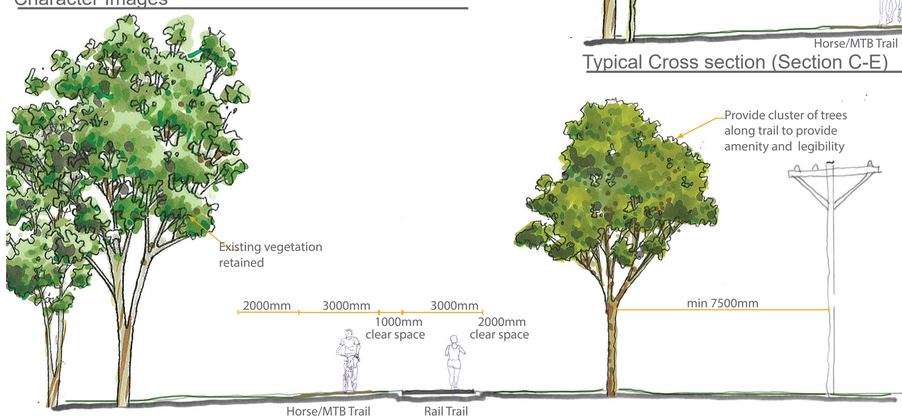


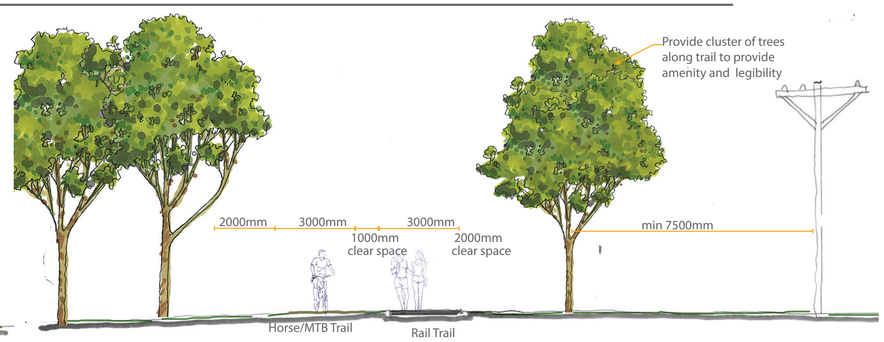
Crossing Type 1 Concept Plan



Typical Cross section (Section C-E)



Typical Cross Section (Section B)



Typical Cross Section (Section A)

MAREEBA RAIL TRAIL
Landscape Master Plan | Rev 3 L1.03

0 5.0 10.0 25.0

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