Growth Management Queensland

Boonah to Ipswich Trail Plan

BOONAH IPSWICH TRAIL

November 2011

Tomorrow's Queensland:
strong, green, smart, healthy and fair

Toward Tomorrow's Queensland

Queensland Government

Looking forward. Delivering now. The Department of Local Government and Planning leads a coordinated Queensland Government approach to planning, infrastructure and development across the state.

The Queensland Government is committed to providing accessible services to Queenslanders of all cultural and linguistic backgrounds. If you have difficulty understanding this publication and need a translator, please call the Translating and Interpreting Service (TIS National) on 131 450 and ask them to telephone the Queensland Department of Local Government and Planning on 07 3227 8548.

PPo_0059_02_Pu

Contents

1. Introduction

The Queensland Government is investing $8.8 million over five years to develop three new regional recreation trails. The trails were identified in *Active Trails–A Strategy for Regional Trails in South East Queensland* as part of a regional trails network for South East Queensland. The trails will provide opportunities for residents and visitors to explore and experience some of South East Queensland's most scenic landscapes.

The Department of Local Government and Planning is developing the trails in partnership with seven local governments—Sunshine Coast Regional Council, Somerset Regional Council, South Burnett Regional Council, Scenic Rim Regional Council, Toowoomba Regional Council, Logan City Council and Ipswich City Council.

The Boonah to Ipswich Trail will be a 74 kilometre multi-use recreation trail connecting the communities of Ipswich and Boonah. The trail will also connect to the 40 kilometre network of multi-use and single-use recreation trails developed as part of the Wyaralong Dam precinct and Ipswich City Council's Flinders Goolman Conservation Estate, including Hardings Paddock picnic area and Flinders Plum picnic areas.

The Boonah to Ipswich Trail passes through an extensive rugged and regionally and culturally significant landscape.

Major features include:

- Flinders Peak
- ridges forming the watershed between Purga Creek and the Logan River system
- Teviot Brook
- Logan River
- Bundamba and Deebing Creeks
- Wyaralong Dam.

Elevated points along the trail have views south and west to the Scenic Rim, east to the greater Brisbane area and Moreton Bay and north to the D'Aguilar Range.

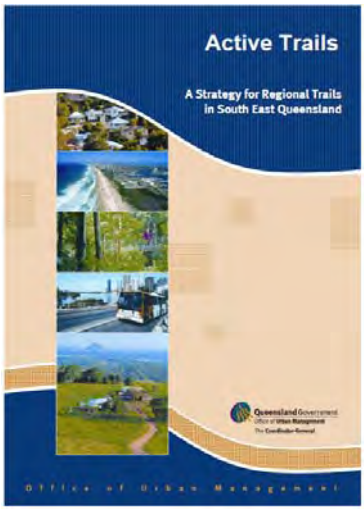
The trail provides outdoor recreation opportunities for current and future populations of South East Queensland, particularly the communities of:

- Greater Ipswich and the Western Corridor
- Southern Logan City
- Boonah
- Beaudesert
- proposed urban centres of Greenbank Central, New Beith, Ripley Valley and Flagstone.

Current projections indicate these neighbouring communities will have a combined population of 640 000.

2. Background

2.1 SEQ Active Trails Strategy



The *Active Trails–A Strategy for Regional Trails in South East Queensland* was developed by the Queensland Outdoor Recreation Federation in 2007 who acted as project managers for the Council of Mayors (SEQ). At that time four Queensland Government agencies, Queensland Health, Sport and Recreation Queensland, Natural Resources and Mines, and the Environmental Protection Agency, were then included in the planning process. The Regional Landscape and Open Spaces Advisory Committee supported and contributed to the strategy. The purpose of this strategy (now referred to as the SEQ Active Trails Strategy) is to inform and guide future investment in recreation trail planning, development and management.

The trails identified in the SEQ Active Trails Strategy are an important component of the *Queensland Greenspace Strategy*. Greenspace should connect with trails and linear corridors must be protected for future trail and commuter pathways. This will provide South East Queensland's growing population with increased opportunities for outdoor recreation.

The Department of Local Government and Planning is responsible for delivering the recommendations of the SEQ Active Trails Strategy and three of the nine regional trails identified in the strategy, which are the:

- Brisbane Valley Rail Trail
- Maroochy River Trail
- Boonah to Ipswich Trail.

Since the completion of the strategy in 2007, population growth projections for South East Queensland have increased. The state government has announced its Toward Q2 targets and held a growth summit to address the challenges of a growing population. Furthermore, 18 affected local councils have since amalgamated into 11 local councils. There has also been increased pressure and concern from the community to ensure protection of green space and to minimise impacts of urban development and population growth on the landscape.

The SEQ Active Trails Strategy recommends coordinated action to achieve consistent information to assist regional trail planning and management including:

- developing consistency in definitions and methodology associated with the collection of data on outdoor recreation demand and participation
- developing consistent terminology and guidelines for spatial representation of digital trails data
- using the SEQ Active Trails Strategy trail assessment criteria and methodology
- securing potential trail alignments and future trail alignment corridors identified within the strategy.

In 2009, a review of the implementation of the strategy and future trails development and management priorities was undertaken and consideration has been given to the *Queensland Greenspace Strategy*.

As a result, the department and the Queensland Outdoor Recreation Federation held public consultation workshops throughout the region with all local governments, other state agencies and community and outdoor industry organisations. The workshops provided the department with feedback which then informed the SEQ Active Trails Strategy.

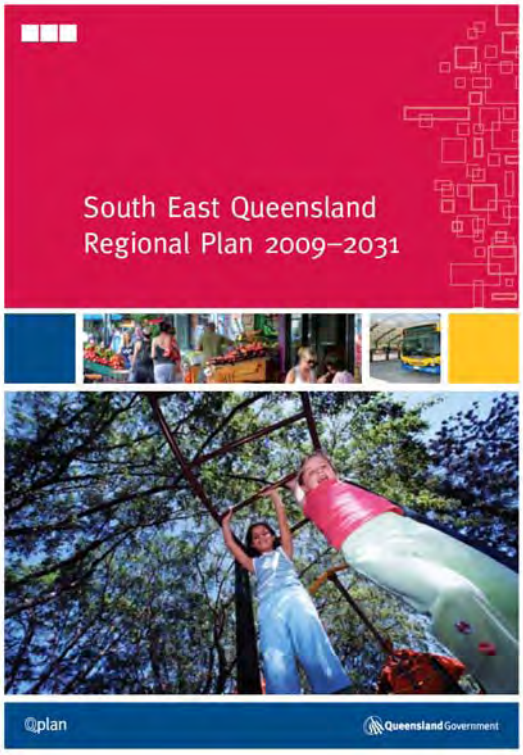
The strategy recommends nine regional trails and included a methodology to identify local and district trail networks. The strategy is now referred to as the SEQ Active Trails Strategy and provides the basis for recreation trail planning and promotion of trails in South East Queensland.

2.2 SEQ Active Trails implementation guidelines

This plan for the Boonah to Ipswich Trail (BIT) has been formulated using the draft SEQ Active Trails Implementation Guidelines 1—A guideline for non-motorised, multi-use, land-based trail development and planning for local governments and trail planners. For more information regarding this document, please visit www.dlgp.qld.gov.au.

2.3 SEQ Regional Plan

The purpose of the *South East Queensland Regional Plan 2009–2031* (now referred to as the SEQ Regional Plan) is to manage regional growth and change in the most sustainable way to protect and enhance quality of life in the region.



The state government reviewed the earlier *South East Queensland Regional Plan 2005–2026* to determine appropriate action to address emerging regional growth management issues such as continued high population growth, housing affordability, transport congestion, climate change and employment generation.

The SEQ Regional Plan is part of Queensland's land-use planning framework. The plan informs local government plans and policies, non-statutory processes, planning for natural resource management, rural futures, traditional owner engagement, public transport, urban renewal and new growth areas at the district and neighbourhood levels.

Residents and visitors value the combination of diverse and culturally significant landscapes that shape the region's economy, culture, liveability and lifestyles. This quality and diversity of the region's landscapes are major reasons for migration into and within the region. To remain attractive and functional, the regional landscape must continue to support values such as biodiversity, rural production, scenic amenity, landscape heritage and outdoor recreation.

2.4 Planning context

Provision of recreation trails is enshrined within South East Queensland's regional planning processes through principle 3.7.6 of the SEQ Regional Plan to 'review, refine and implement the SEQ Active Trails Strategy in consultation with local government'. Trails will contribute to the integrated regional community green space network policy 3.4.4 to 'define, identify and map a preferred future regional community green space network, including new regional parks, regional trails and corridors'.

The SEQ Active Trails Strategy supports other strategies and policies of the SEQ Regional Plan, including the *SEQ Outdoor Recreation Strategy*, the *SEQ Natural Resource Management Plan,* the *SEQ Rural Futures Strategy* and the *SEQ Community Greenspace Network Plan*. Other guidelines such as Open Space for Recreation and Sport: Planning Principles 2003 assist local governments

developing planning schemes, community plans, open space and outdoor recreation policies and outdoor recreation policy.

A specific area of interest is the Flinders Karawatha Corridor. A long-standing community desire is to protect its multiple values of biodiversity, scenic amenity, landscape heritage, agricultural production and outdoor recreation. Recent Queensland Government initiatives to establish outdoor recreation facilities at Wyaralong Dam provide an additional link to Flinders Peak and extend the scope of this corridor further to the south. Ongoing planning measures by the state and local governments to secure this regional landscape corridor will require the strategic location of active trails throughout the corridor. These trails will be critical to enable the community to better experience the mix of regional landscape values in this corridor.

2.5 Environmental, economic and cultural benefits of trails

Recreation trails deliver recreation, social and health benefits to urban users as well as adjacent rural and rural residential communities. Trails offer free, diverse recreational opportunities to families, residents, visitors, bicycle tourists, mountain bike riders, historical enthusiasts, horse riders and walkers.

Active recreation improves health outcomes and the increasing use of trails in South East Queensland is already saving 'health dollars'. Approximately A$75 million annually can be saved if an extra 10 per cent of the South East Queensland population becomes more physically active.

People can use trails in a variety of ways depending on their abilities and preferences. The use of trails yields significant health benefits for both the individual and the wider community. Trails provide options for a healthier community and relief from spiralling medical costs. Trails should be seen as an essential component of the health care system, and warrant funding accordingly (Maher Brampton Associates, 2001).

Trails also provide significant economic benefits in the service and tourism industry, particularly in providing refreshments, meals, accommodation, camping supplies and group transport.

Research and other publications have addressed the economic benefit to local communities of regional and district recreational trails. Some examples are:

- In the United States of America, a comprehensive health economics study showed every US$1 invested in recreational trails for physical activity yielded a direct medical benefit of US$2.94 (Wang et al, 2005).
- The Riesling Trail (a 27 kilometre shared-use rail trail in South Australia) injects A$1.08 million per year into the Clare Valley wine region (Market Equity, 2004).
- Visiting trail users on the Mundaring trails network in Western Australia, which includes the Mundaring Railway Reserves Heritage Trail, inject a total of A$10.39 million annually into the local economy (Jessop and Bruce, 2001).
- The Murray to the Mountains Rail Trail in north eastern Victoria is one of the better known rail trails in Australia. Recent research done on this trail (Beeton, 2006) found that average expenditure was A$258 per person per day.

3. Consultation on the draft Boonah to Ipswich Trail Plan

Consultation between the BIT Steering Committee, the Department of Local Government and Planning and with local communities was extremely important in building understanding, support and use–all vital elements in the successful delivery of the BIT.

3.1 Steering committee

Wayne Wendt, MP, Member for Ipswich West, is Chair of the Boonah to Ipswich Trail Steering Committee on behalf of Rachel Nolan MP, Member for Ipswich and Minister for Finance, Natural Resources and the Arts.

The Steering Committee provides advice on effective delivery and planning of the BIT to state agencies, local governments, regional natural resource management bodies, industry and community stakeholders.

3.2 Release of the draft Boonah to Ipswich Trail Plan

The draft plan was released on 18 December 2010 at a public event at Hardings Paddock picnic area. The draft plan was launched by Stirling Hinchliffe, MP, Wayne Wendt, MP and Cr Paul Pisasale and gained considerable media attention.

The plan was in conjunction with a submission response form that enabled interested members of the public to provide feedback and comments. The release of the draft plan and call for public comment was advertised online and in relevant print media.

Copies of the draft plan and response form were mailed to key stakeholders including community and industry organisations, local government representatives and state agencies and adjacent land owners with an invitation to provide a written submission on the draft plan.

Four information sessions were held in Boonah where copies of the draft plan were distributed. Invitations to these sessions were sent by email and advertised in local print media.

Hard copies of the plan were available for public viewing at:

- Boonah Visitor Information Centre
- Boonah Library
- Ipswich Library
- office of Wayne Wendt, MP Member for Ipswich West
- shopfront of Department of Local Government and Planning.

The draft plan and response form were also made available on the department's website.

Electronic versions of the draft plan and the response form were distributed via e-newsletters to an estimated 450 stakeholders including members of key user groups, local tourism operators, interested community organisations including (but not limited to): Australian Trail Horse Riders Association (ATHRA), Bicycle Queensland (BQ), Girl Guides and the Rogaine Association.

A departmental officer attended the Australia Day community event in Boonah to provide information regarding the Boonah to Ipswich Trail and draft plan.

The closing date for submissions was 19 March 2011. This date was extended from the original 19 February 2011 deadline in response to the January 2011 flood event. This was to ensure interested parties had sufficient opportunity to respond.

3.3 Consultation process

In 2010-2011, a number of preliminary consultation and community engagement activities were organised by the department.

Preliminary consultation activities included:

- meetings between concerned landholders along the trail with representatives of DLGP and the Department of Environment and Resource Management (DERM) surveyors as the draft plan was being prepared
- the official launch of the draft plan on 18 December 2010
- meetings between representatives of the department, Coordinator-General and Queensland Water Infrastructure.

The public consultation program included:

- media launch, releases and local public notices
- online access to the draft plan on the DLGP website
- electronic submission forms
- mail-outs to all relevant local governments

Consultation also involved:

- direct and ongoing liaison with key stakeholder groups including the Regional Landscape and Open Space Advisory Committee, Council of Mayors (SEQ), Queensland Outdoor Recreation Federation and Parks and Leisure Australia
- distribution of approximately 100 hard copies of the draft plan to key stakeholders
- four information sessions in February 2011 at The Outlook in Boonah.
  The sessions were tailored to address specific stakeholder groups:
  - session one–horse riding enthusiasts/groups
  - session two–mountain biking enthusiast/groups
  - session three–general community
  - session four–tourism and business groups
- meetings between concerned individual landholders along the trail and representatives of the department.

The department received 33 written submissions, providing generally positive feedback and additional information. Public feedback and the BIT Steering Committee's responses provided input. Feedback and comment generated from the 75 attendees at the workshops provided valuable guidance in the development of the final BIT Plan.

3.4 Review of submissions

The review process ensured all comments were captured, considered and analysed to identify issues.

The process included:

- submission receipt and registration
- acknowledgment of receipt of submissions
- establishment of an electronic database to record submissions

- implementation of standards to ensure a consistent approach to analysis
- allocation of staff to review every submission, classify and record comments
- analysis of submissions
- team meetings to identify key issues and consider responses and actions
- evaluation and preparation of responses to issues
- preparation of the consultation report.

All submissions were treated as confidential. However, some individual submitters may have chosen to make the content of their submissions public. The submission review process is set out in Figure 1 below. Table 1 details sources of the submissions while Table 2 lists the comments received and responses incorporated into the final plan.

Figure 1: Submission review process

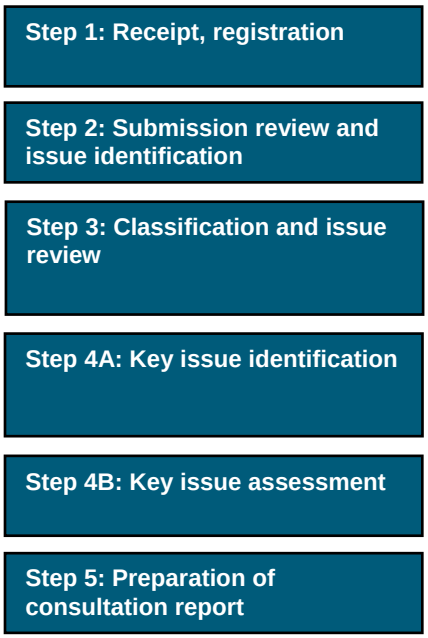


Table 1: Sources of submissions

Source of submission	Number	Per cent
Submitter type		
Private individual	14	43%
Sport and recreation group	8	24%
Business, commerce and tourism	3	9%
State government	3	6%
Federal government	1	3%
Development industry	1	3%
Environmental group	1	3%
Government-owned utility	1	3%
Local community group	1	3%
Local government	1	3%
Total	**34**	**100%**
Main interest groups represented		

Source of submission	Number	Per cent
Submitter type		
Horse riding enthusiasts	7	21%
Landholders	6	18%
Cycling enthusiasts	3	9%
Tourism	2	6%

Table 2.0: General comments

#	Comment	Response
1	….in support of initiatives that provide for appropriately planned and maintained infrastructure which protects and enhances the health and wellbeing of residents and visitors.	Noted.
2	We support the strategy and guiding principles of the Boonah to Ipswich Trail (BIT) Plan and congratulate those with the foresight to provide non-motorised multiuse trails under an emerging Queensland Greenspace strategy.	
3	… commends the Queensland Government and local councils on supporting the development of this trail.	
4	I think it is great that three Local Governance Regions will form important sections of this trail - great for uniting communities.	
5	Residents acknowledge they are surrounded by a picturesque environment and wish to embrace their surroundings via physical activity.	
6	The Boonah to Ipswich trail is a wonderful asset to the communities in which it will pass. With quality and built for purpose infrastructure which will create much needed additional tourism for the area and additional recreational areas for the SEQ region.	Agreed.
7	What is the guiding principle/s that will be used for the development of future opportunities for tourism, recreation, education and sporting groups to build on the trails delivered by the Boonah to Ipswich Trail?	Though no direct assistance can be provided for the establishment of privately owned services and businesses, there are opportunities for the use of on-trail advertising similar to roadside advertising—it can be a source of revenue, and guidelines can manage its impacts as they do on roads.
8	…the BIT doc is a very comprehensive and detailed statement as to the purpose and all the ramifications. I found it clear to follow.	Noted.
9	… this proposal looks as if it has been designed by and for two main interest group categories; mountain biking and somewhat as a secondary interest, horse riding. There are few mentions of walking or anything that suggests any interest in or knowledge of cycling tourism, or put another way, the proposal appears to reflect a particular view.	The *Active Trails – A Strategy for Regional Trails in South East Queensland* identified walkers, mountain bikers and horse riders as the key user groups to be considered in the development of the BIT.
10	It is obvious in that the major length of the trail is dealt with on much less than half a page at Section 3.2 and this provides no information at all as to what is intended. It is no more than a vague description of the route. But even then, with local knowledge, it appears the proposal simply puts off the difficult technical details as to how this section will be "presented" and in particular how the most difficult sections will be presented.	Cost and infrastructure specifications relating to each section of the trail have been provided in the recommended works list

11	We reiterate our general support for the trail and its location, however the detail of management, maintenance, costs infrastructure etc are not discussed in this submission.	
	Scenic Rim Regional Council: Sport and Recreation Plan 2010–2020	
12	The vision for open space across the Scenic Rim is to be: "An active and healthy community which has the opportunity of recreating in a diverse range of quality urban parkland settings and playing sport in quality facilities with equitable and convenient access"	Noted. The development of the BIT supports the aims of the Scenic Rim Regional Council Sport and Recreation Plan 2010-2020.
13	*Boonah community feedback: Key points and community recommendations (excerpt)* • improve walking and cycling opportunities • work on completing the Ipswich to Boonah Trail • ensure access to Wyaralong Dam, including on-road cycling access from Boonah to the Dam	
14	Outdoor recreation is extremely important not only to Scenic Rim residents but also to tourists and visitors.	
15	*New facilities, programs and initiatives: Recommendation 44* Ensure the open space network meets the needs of the current and future population and provide clear forward direction for parkland provision.	
16	*Council policies, coordination and management arrangements: Recommendation 16* A number of significant recreation trails have been proposed for the area including: the Boonah to Ipswich Trail (incorporating the Fassifern Rail Trail)…. Each of these trails provide opportunities for increased economic benefits for the Region, however, advice regarding the action of these initiatives is required.	Promotion of the BIT is the key to improving economic opportunities for the region. It should be promoted as a part of a broader visitor experience of the Boonah to Ipswich area. Trails are a valuable tourism attraction, especially when marketed well. Through service industry opportunities such as refreshments, meals, accommodation, camping supplies and group transport, the BIT has the potential to bring focused economic benefits to the communities along the line. One of the most important roles of the trail manager is the promotion of the trail, both locally and at major events around the country.
	Department of Defence	
	Defence's Purga Training Area, is a small arms range which directly supports RAAF Base Amberley. The training area is located at the northern end of the proposed trail. The close proximity of the trail to this training area is of concern to Defence in terms of security, safety and noise issues.	Noted. The DLGP will consult with the Department of Defence on these issues.
17	Defence is concerned that the proposed recreation trail will provide greater public access to land immediately bordering the training area. This could potentially increase the risk of trespass onto the training area, which will require Defence to commit additional resources to upgrade its security arrangement at the training area.	

18	Defence is also concerned that the proposed trail is intended to support a number of noise sensitive activities e.g. hiking and horse riding, which would be incompatible with Defence's training activities. More specifically users of the trail would be exposed to impact noise from the training area, which could be a safety issue for horse riders, as well as potentially impacting on the enjoyment of the trail by its users.	

Table 2.1: Comments on management plan

	Comment	Response
19	Is the trail broken up into regions of responsibility i.e. Boonah, Ripley Valley, Logan and Ipswich or is the responsibility under a singular trust?	Responsibility will fall to a formal committee of management, a government agency or a local government.
20	For the Boonah to Ipswich Trail who does the overall liability lie with?	The management body takes liability responsibility along the full length of the trail regardless of ownership. Farmers do not carry any additional liability. Primary project partners must take responsibility and ensure that their role is clear and unambiguous. Effective sign posting at trail-heads and access points will indicate trail regulations and trail use rules and user responsibilities. Courts are increasingly ruling that people are responsible for their own actions, marking a different emphasis to that which occurred in the late 1990s/early 2000s when managing authorities were held responsible for inappropriate behaviour.
21	Recommendation: That the management of the BIT trails and Wyaralong Dam trails area be merged.	There are no existing mechanisms which would enable the long-term management of the BIT by multiple stakeholders.
22	Steering Committee. Are there any members of the Scenic Rim Council involved?	Yes. The Steering Committee has two representatives from the Scenic Rim Regional Council.
23	Please advise the likely structure of the trail manager, and their obligations, powers and terms of engagement.	While the legislative framework needs to be clarified, the model of using committees of management made up of community and government stakeholders is the recommended long-term management model. The employment of a trail manager is one way for the committee to oversee the ongoing development, maintenance and promotion of the trail. While this can be a significant cost item, it also reduces ongoing costs in other areas such as trail maintenance.
24	Trail ranger like BVRT	
25	The management plan needs to consider adding education of user groups as a guiding principle.	The guiding principles indicate that quality on-trail information and outstanding interpretive material will provide a greater appreciation of features along the trail.
26	… supportive of the Recreational Trail but also recognises the need for management of issues and concerns…	Noted.
Dogs on the trail		
27	Dogs on leashes should be allowed.	Noted. There are sections of BIT (e.g. Mount Joyce

28	Dogs on trails – under control only and being clear about cleaning up after the animals “pack it in, pack it out”	
29	Option for restricting dogs to part of the trail (e.g. 5 km near trailhead)	
30	Only dogs for people with restricted vision (“blind dogs”) should be allowed on the trails.	
31	Ensure dogs are covered on the code of conduct	The trail management plan indicates that information relating to the walking of dogs will be provided in BIT information signs.
32	… significant concerns about this policy… due to the very high native wildlife population, including large wallaby populations, endangered Rock Wallaby and Koalas.	Agreed.
33	Disturbance to stock or animals on properties adjoining the trail by barking, aggressive or uncontrolled dogs is a serious risk to both persons and property while noisy dogs are a just a plain nuisance to anyone in earshot.	If proximity to dogs or livestock on adjoining lands should cause unacceptable conflict or public safety problems, dogs may be limited to town and urban sections of the trail in the future. With respect to interaction between people and livestock, appropriate information will discourage people from going off the trails onto farm property and placing themselves in close proximity to livestock.
34	We have … [dogs] who [sic] guard our livestock. These livestock guardians may see any dogs which accompany trail users as a threat to their flock and react accordingly. We will not be held responsible if any trail user or their dog ventures on to our property and is injured by our guardian animals.	
35	Dingo, wild dog and wild pig baiting, trapping and shooting is carried out on ours and adjoining larger properties. This too can be an issue when baits are carried and dropped by wildlife.	Agreed. Appropriate signage is being investigated.
36	In the first instance, we question the appropriateness of dogs for the Wyaralong dam section of the trail.	Agreed. The rules of the Queensland Bulk Water Supply Authority prohibit dogs (with the exception of guide dogs). See above comment.
Vegetation management environmental management		
37	Would there be mapping done for revegetation work?	A Property Management Plan will be prepared separately and will address the issues relating to revegetation.
38	Taking of flora and fauna from the area. How will this be managed?	
39	Expressed concerns about people denuding area to gather fire wood if fires are permitted.	
40	There is an absolute need for these types of facilities to be designed in such a way as to ensure their long-term viability and sustainability as well ensuring that the reasons for locating the trail remain or are improved/increased.	Construction will ensure minimal disturbance to the natural environment, and to ensure it is sustainable with minimal maintenance.
41	We are very concerned that no consideration has been demonstrated in terms of the long term impacts on the whole area resulting directly from the proposal. These arise primarily by connecting the Mt Joyce and Wyaralong Dam trails to the proposal through the most important but also most fragile “environmental” areas on the ridge including the environmental reserve. One option is clearly to have no link at the top of the ridge but rather if a link is considered desirable and without negative unintended consequences (and that is clearly yet to be adequately demonstrated and justified), then why not provide a link along the margins of the maximum water level of the dam? Anybody really wanting to climb to Mt Joyce or the ridge still has that option but it requires a detour.	The development of the BIT will ensure a wildlife corridor is maintained for the future use of local fauna. Significant studies have been undertaken as part of the Wyaralong Dam and surrounding areas into the environmental impacts of the project and surrounding trails. The suggestion of an alternative route along the maximum water line of the dam is noted.

Group usage policy		
42	Make sure all users are aware of COC [Code of Conduct].	The trail signage descriptions indicate that trailheads and all trail entrances will display code of conduct signage.
43	… it is noted that new entrants and users that are not aligned with regular clubs are in need of multi use trail education. Brochures and maps should be readily available at trailheads in suitable weatherproof receptacles.	On-trail information (including brochures and maps of the trail) will be available at visitor information centres and online through a dedicated website. Trail information will also be provided on roadside and trailhead signage.
44	Concerns expressed about use of trail bikes in the area.	Motor vehicle and motor bike use will be prohibited through motor vehicle exclusion barriers and effective signage at each road crossing. On the Brisbane Valley Rail Trail a standard gate configuration has been designed for use at all road crossings and trailheads. The design allows unimpeded access by walkers, horse riders and cyclists. Access by authorised vehicles, including management vehicles, adjoining landowners (where needed) and emergency vehicles is gained through an adjoining locked gate. Reporting of vehicle/bike registration numbers of illegal users will be encouraged. Experience on the Murray to the Mountains trail was that motor bikes tended to use the same sections at the same time, making enforcement relatively easy.
45	Trail bike riders often use Wild Pig Creek Road. Despite the fact that it is illegal for them to ride on a gazetted road, these often 'maniacal' road users will need to be controlled if they are not to be a danger to potential trail users on Wild Pig Creek Road and the road reserves all the way to the Flinders Peak Conservation Area.	
46	The trail is very near the trail bike park. It would appear that the BIT loop nearby there might be severely compromised by amenity. It will be very noisy and may drive away users. It is a big shame that these two places are so close to each other. The BIT route includes Schneider Road. This is very near to the trail bike park, and offers an easy though illegal access to the park. Responsibility to manage this issue needs to be shared between managers of both the trail and the park.	Noted. Noted. The department is liaising with representatives from the SEQ trail bike facility to ensure an acceptable outcome for each user group.
47	As our main focus would be fauna and flora, it would be preferable from our point of view to walk in the early mornings or towards dusk and into the early evening. However, on conservation grounds I understand the recommendation of not allowing activity on the trails at these hours. I would thus suggest some kind of permit system …	Trail opening hours are viewed from a risk management perspective and governed by each respective managing body. Closing access to the trail from Hardings Paddock to Flinders Plum from 6.00 pm to 6.00 am has reduced vandalism, but users may still enjoy the environment in the early morning or later evening.
48	Birdwatchers – will always be upset at others spoiling the serenity – important to communicate it is multi-use trail	Noted.
49	Will there be limits on commercial use?	The trail manager recognises the importance of the trail to small business. Ongoing commercial use will be monitored over time and regularly evaluated.
Fire management		
50	Recommendation: That both the Wyaralong and BIT plans develop their trails in conjunction with a comprehensive series of bushfire prevention and emergency plans.	A fire management plan will be developed in consultation with stakeholders including rural fire brigade officers. The trail itself will provide a fire break and emergency services and managing bodies will have access to the trail to perform fire mitigation.

51	Due to the difficulty in managing an outbreak of fire in this area, it is proposed that no open or solid fuel fires be permitted other than in the major managed areas that have easy access and appropriate facilities e.g. Hardings Paddock;	Noted. The trail management plan outlines fire management in relation to camping.
52	Past experience with horse riding groups has proven that they do not put out fires when they camp overnight. We have had to put out their camp fires after they have left.	
53	The Trail location is a high bushfire risk area with limited access for fire control.	Noted.
54	The trail on Wild Pig Creek Road is a high risk bushfire area, the last bush fire which went through the area was in December 2002. The bushfire brigade could not get in to assist us due to the force of the blaze and the direction it came from.	
55	Hopefully, if the trail is wide enough at the top of Mount Joyce where it travels over the range, this will be of benefit in avoiding past calamities where fire travelled around the top of the valley to the other side. This trail could provide a firebreak to prevent advancing fires.	Noted.
56	Check fuel load	Noted. The trail management plan will address discuss grazing options for weed and fuel load control.
57	We support the suggestion of the use of seasonal grazing to reduce fire load.	
58	Restricted areas for smoking	Noted. At this point in time, there is no legislative mechanising to ban smoking on recreation trails.
59	Smokers need to be made aware of responsible smoking, if there are any fire bans on, disposal of butts.	
Enforcement powers		
60	We strongly agree that some proper authority must be awarded powers to enforce rules. We also believe that powers such as removal of persons, on-the-spot fines, confiscation of equipment, and bans must be available to the enforcement personnel or illegal behaviour will be uncontrollable.	It is acknowledged that complete vehicle exclusion is likely to be difficult to manage—determined wrong-doers may still find their way on to the trail. Education through signage and use of locked gates or other vehicle exclusion barriers will help. Bona fide users and local residents will be encouraged to report registration numbers of illegal users. It is illegal for unauthorised vehicles to be on the corridor. This type of unauthorised behaviour comes under the jurisdiction of the Queensland Police Service. Use of unregistered trail bikes on any public road is illegal. Knehr Road is a public road and therefore falls under the jurisdiction of the Queensland Police Service.
61	Our district already suffers from regular illegal use of motorcycles and recreational vehicles and we would like to understand how the rules prohibiting such use are intended to be policed and enforced.	
62	Please detail the intentions for “supervision by local authorities”. Kalbar police have been notified of previous intrusions onto the trail, and improper usage of Knehr Road where the trail presently diverges from it. We would like to know how this problem will be managed in the future, given it is technically a public road.	
63	Will we be given any information or advice in regards to how to deal with this if trail bike riders do decide to try the ride up the spur?	
Communications and marketing		
64	One website for the trail – to give up to date info on events – also could link to businesses/accommodation in the area (one stop shop for trail trip)	Noted. The proposed Boonah to Ipswich Trail website will be created www.boonahipswichtrail.org.au
65	Website should also have a booking facility	

66	5.3.2 – Website may also provide: • health related information e.g. use of sunscreen, wearing of hats/helmets, appropriate shoes, water, bicycle maintenance, emergency details, waste management • trail code of conduct (including shared use principles) • contact details for users to report maintenance/safety issues • links to environmental groups e.g, Green Army and other relevant users	
67	Map with gradient would be useful	A map that shows the profile of the trail will be included on the website and in other collateral.
68	Detailed recreation maps would be great.	
Management of impacts on adjoining landholders		
69	Fencing, privacy and trespassing are all major issues for us as adjoining landholders. We look forward to advice as to what measures are to be used to control these issues as they impact on our property.	Issues such as fencing, privacy and trespassing will be addressed under the BIT Management Plan. Privacy of all adjacent landowners will be respected and potential impacts will be alleviated as much as possible. In some locations of the trail, techniques such as screen planting and planting of native vegetation will be negotiated with the adjacent landowner and incorporated in the design stage of the trail and included in the property management plan. The trail design and construction considerations recommend that discussion and negotiations for privacy screening will be handled on a case-by-case basis. Plantings of tree-lined corridors along parts deemed 'vulnerable' by adjoining landowners could also provide a way of reminding trail users to stay on the trail—these provide a form of visual fence. Prohibiting motor vehicle use (by regulation and design) reduces property crime.

69	Has any one within the group giving any thought to the would-be cowboys chasing stock on private property? Then of course you get those who traverse the trail, and decide that Oh look at that, I will come back and 'borrow' that item.	Numerous studies have concluded rail trails do not generate crime. Research and anecdotal evidence suggests conversion of rail trails tends to reduce crime by cleaning up the landscape and attracting people who use the trail for legitimate reasons such as recreation and transport (it is recognised that, on many parts of the corridor at the moment, the crime rate is low). The South Australian Riesling Trail has had two incidents along the trail in over 10 years of operation (one of these, a burglary, would have occurred regardless of whether the trail existed at the rear of the property. The other, an incident involving an unrestrained dog attacking stock in an adjoining paddock, is one which can be avoided by trail users following trail rules). The Rails-to-Trails Conservancy work in the USA includes testimonials from law enforcement officers in a number of jurisdictions confirming expected/perceived crimes simply do not occur. Design solutions to minimise theft include installation of security fencing and planting (see plans and drawings for illustrations of elements of good design, and ways of mitigating landowner concerns–both privacy and crime prevention). Trail design can eliminate overgrown vegetation and tall shrubs which minimises hiding places and creates long sight lines. Security lighting at trail-heads and parking areas adds security. Keeping trail corridors clean and well maintained increases sense of community ownership and 'passive surveillance' reduces minor crime such as litter, graffiti and vandalism.
70	If gates between properties are not shut by trail participants, cattle can wander into adjoining properties where the trail is unfenced, where they can mix with "foreign" herds, thus creating a nightmare and wastage of your time and money for mustering them back to their rightful property.	The *Graphic identity and signage guidelines* at Appendix 4 indicate that the code of conduct will inform all groups about appropriate behaviour and practices when on the trail. At road crossings, gates will be installed to prevent motorised and other unwanted users on the trail, while allowing emergency vehicle access.
71	Some areas/gates may need to be locked at night if near to towns to avoid people misusing the area.	
Education		
72	Group identified Lilybrook as good venue for opportunities such as running outdoor education or outdoor adventures for corporate events.	Noted.
Emergency response access		
73	There should be a log in log out system in place, departure time, estimated return time - whether this is in a book at entry points or on line before users head out.	An emergency response plan has been developed and will be expanded in consultation with the local police, fire and emergency services
74	There is a need for all trails to have regular points for easy access for emergency vehicles.	Directional totems along the trail will have GPS coordinates. This matter will be further pursued as the trail develops.
75	Will the management plan specify emergency points for different user groups as part of the fire management and risk management plan?	

76	Wild Pig Creek “road’ is only wide enough for single vehicles. It is also very rough... In the past, helicopters have had to remove injured parties from this area.	Noted. This will be reviewed in the expanded emergency response plan.
77	Hardings Paddocks – gates are always locked, this needs urgent attention	Noted. After consultation with ICC, it has been resolved that the gates will not be locked during opening hours. This will commence after the official opening of this section of trail. Access gates to the Hardings Paddock picnic area are currently open from 6.00 am to 6.00 pm. For further information contact ICC on (07) 3810 6666 or check the website
78	Will the proposed trail manager have an emergency radio channel that operates throughout the trail for users?	The trail manager will consult with all managing bodies to ascertain the viability of this option.
	Health, safety and general management issues	
79	Risk considerations include management and disposal of human and animal waste and protection of recreational waters from those wastes, water crossings (flooding), access to safe drinking water and safe trail surface (eg, following rain and use by horses). As suggested, the trail maintenance plan will need to identify and manage these risks.	Noted. Risks will be identified in the hazard inspection process as part of the ongoing maintenance plan in the BIT Plan. BIT plan provides general information about the need for ongoing maintenance of the trail to maximise user safety and minimise liability risks.
80	Where drinking water is provided or waterways are accessed for recreation purposes along the trail, they should be monitored to ensure they do not pose a public health risk to users.	Noted.
81	Will the risk management plan include the risk of dehydration based on proposed water supplies on the trails and the risk of users becoming lost in areas with poor mobile phone coverage?	Yes. This is addressed in the communication strategy
82	Will the risk management plan request a lost trail user protocol for the management and maintenance plan?	Yes. This will be reviewed in the expanded emergency response plan.
83	Will the risk management plan take into consideration local sporting, community and commercial groups that may use the trails for organised events and the risk of litigation that may arise from these events?	Yes. This is addressed in this document in Section 7: Trail management and maintenance.
84	The condition of the unsealed road [Wild Pig Creek Road] as currently constructed is generally poor. As a result of infrequent maintenance by council, this winding road is very narrow and barely suitable for one vehicle, has many blind corners and has seven creek causeway crossings, which in times of heavy rainfall become impassable. Regrowth of weeds, lantana etc. further exacerbates visibility. With the potential extra traffic generated by this trail, passing will be extremely dangerous and hazardous, if not impossible, unless separate tracks within the road reserve are provided for trail users.	Noted. Input from experienced adjacent land owners is valuable. The trail manager will seek an alternative alignment through this area.
85	There is also isolation and flooding.	Noted. See previous comment.
86	The northern slopes of the ridge have some very steep dare I say extremely steep, gullies and several cliffs as can easily be seen on any map. Once users are invited indeed encouraged into the “hidden valley” by your proposal, why won’t these challenges attract “X-treme” activity trespassing?	Previous experience of similar trail managers would indicate this is an unlikely occurrence.

Table 2.2: Comments on trail sharing

#	Comment	Response
87	There is a potential for conflict between vehicles on existing public roads, as well as conflict between users on the trails themselves. Adequate space needs to be provided, as well as signage for users when using existing roads. A separated area may need to be created (e.g. path away from the existing road, barrier separating vehicles from trail users, warning signs for vehicles or speed reduction).	Noted.
88	However in the case of horses legally they are supposed to use the left hand side of the road. I feel that they should be allowed to use the footpath on the left-hand side of the road. Bike riders must give way to horses and pedestrians, Horses must give way to pedestrians.	All multi-use trails require that horses have right of way at all times by all trail users.

Table 2.3: Comments on user preference

	Comment	Response
89	Not having walked any of the trail myself, I am wondering whether there are possibilities for short tracks in places likely to harbour birds, wallabies, goannas etc. leaving the trail that could be accessible to small groups of birdwatchers, nature appreciators etc. while those more intent on going from A to B could keep moving along the main track…	Trail users will be actively encouraged to remain on the corridor at all times due to the delicate nature of the local flora and fauna. There are available extended networks of trail at Hardings Paddock and Flinders Plum for the activities described.
90	Trail users will enjoy a trail which appears to be a natural part of the surrounding environment and landscape.	Noted.
91	A linear trail such as this could well lend itself to some kinds of corridor (different kinds of connection are needed for different kinds of animal)…	Noted. Trails can play an important role as wildlife corridors and habitats for native birds and animals. In many instances, they hold important remnants of the indigenous vegetation that has been all but lost. It is important to manage trails in a manner that maintains and enhances their nature conservation values.
92	*New facilities, programs and initiatives: Recommendation 41* Scenic Rim will continue to be a popular home for hard-to-locate activities that have been (or are likely to be) affected by urban encroachment in other parts of South East Queensland… Protecting these activities in the future will be important.	Noted.

Table 2.4: Comments on trail users and large scale events

#	Comment	Response
93	… in favour of large scale events to promote the trail/area and encourage tourism	Agreed.
94	…would bring welcome business to the area.	
95	Recommendation: That all non-motorised sporting clubs have the right to hold events on the trails subject to adequate notice being given to the management.	On-trail events similar to those undertaken on the Wyaralong recreation trails could be considered in the future.

96	…concerns about the use of the Trail for large scale and competitive events, given potential impacts on the Trail itself and the potential to displace other users of the Trail.	Noted. The principle of notifying stakeholders, and seeking input from local police and other emergency service personnel when any sizeable event is planned will be observed by the trail manager.
97	Users would be excluded from the trail for such events – needs to be communicated before event and signage during – clearly stating trail is closed. Could be balanced by not using the entire trail.	
98	Probably limited to a few events per year…	No formal group usage policy will be adopted at this stage of the trail's development. Visitor numbers will be monitored and user surveys will be carried out every year to determine if there are issues with group use. Large scale competitive events such as horse endurance and mountain bike competitions will not be permitted on the trail. It is proposed that long-term visitor management for the entire trail will follow the current system involving the use of permits and codes of conduct. It is worth noting that the recreation trails being developed as part of the Wyaralong Dam project have already experienced mountain biking events such as the Maxxis Boonah Marathon.
99	…permit system for larger events would enable the Trail Manager to control the nature of the activity and ensure that no conflicting activities occurred over the same period of time. If other smaller group permits are required – a fast and easy system must be adopted and ideally user groups consulted in relation to ideas.	A system involving the use of permits and codes of conduct is proposed. Permit approvals will be handled by the trail manager. Permits for the Flinders Goolman Conservation Estate will be managed by council's Parks and Facilities division.
100	How will approvals be handled?	
101	Group also suggested that any group holding a large scale event should be required to contribute to the restoration of any degradation of the trail caused by the event.	Noted. In line with current government policies, no policies or actions are recommended at this stage regarding fees for commercial use of the BIT. It is understood that other trails in Australia are free to access for all. It is recommended that all income streams for supporting the trail on an ongoing basis will be explored.
102	Could be used to fundraise for trail maintenance	
103	The area is one of many equestrian events and the trail should provide a perfect location for endurance rides.	Noted.

Table 2.5: Comments on trail infrastructure

#	Comment	Response
104	When will construction start?	The trail will be constructed in stages. Construction will commence on Stage 1 of the trail in October 2011.
105	Ensure correct trail construction in environmentally sensitive areas	Trail design and construction considerations will address matters relating to trail design and development. It will address approaches to trail construction to minimise disturbance to the natural environment, and ensure it is sustainable with minimal maintenance.
106	It would be great to utilise local artists to be involved with some infrastructure.	Noted.

Potential opportunities		
107	Will it link to the BVRT in the future?	This is outside the parameters of this project. However, further investigations may be made in the future.
108	It would be great if an additional short trail could be built going from Chinamen's Bridge [sic] at Church Street, along the southern side of Teviot Brook meeting the pedestrian walkway at the Dugandan Bridge, which then leads to the walking track beside the Dugandan duck ponds.	
109	Could the trail link up with the Bicentennial trail? Link from Chinaman's Bridge, Kooralbyn, Mt Barney and Cannon Creek Road	
110	Further develop trails to Kooralbyn, Cannon Creek, Mt French and more	
111	There are more opportunities for trails around Hardings Paddock – could be opportunity for dedicated MBT track	
Problems		
112	The plan needs to be specific as to where the trailhead is and the access to it.	Trail design and construction considerations outlined indicate that trailheads will be located at Hardings Paddock picnic area, Flinders Plum picnic area, the eastern point of Wyaralong Dam, Lilybrook Station and the Boonah Visitor Information Centre.
113	Flinders reserve – too steep IMBA [International Mountain Bike Association] standard trail is needed – fire trails not good enough.	Noted. The trail alignment within the Flinders Goolman Conservation Estate will utilise an existing, maintained and graded dirt management road used by Ipswich City Council. This has ensured future values of the conservation park. Review of sections of trail already constructed, e.g. Flinders Goolman Conservation Estate and Wyaralong Dam section. As outlined trail design and construction considerations, the department commissioned a report on the assessment of nature conservation risks, impacts and opportunities for the trail within the Flinders Goolman Conservation Estate. The section of trail under investigation was from Mount Goolman to Flinders Peak. The report concluded that it was essential to minimise any further construction.
114	S.3.2 The actual junction of Woollaman Creek and Wild Pig Creek is not near the junction of Washpool Road and Wild Pig Creek Road. The junction is further up Wild Pig Creek Road and cannot even be seen at the road junction, The closest creek to the road junction is Woollaman Creek.	Noted.
115	Currently … Lots…, Wild Pig Creek Road and the road reserve in Lot… are not constructed within the gazetted cadastral boundaries as shown on Title drawings…. This must have legal ramifications. Will construction of trail infrastructure thus become an issue here?	Noted.
116	Section 3.4 Lilybrook Station – Schneider Road. • It should be noted that camping facilities will be available on the land surrounding Lilybrook Homestead, not within the Homestead as the draft Boonah to Ipswich Trail plan stated. • Other amenities such as showers and toilets for trailhead users will be in place at the Western Trailhead of Mt Joyce Escape Recreation Park.	Noted.

117	Development of this site will also be informed by the guidelines set down by SEQ Water, the catchment operator.	Noted.
118	Another major concern in the future is the proposed Southern Freight Rail Corridor. The proposed BIT trail shows it travelling adjacent to and UNDER this proposed railway on Wild Pig Creek Road …. Any one associated with horses will realise that horses will easily be spooked at the slightest distraction, and this could result in a major safety issue, particularly when inexperienced horse riders are concerned when trains are passing by or over.	Noted.
Requests for dedicated bridle trails		
119	Horse enthusiasts at the workshops (35) requested consideration of dedicated bridle trail – 40klms long	Noted. The trail planning indicates potential for a bridle trail on the south side of the Boonah-Beaudesert Road. As indicated opportunities for other trail loops, equine infrastructure and facilities are being investigated in consultation with horse riding organisations and in partnership with the Scenic Rim Regional Council. The potential of trails proposed in the submissions will be examined as part of this process.
120	In S.E. Queensland, there are very few trails where horses and ponies are allowed. Recommendation 3. That the Boonah to Ipswich Trail Plan include a designated purpose-built bridle trail of two sections of ca. 20km. each, with suitable access for horse floats, water troughs, and other facilities such as picnic areas and toilets at each end of each section. Water should be available for horse and rider at 10 km intervals.	
121	As a recreational horse rider I love the opportunity to have an area like this available, however, I would prefer to have the option of a 'horse rider only' section. This is because most horses will be severely spooked/scared of cyclists and/or dogs appearing suddenly around a corner or even overtaking. All other users have an exclusive section so why not horse riders too! Could trial it, as long as it didn't close down all areas and those not involved still have areas to use.	
122	The BIT Plan states "there is potential for a bridle path on the south side of the Boonah – Beaudesert road for horse riding use only." This is pleasing but its suitability depends on the facilities at each end e.g. Lilybrook Station and our existing base at the Boonah Show grounds, very close to where salt gully crosses Macquarie Street. The Boonah to Lilybrook trail passes along a number of roads where traffic is a problem. Recommendation: …bodies interested in bridle trails…be invited to consider the various possible sites for the two trails and associated facilities.	
Trail classification system		
123	Good signs coded/graded for level of difficulty at entry points	The trail classification system be based upon the *AS 2156.1–2001 Australian Standard™ walking tracks classification and signage*. Trailhead information signs provided at entry points will indicate the skills and fitness level required.
Trail width and height		
124	Given that horses and ponies may be moving along the trails in both directions (as well as passing one another in the same direction) the minimum width of the trail should be three metres. Recommendation: The horse and pony riding trails be at least three metres wide and have easy access for emergency vehicles.	The trail design and construction consideration indicates that multi-use trails have a standard trail width of 2.5–3.0 metres. Some sections of the trail, however, will be narrower due to the terrain and environmental considerations of track construction.
125	Trail needs to be minimum 2 m wide	
Privacy		

126	We sincerely welcome your assertion that “Privacy of all adjacent landowners will be respected and potential impacts will be alleviated as much as possible” This is of utmost concern to us. We look forward to consultation on the details of proposals to alleviate privacy and security concerns.	Trail design and construction considerations outlined indicate that screen planting will be negotiated with adjacent landowners on a case by case basis.
127	Screen Planting to provide privacy. We built specifically for the views and do not wish to lose any of our views due to the screen planting.	
128	The section which will be heavily influenced by environmental constraints will be from Wild Pig Creek Road…at the base of a steep spur’. There is no fencing up that spur currently, how will the trail users be kept off our properties?	Noted. Users will be encouraged to stay on the trail at all times.
Erosion control; and water crossings		
129	P29 – 4.4.5 Erosion controls and water crossings The draft plan does not recognize the crossing of Oaky Creek as a concern. Erosion control and to a greater degree, weed infestation has always been a management problem along this section of Oaky Creek.	Noted. Please see Trail construction plan section
Trail furniture and infrastructure		
130	Road crossings styles and gates – friendly to horse riders	At road crossings, gates are installed to prevent motorised users on the trail, while allowing emergency vehicle access.
131	No locked gates	
132	Horse step throughs with multiple beams are fine for bike community – happy to get off and carry bike through	Noted.
133	Place stumps for mounting blocks near stopping points and possibly erect a few rails so that riders do not tie horses to trees and damage fauna.	
134	Special stopping places along the trails should have substantial “parking areas” so that particular features of the landscape can be viewed and signage read.	
135	Request: somewhere at gates or seated placed to store bikes upright so can open panniers	
136	It would be nice to have smaller basic shelters in strategic locations (say half day hikes) for difficult weather set up with a tamperproof water tank.	
137	Sufficient shading is required at camping groups and where seating is provided.	
138	At camp/eating facilities the provision of hand washing water should also be considered.	
139	At trailheads – yards, water, horse gates	
140	Possibly a SMALL water trough could be installed (evaporation, contamination if too large).	
141	Flinders Plum requires horse tie up points and drinking water troughs	
142	Littering - what will be put in place to stop littering by trail users?	The code of conduct for the BIT trail (See Pg 8 in Appendix 4) states that rubbish is to be taken home with the trail user. Thoughtful placement of rubbish bins at trail-heads and between stops on the trail. Regular maintenance patrols by council staff or volunteers, or the trail manager. Trailhead design is discussed specifically in section 6 and trailhead designs for each trailhead are included at Appendix 4 Regular maintenance patrols are discussed in the trail maintenance strategy in section xxx
143	Bins would tend to attract feral animals and would require regular servicing. A “take all rubbish with you” approach is probably best but then we have concerns that as users near the end of the trail at Wyaralong precinct users will want to dump their rubbish at nearest convenience.	

144	Where Wild Pig Creek Road has private properties either side of the road, consideration must be given for rest areas with toilets, drinking water, waste garbage facilities and storm shelters, so that trail users will not be a hindrance and/or burden on adjacent land owners. Storms can erupt unannounced with resultant flash-flooding and causeways becoming impassable.	While installation of composting toilets is one appropriate solution, these are costly and are generally recommended only where there are long stretches between towns. The accepted distance between toilets is 25–30 kilometres. The distance between existing trail facilities means there is no need to install trail-side toilets. Trail facilities will be reviewed based on usage and need.
145	There is … a landline along Wild Pig Creek Road from which emergency telephones can be strategically located.	The placement of emergency phones has been considered. The BIT Plan indicates that emergency information will be provided on trailhead signage including what to do in an emergency, emergency phone numbers and evacuation procedures (there will be none on the trail itself). The Australian Communications and Media Authority states that mobile phone service providers have coverage maps available from their point of sale locations, and upon request. All carriers (Optus, Telstra and VHA) have good coverage in the major population centres, but in regional areas only one or two of these are likely to provide sufficient network coverage.
146	Signage: Indicating mobile range?	
147	…information on native plants animals and history,	The trail signage outline provided in the plan indicates that the cultural and landscape heritage of a trail will be provided on interpretive signage to add interest to the trail and engage the trail user.
148	It is noted that the intended usage of Lily Brook Homestead, layout and facilities is not clear in this plan and refers to QWI as the entity responsible for conversion of this property.	Noted. Management of Lilybrook Station has changed hands since the publication of the draft plan. On 1 July 2011, management passed to Seqwater.
Signage		
	Trail markers	
149	Sign indicating horses can pose a danger to bike riders would be of value	Noted. Sign has been developed.
150	Numbered markers for safety of trail users.	Noted.
151	Signage: • Every change of direction • Every kilometre	Noted.
152	Give way signs important	Noted.
153	I found on the Ipswich City Council web page the 'Flinders-Goolman Trails Guide' … I went riding recently to try and find the trail from Goolman to Flinders Plum. The guide indicates the trailheads off between the Goolman Lookout and Spowers Road to Flinders Plum. I rode the trail between Spowers Road and Goolman Lookout and only found a small wooden post with an arrow on but no wording advising where this trailheads too. I assume this is the trail that leads to Flinders Plum. I could not recognise any clear/designated track as everything around the area was over grown. I realise we have had a lot of rain recently and maintaining the growth is a big job but I was a bit hesitant to proceed any further. I was expecting to find a track similar to the surrounding tracks which are relatively clear and recognisable and the width of a vehicle. Are there any intentions to sign post the trail to Flinders Plum and maintain a clear/designated track approximately the width of a vehicle as per the existing tracks?	Noted. See signage placement in trail construction plan from Hardings Paddock to Flinders Plum and Flinders Plum to Flinders Peak.

	Emergency response signage	
154	Clear signage be provided warning of high fire risk and advising of fire restrictions and emergency procedures.	Noted. As per previous comment and extensive fire management plan will be developed separately to this document.
155	Also signage listing a contact number to advise of risk/hazards identified on the track	
156	Marked fire trails and marked exit points	
157	Markers along the way maybe on seats or at signage of viewpoints which trail users can use for reference points in the event of an accident or need or assistance to relate to SES etc.	
158	Particularly in the isolated wilderness areas of the trail, natural access points should be developed and available for access for fire and medical emergencies. Access to the trail would need to be every 10kms or so.	
	Trailhead signage	
159	The reference to the Boonah Sports Reserve needs to be removed from the document. There is no such beast, and implies that the trailhead may be near or on the sports grounds, which could be confusing and for some and is concerning to sportspeople.	Noted. Please see above comment regarding trailheads.
	Promotional signage	
160	Please very carefully consider the nature of signage on or near Old Beaudesert Road and Knehr Road to avoid encouragement of vehicles.	Noted.
161	On-trail Advertising. Considering the width and state of the road, road signage could be hazardous to road users be they in cars or on horseback.	Noted.
	General trail signage	
162	…signage should be placed at the exit points denoting direction of trail, distances, and reminder to use road rules and common sense.	Agreed.
163	Signage regarding private property required	Agreed.
164	Vehicles/Road users should have signage denoting the trail alongside the road and entry and exit points to the trail.	Agreed.
165	Without compromising the experience, information signs should advise of no camping outside designated areas, no fires, no vehicle access or parking other than as designated, and note proximity to adjoining owners (some possibly unfenced?)	Agreed.
166	Erect signs advising the reason why it is important to take your rubbish out with you.	Agreed. This information will be contained in the code of conduct.
167	Information signage could also be used to provide contact details for users to report maintenance/safety issues.	Agreed.
168	The development of informational and educational signage and resources will be a valuable enhancement to the Trail.	Agreed.
169	Will signage be permitted from the trail to businesses?	Only after consultation and with respect to specific land manager needs. Note that no advertising is permitted in a conservation estate.
Camping		
170	• Base camp with good facilities would encourage more riders e.g. Lilybrook – clover leaf set up • Need designated camping sites with facilities • Camping at start and end of trail • Small separate campsites for walkers	Noted.

171	Group interested in having a camping ground between Flinders Plum and Lilybrook.	Noted. This does not come into the scope of the current project, but may be investigated in the future.
172	I thought I might mention the growing interest in 'off road, self supported, multi- day touring' on mountain bikes. The plan does not seem to be aware of this type of user. These 'off road' touring cyclists users (of which I am one) carry most of their equipment with them on the bicycle. They enjoy camping in areas away from the crowds. They usually seek out camping sites which are not accessible to the general motoring public. … These cyclists don't mind ' bush' camping where there are no or limited facilities as long as they can obtain water.	Trails elsewhere in Australia have not provided specific on-trail camping facilities, relying on private interests to do so in nearby locations. It may be that individuals will see a business opportunity and develop private camping facilities between towns/villages.
173	It is recommended that camping facilities be limited to easily accessible key locations and that camping not be permitted in remote trail locations.	
Roads and access		
174	Group saw the need for better public transport in the future for international trail users connecting Boonah to GC and Brisbane	Agreed. Access to the trail via public transport is recognised as an issue.
175	Will camping sites be accessible by vehicles?	Yes. Campsites located at trailheads are accessible by vehicles.
176	Particularly at the trailheads, access for horse floats needs to be sufficient so that backing can be avoided and parking areas be 'drive through'.	Noted.
177	Not all trailheads have easy access or adequate facilities. Flinders Plum picnic area has no horse float access. As this area has limited range for 'loop' or connectivity trails of a reasonable distance (on horse), people will be riding from Hardings Paddock area to Flinders Plum or vice versa but are unable to load/unload horses at this end.	Noted. Review of float access to Flinders Plum will be managed by Ipswich City Council.
178	Lily Brook Homestead has limited access to a range of trails in this area. i.e.: there is only one way in and out of Lily Brook which limits the users experience and without varying access this area has the potential to be not utilised as effectively as it could be as user groups will easily get bored with same trail to access the Mt Joyce Recreation precinct	Noted.
179	Access via Apex Park (High and Walter Streets) would be far too small unless major investment in upgrades occurs. The car park is far too small and is already full most of the time, as parking is very limited in Boonah. Salt Gully running through the grounds would make it too difficult for access for horse floats.	Noted.
180	Page 5 refers to "Roadside Parking". We express concern as to the possibility of any roadside parking along Knehr Road. To avoid this, we believe that it is essential that adequate parking for maximum predicted demand is provided at Lilybrook and that traffic and parking restrictions along nearby local roads be introduced and enforced.	Noted. Parking facilities at Lilybrook Station have been upgraded to cater for horse riders.
181	Horse floats could gain access via Melbourne / Cossart Street showgrounds entrance.	Noted.

182	P25 – The draft plan asserts that “Queensland Water Infrastructure has constructed a purpose-built, multi use recreation trail...” and references Map C4. This raises grave concerns as to the prospect of further resumptions for the trail. Can it please be clarified that this is in no way being suggested or contemplated, and that this map is simply in error.	Noted. The trail utilises public formed roads to the western entrance of the Mount Joyce Escape Recreation Park.
183	…the suitability of the “stock underpass” for pony and horse riders may limit access to Lilybrook Station.	Noted. The trail manager has consulted with Australian Trail Horse Riders Association on this issue.
184	There is no suggestion as to access to Beaudesert from the trailhead given the only route is the recently relocated Boonah – Beaudesert Road and it only has minimum width shoulders. Is it “planned” the narrow shoulders be used by cyclists and walkers wanting to connect with Beaudesert and points further east…	At this stage, access to areas further east, including the Gold Coast is outside the parameters of this project. However, further investigations may be made in the future.
185	The plan indicates possible separate tracks. To our knowledge, separate tracks have not presently been constructed. Is additional track construction being contemplated?	Noted. The illustration indicated best practice given sufficient corridor width. Due to the nature of the BIT, only one trail will be possible.

Table 2.6: Comments on trail maintenance

	Comment	Response
186	Trail management trust to oversee trail maintenance and seek ongoing funds	All funding options will be explored over the next five years. It was not part of this study to explore subsequent funding.
187	Maintenance staffing and infrastructure must be developed as a permanent feature of the whole plan. They should not be left to voluntary groups …	Noted.
188	Wild Pig Creek Road currently along the proposed trail is infrequently maintained, especially since council amalgamation. This road, which is within the Scenic Rim Regional Council area, is now accessed for Scenic Rim council maintenance crews only through traversing Logan City Council territory. This area is a remote backwater of the Scenic Rim Regional Council, and with the increased traffic proposed through this trail, regular maintenance of this road will become necessary and a priority, as safety is a major issue. Washouts, potholes and vegetation regrowth will have to be regularly monitored. This also will apply to the trail between the Flinders Peak Conservation Park and Wild Pig Creek Road as this section is essentially road reserve and as such is not maintained by Council. Weather events soon damage these tracks and they often become impassable with washouts.	Noted.
189	Volunteers could adopt a section – friends of trail Working bees – coordinated by councils or DIP Report forms	Noted.
190	Suggested using work for the dole schemes/prison schemes to maintain trail	The Green Army initiative has been utilised in recent recreation trail construction of the BIT at Wyaralong Dam and the construction of the campgrounds at Hardings Paddock.

191	Will the full inspection of the trail (completed every second month) identify evidence of pests such as wild pigs, cattle, deer and other feral animals that are likely to cause damage to the local flora and fauna? If so what process will be put in place to manage these pests and their potential impacts?	An Operational Management Plan has been prepared by ICC for the Flinders Goolman conservation estate. A Property Management Plan for Wyaralong Dam and an Operational Plan for the Flinders Goolman Conservation Estate have been developed as required by the *Land Protection (Pest and Stock Route Management) Act 2002*.

4. Planning for the Boonah to Ipswich Trail

The 2007 South East Queensland Outdoor Recreation demand study investigated the nature and extent of participation in outdoor recreation activities by the residents of this region. The study provides state and local government agencies with the information to coordinate planning and delivery of outdoor recreation services to maintain current outdoor recreation opportunities.

It was important to obtain information on the type of trail the local community and visitors wanted. A survey conducted with local users, residents and business helped determine demand for:

- user preferences (e.g. short walks, day walks, overnight walks)
- scenic preference
- permitted users and user groups
- location of trail alignment.

Figure 2: Boonah to Ipswich Trail alignment

4.1 Flinders Goolman Conservation Estate

Status: constructed
See Map 1 - Section 9

The 19 kilometre section of the BIT within the Ipswich City Council boundary is located in the Flinders Goolman Conservation Estate owned by Ipswich City Council[1].

The Flinders Goolman Conservation Estate will help cater for the recreation needs of the residents of Greater Ipswich and the Western Corridor, the Ripley Valley urban development area, southern Logan City, Boonah, Beaudesert and the urban developments at Greenbank Central, New Beith and Flagstone.

Access to the Flinders Goolman Conservation Estate, the current northern terminus for the trail, is accessed from Carmichael's Road, Purga. Hardings Paddock picnic area includes a trails network, picnic facilities, toilets, horse float parking, horse watering point and stock yards.

Seven multi-use and single-use recreation trails have been constructed from Hardings Paddock including the BIT. The six other trails that start at Hardings Paddock are:

- Chalk Circuit 560 metres
- Gamlen Circuit 3 kilometres
- Rocky Knoll Lookout 2.4 kilometres
- Goolman Lookout 5.6 kilometres
- Goolman Lookout via Rocky Knoll Lookout 7.4 kilometres
- Horse Trail Circuit 9 kilometres.

The segment of the BIT in the Flinders Goolman Conservation Estate consists of two sections; Hardings Paddock to Flinders Plum–13 kilometres and Flinders Plum to Flinders Peak–6.9 kilometres.

The BIT starts at Hardings Paddock from the stock yards and continues along graded management roads over challenging but rewarding mountainside. The trail boasts viewpoints of the Scenic Rim, Moreton Bay, surrounding mountains and countryside.

The trail connects with Flinders Plum from Hardings Paddock down a steep spur arriving at a horse bypass gate located on the trail to separate horse riders and other trail users going into or out of Flinders Plum picnic area. Horses will not be permitted to enter Flinders Plum picnic area and are required by Ipswich City Council to use the horse bypass to exit 200 metres east of Flinders Plum picnic area. All other trail users are able to walk past the horse bypass gate into the Flinders Plum picnic area.

The Flinders Plum picnic area has a toilet and shelters. Two short trails start at Flinders Plum picnic area and the trail passes through the homestead site, which is approximately 500 metres east of the picnic area.

The beginning of the trail is indicated by BIT trailhead signage including code of conduct information and is located at the Flinders Plum picnic area and at the Flinders Plum end of the horse bypass.

---

[1] With the exception of the Flinders Peak Conservation Park, which is dedicated as a conservation park, all lands in the Ipswich City Council conservation estate are freehold lands or roads rather than protected areas dedicated under the *Nature Conservation Act 1992*.

The trail follows the existing management road from the Flinders Plum picnic area to the southern boundary of the Flinders Goolman Conservation Estate. This section of the trail passes through numerous trail junctions from existing fire management roads where trail markers providing navigation and information for trail users. Code of conduct signage is also located at all entry and exit points that connect to public roads along this section of the trail.

The trail continues south out of the Flinders Goolman Conservation Estate towards Mount Joyce Escape Recreation Park.

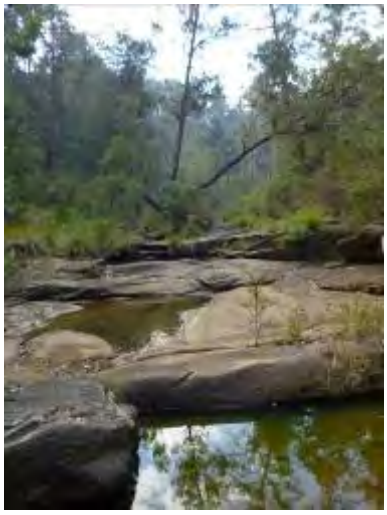
Most recreation trails located within the Conservation Estate are open for use. Further information on these trails can be found at www.ipswichcitycouncil.com.au – the Ipswich City Council website.

4.2 South of Flinders Goolman Conservation Estate–North of Wyaralong Dam precinct

Status: not yet constructed

See Map 2 - Section 9

From the southern boundary of the Ipswich City Council's Flinders Goolman Conservation Estate to the Wyaralong Dam precinct, the BIT is located on existing roads, most of which are surveyed but unformed. The exception is Wild Pig Creek Road which is maintained by Scenic Rim Regional Council. The trail from the Flinders Goolman Conservation Estate is via Mount Elliot Road southwest to the eastern end of Washpool Road.



From the eastern end of Washpool Road, the trail heads south east following Woollaman Creek to Wild Pig Creek Road. This section has 14 creek crossings and some steep gradients. This alignment is on a surveyed but unformed road.

After Woollaman Creek turns east, the trail heads to the junction of Wild Pig Creek Road (North) and Wild Pig Creek Road (South). From this road intersection, the trail follows the existing formed and maintained, unsealed Wild Pig Creek Road southwest to a steep spur leading up to the ridge marking the northern boundary of the Wyaralong Dam Precinct.

The trail then crosses Wild Pig Creek at the base of a steep that climbs 100 metres in elevation to the northern boundary of Wyaralong Dam. This section of the trail construction from the Wild Pig Creek crossing will have switchbacks and climbing turns to connect the formed road at the northern boundary of the Wyaralong Dam Precinct.

The trail alignment from the southern boundary of the Flinders Goolman Conservation Estate to the northern boundary of the Wyaralong Dam is 17.1 kilometres. Code of conduct signage is located at all entry and exit points that connect to public roads along the BIT and trail markers will be implemented along the trail as per signage guidelines to provide clear trail navigation.

4.3 Wyaralong Dam Precinct

Status: Mount Joyce Escape Recreation Park trails are constructed
South of Boonah–Beaudesert Road is not yet constructed

See Map 3 - Section 9

A 40 kilometre network of multi and single use trails and Mount Joyce Escape Recreation Park, including a purpose-built mountain bike park, was constructed by the Queensland Government as part of the Wyaralong Dam Project.

The 14 kilometre section of the BIT in the Mount Joyce Escape Recreation Park uses an Seqwater management road. The trail travels west along the Ridgeline Trail and down the most western spur of the on Shoreline Trail of the Mount Joyce Escape Recreation Park. The trail joins Knehrs Road and meets Old Boonah to Beaudesert Road at the base of the ridgeline.

The trail alignment follows Old Boonah to Beaudesert Road to the Lilybrook trail entrance (north of the Boonah–Beaudesert Road) and continues the trail towards Lilybrook Station. Trail users can follow the trail to Lilybrook Station or continue along the BIT under Boonah–Beaudesert Road using a stock underpass east of Lilybrook Station.

Seqwater currently manages recreation facilities at Wyaralong Dam including the section of BIT as part of Mount Joyce Escape Recreation Park and Lilybrook Station Western Trailhead day use area that connects to the BIT. Located off the Beaudesert-Boonah Road, the site caters for access to the multi-use shoreline trail and provides facilities such as toilets, picnic tables and horse yards, including other amenities for the day visitor.

There is a canoe/kayak launch point located at the Western Trailhead recreation area. However, there is no boat launching facility at this location. The boat ramp at the Eastern Trailhead recreation area is currently closed due to the temporary closure of the main body of the lake.

The Mt Joyce Escape Recreation Park and the BIT are open to day visitors from 6 am–6 pm seven days a week.

From Lilybrook Station campsite and day use area the trail passes under the Boonah–Beaudesert Road via a stock underpass and follows the crest of a spur rising south towards the Goans Hill ridge. This section of the trail crosses Goans Road, the access road from the Boonah–Beaudesert Road to the Queensland Moto Park (Wyaralong). After climbing to the crest of the prominent Goans Hill ridge there will be the choice of heading directly towards Boonah via the ridge line behind Goans Hill that connects to Schneider Road, or trail users can use a longer loop option via a view point overlooking the Boonah township and the Scenic Rim mountains. This longer loop option will join the main trail leading to Boonah.

The trail alignment continues east along the Coulson ridgeline and down a spur in a southwest direction with climbing turns constructed to minimise the trail gradient. At the bottom of the spur the trail continues along an existing fire management road that heads southeast towards the junction of Schneider Road and Sandy Creek. A 300 metre corridor with fencing on the Queensland Moto Park (Wyaralong) boundary will be installed 150 metres to the west of the Sandy Creek/Schneider Road junction. This corridor runs along the northern bank of Sandy Creek and exits outside the property boundary of the Queensland Moto Park (Wyaralong).

The corridor has two vehicle access gates to provide access for management vehicles and was constructed to prevent motorbike facility users gaining access to the BIT and unauthorised access to the trail bike facility.

This segment of trail for a large part requires trail construction consisting of crowning in erosion prone areas with the majority of construction using the full bench cut methodology.

4.4 Schneider Road–Boonah township

Status: not constructed

See Map 4 - Section 9

This section of the trail starts at the junction of the constructed trail on northern ridge of Sandy Creek that intersects with Schneider Road at the southern end of the Queensland Moto Park (Wyaralong). The trail alignment follows the formed and maintained Schneider Road to the intersection with McConnel Road. The trail continues west on McConnel Road to the intersection with Old Rifle Range Road. It then follows Old Rifle Range Road south to Gorkow Road, left onto Elliot Road, straight into East Street, right into McDonald Street, left onto Dover Street and across the road to Macquarie Street to the Boonah Showgrounds, Fassifern Pony Club and to the trailhead at the Visitor Information Centre.

The trail officially ends at the Boonah Visitor Information Centre at 20 Boonah–Fassifern Road and at the picnic facilities near the pedestrian bridge across Salt Gully at the intersection of High Street and Walter Street.

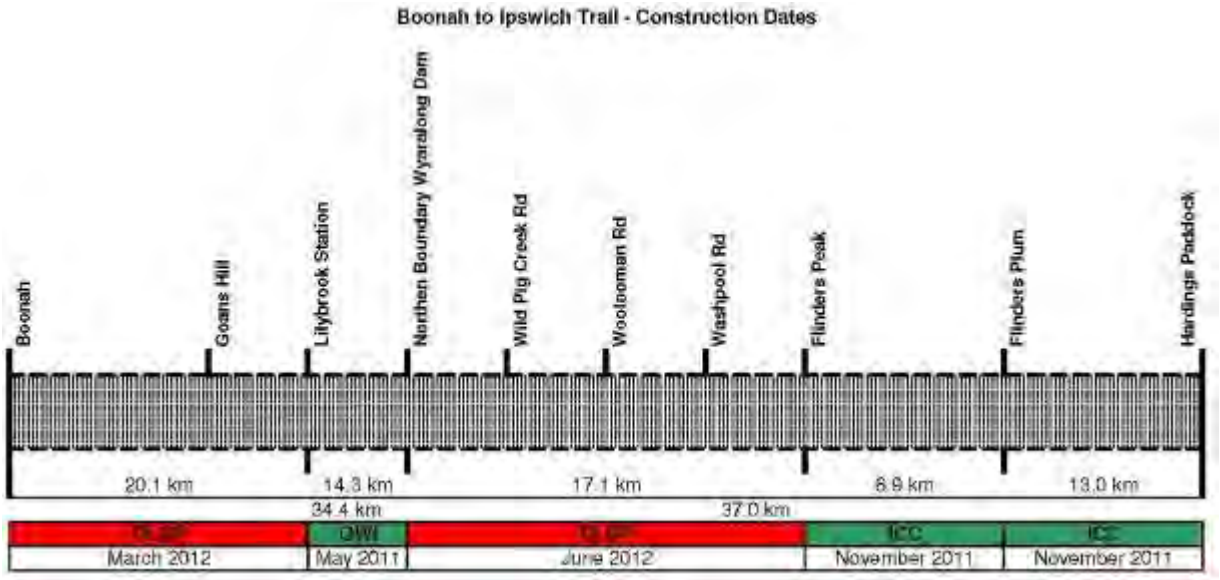
Trailhead signage will be displayed at the Visitor Information Centre taking advantage of already existing facilities such as picnic areas, toilets and car parks. Signage will also be placed at the Boonah Showgrounds at the entrance on Macquarie Street including contact details for the show society.

5. Trail design and construction considerations

This section of the trail plan addresses trail design and development and provides a summary of how the unopened sections of the trail will be constructed and the final trail maintained. Development and delivery of the trail has been staged in line with available funding sources and the availability of resources.

Likely user numbers and sources, user experience and development and likely development of complementary facilities and opportunities were researched during the consultation period. This included key stakeholders and land managers in partnership with the BIT Steering Committee, Queensland Outdoor Recreation Federation and the Queensland Trails Alliance. A timeline with responsibilities for managing the development of various stages of the trail appears in Figure 3.

Figure 3: Project management stages



5.1 Project management and delivery of the trail

The project consists of four main components:

- planning and consultation
- construction
- post construction
- risk management

5.1.1 Planning and consultation

This component includes the following activities:

- planning and implementation, community consultation and communication strategy development
- consultation with key stakeholders
- review of sections of trail already constructed within Flinders Goolman Conservation Estate and Mount Joyce Escape Recreation Park
- consultation on draft BIT plan (already completed)
- analysis of submissions
- amendment and release of final BIT plan.

5.1.2 Construction

Construction of multi-use trail (north to south):

- Flinders Goolman Conservation Estate–North of Wyaralong Dam
- North of Wyaralong Dam–Lilybrook Station
- Lilybrook Station–Schneider Road
- Schneider Road–Boonah township.

5.1.3 Post construction

Ongoing activities planned after construction of the trail include:

- provision and input of maintenance schedule data
- audit of trail construction
- establishment of trail's trust management arrangements in partnership with the BIT Steering Committee.

5.1.4 Risk management

Risk management addresses concerns regarding public liability responsibility for trail users, trail managers and adjacent landowners. Liability associated with a trail has been identified as a key issue. Real-world experience does not support these concerns. Trail managers accept and manage risks associated with public liability.

During development of the plan, consideration of risks associated with the trail planning and construction were identified including:

- health and safety of trail users, staff, volunteers and event participants
- reputation, credibility and status of the trail and its manager (or trail association)
- public and customer confidence in the trail manager
- trail manager's financial position
- equipment and plant.

The trail is close to a large and growing population and is expected to be well used. It traverses a variety of landscapes and provides some significant challenges in the development of a risk management plan. The trail in general will be wide enough to accommodate several user groups; however, there will be risks associated with the use of the trail. Some of the risks are:

- encountering motor vehicles at the road crossings and on sections of the trail that use local government roads and management roads
- encountering conflict between user groups (especially horses and walkers, horses and cyclists, cyclists and walkers)
- encountering illegal trail users such as cars, four-wheel drives and trail bikes
- falling from high embankments where there are no barriers
- being caught in a bushfire
- snake bites
- sunburn and exposure.

In the development of this plan, these risks have been addressed in the planning, construction and management of the trail. Risks associated with the trail are minimised by ensuring construction, design, signage, marketing and communication meet the required standard,

As the trail is managed by a public entity or on public roads, insurance costs associated with a trail would to be folded into the overall insurance policy of the relevant council or organisation.

5.2 Design considerations

Trail design, construction and infrastructure are governed by the types of users, environmental impact and adjacent landowners' needs. The trail must accommodate the needs of its main users; however, this does not mean the trail must support its core users in all sections or locations. For example, horse riding is not permitted in the Flinders Plum picnic area whereas on other sections horse riding is actively encouraged.

The design of the trail must consider potential conflict between users. For example, there may be conflict between mountain bike riders and horse riders due to the potential speed at which cyclists can travel without providing warning when they approach horses.

Safety provisions for trail users have been considered with some sections utilising public roads and management access roads. Sections of the trail will accommodate access for emergency and maintenance vehicles.

The following have been collated prior to initiating design or construction of the trail:

- comprehensive maps
- lot and plan numbers and ownership and uses of land adjacent to the trail
- linkages to other green space and land for public recreation
- information about the environment and landscape heritage of the trail and region.

5.2.1 Trail user groups

The main users of the trail have been identified as four core user groups:

Walkers—a walker broadly describes anyone who travels by foot on recreational trails. Walking includes all forms of recreational walking and a variety of trail experiences from a leisurely stroll in the local park to strenuous treks across rugged terrain. Walking may also involve exercising dogs, nature appreciation, bird watching or overnight stays.

Walkers use both urban and rural trails. The majority of these types of walkers use trails for fitness and social reasons. Walkers in rural areas often seek a variety of trail experiences including more challenging trails that visit interesting natural features. They may be self-sufficient and carry adequate clothing, food and water for sustained and demanding walks. As individual fitness and expertise increase, these walkers often seek experiences in more remote and difficult terrain.

Mountain bike riders—there are sub-groups which sit under the broad heading of mountain bike riders:

- family, occasional or beginner mountain bike riders—these riders generally like short loops of fairly level terrain, with some challenges to introduce them to off-road cycling.
- cross-country riders—cyclists of this nature seek moderate to very challenging terrain and like to get away from busy trails to areas of more solitude. They are usually self-sufficient, carry tools, water, food, spare tubes, maps and first aid kits. They like trails that include a variety of interconnecting loops that provide a 10 to 100 kilometre ride.

Horse riders—horse riders have been divided into sub-groups:

- recreational or 'weekender' riders—these users will be looking to exercise their horses and ride in attractive rural settings for a few hours to a day-long ride. Traditionally their trails exist on roadsides and unmade roads. Trails with a durable tread that contain watering points are suitable for these riders.
- long distance riders—these are non-competitive riders who often travel long distances along linear trails or on daily loops of up to 30 kilometres from a base.

Runners—runners like to use a variety of trails ranging from urban, hard paved trails to more challenging experiences in rural areas. Orienteerers and rogainers may also traverse trails as part of longer distance navigation through the landscape.

5.2.2 The environment and landscape heritage

Awareness of the likely impacts of various recreational activities on nature conservation, landscape heritage and greenspace values require an understanding of the geology, vegetation, and the plants and animals of the BIT alignment and adjacent eco-systems.

From Hardings Paddock picnic area to the Mount Joyce ridge, the trail passes through landscape which forms the watershed between the Bremer River catchment and the Logan River catchment. South of the Mount Joyce ridge the trail is within the Teviot Brook catchment feeding into the Logan River.

This landscape is dominated by Flinders Peak and several other peaks separating the Logan River floodplain to the east and the Warrill Creek and Purga Creek floodplain to the west.

The scenic Flinders Goolman Conservation Estate consists of peaks, rock crags, valleys, rural landscapes, and native Eucalypt forests interspersed with small patches of softwood scrubs and heath vegetation on the summits of the peaks. Flinders Peak itself is a distinctive landscape feature which is visible from many viewpoints within South East Queensland.

From Hardings Paddock picnic area to the headwaters of Woollaman Creek, the terrain consists of a series of small valleys in forested hills rising to a system of ridges and hills trending south-east to north-west between the valleys of Purga and Undullah creeks. Several significant peaks are visible—the highest of which are Flinders Peak (680 metres), Mount Blaine (455 metres), and Mount Goolman (453 metres).

South of Flinders Peak, the trail follows Woollaman Creek downstream where it joins with Wild Pig Creek. These creeks are part of the Logan River catchment. They flow into Teviot Brook downstream of Wyaralong Dam before flowing into the Logan River. This landscape features watercourses surrounded by prominent ridges.

After the junction of Wild Pig Creek and Woollaman Creek, the trail turns south-west following Wild Pig Creek upstream toward the Mount Joyce ridge which is the watershed between Wild Pig Creek and Teviot Brook.

Soils in this section are prone to erosion. During high rainfall events, both Woollaman Creek and Wild Pig Creek may be fast flowing and deep. The combination of erosion prone soils and potentially large flood flows will be addressed through trail design and construction.

A prominent ridge running west to east leads to Mount Joyce. This ridge forms the northern boundary of the Wyaralong Dam precinct. A significant part of the dam precinct was selectively cleared for agricultural use with timber harvesting. Areas have been degraded through previous land use and weed invasion. This is particularly the case in the southern and western regions.
Habitat corridors in the dam area have been significantly disrupted by land clearing activities in the Teviot Brook area. A number of strategies have been employed to mitigate the impacts of the project, for example:

- rehabilitating habitats next to the Wyaralong Dam to compensate for those lost and to improve wildlife movement corridors previously impacted by land clearing
- creating new wetland habitats to provide local refuges for aquatic species impacted by level fluctuations in the dam.

An environmental impact statement and supplementary report were prepared as part of the broader Wyaralong Dam project.

The following is a summary from the environmental impact statement:

- six regional ecosystems were mapped in the dam area including a variety of woodlands, swamplands, and fringing forests
- 300 native plant species are recorded
- weed control is an issue to be addressed in recreation management
- 37 species of mammal, 116 species of birds, 21 species of reptile and 17 species of frog were identified during the environmental impact assessment
- thematic interpretive signage will provide an opportunity for users to identify local flora and fauna and their associated ecosystems and foster an interest in care for the land based environment.

The northern and western parts of Goans Hill ridge are a mix of grasslands and various eucalypt species. The primary land use has been cattle grazing for many years and much of the original eucalypt forest was cleared. Soils on the ridges are shallow and erosion prone. The Goans Hill ridge is close to Teviot Brook and Sandy Creek (both of which flow into Wyaralong Dam) making management of erosion and sediment control important issues to be addressed through trail design, construction and management.

No formal ecological assessment has been undertaken for this area; however, the mix of grasslands, forests and woodlands provides habitat for Eastern Grey Kangaroos, and possibly Whiptail Wallabies, Redneck Wallabies, and Koalas.

The surrounding land uses are rural residential and cattle grazing.

Geology

The trail traverses the heavily forested range separating the northern Fassifern valley from the Undullah Creek and Logan River valleys to the east.

The range has retained its forest because of underlying sandstones that resist erosion. The rocky peaks result from small igneous intrusions of trachyte and related rocks.

A series of sedimentary rocks (mostly sandstones) of the Marburg subgroup underlie most of the area. Igneous rocks, more resistant to erosion, form the main peaks.

The sandstones were laid down on river plains in Jurassic times (180 million years ago) as part of the *Marburg Subgroup* of the subsiding Moreton Basin. They were originally sands deposited in or close to interlacing stream channels. Some beds of soft siltstone and mudstone were deposited in quieter parts of the flood plain.

The sandstones are relatively soft. They are composed of feldspar and rock grains as well as quartz, and have a clayey cement. In road cuttings they are deeply weathered to a clayey sand. Although the

sandstone area of outcrop is relatively resistant to erosion, there are few cliff lines. In many places the sandstones are coarse and pebbly, and beds of conglomerate are included. These suggest that they have been eroded from old mountains not far away.

Impressions of plant stems and large fragments of silicified wood are common. Many of these are likely from Araucarian trees, ancient ancestors of hoop pines, which still grow in the area.

The range was created when the rocks of the Moreton Basin folded. The sandstones are in the core of this up-fold, where they resisted erosion. Older sandstones of the Woogaroo Subgroup are exposed deeper in the core of the fold in the Wyaralong Dam precinct.

On the flanks of the range the sandstones are covered by the younger Walloon coal measures. These slope to the east and west and include soft shales, siltstones and mudstones. All of these erode readily to low country with heavier soils. They have been extensively cleared for farming in both the Fassifern and Logan valleys.

The sharp peaks were created much later when several large basalt volcanoes were active in South East Queensland. This is the eastern edge of the former Main Range Volcano which was active about 26 to 24 million years ago. The range was much larger, but the centre and eastern flanks were removed by erosion. The basalt lavas on the east have not been completely eroded. Some basalt still caps Mount Walker west of Peak Crossing and the hills to the east of Boonah.

The peaks of the Flinders group are mainly of light-coloured trachyte, although this varies between each one. The western end of Ivorys Rock is formed by intrusions of rhyolite and pitchstone (or volcanic glass). The ridge continuing to the east originated from one or more penetrating vertical dykes of trachyte and trachyte breccia.

A knob to the east of Flinders Peak (previously called Green Knob) is made of dark microsyenite. Mount Blaine and the upper part of Flinders Peak are made from broken-up trachyte, or breccia. Some lower, flatter hills of trachyte northwest of Flinders Peak were probably sheets injected between the beds of sandstone. Near the major intrusions, there are many thin dykes cutting the sandstone. Most of these are trachyte, but there are also thin dykes of basalt between Ivorys Rock and Goolman Lookout.

Most of the larger, higher peaks were most likely plugs of magma that solidified in the conduits of subsidiary vents. Around the upper flanks of Flinders Peak there are several overhanging caves which are eroded into the upper breccia mass. The mountain is capped by unbrecciated trachyte similar to that at the foot of the mountain.

Sandstones of the range are almost continuously obvious along the whole length of the trail. In various places they are visible as gently inclined beds in weathered exposures in road cuttings and creek banks, as slabs in the track surface, or as small boulders on the hillsides. They are khaki brown and generally coarse grained, verging to pebble and gravel conglomerate.

Plants

At least nine vegetation types are present within the conservation area. They are described below.

- Mixed eucalypt-dominated open forests and woodlands.
- Gum-topped Box
- Vine forests.
- Rocky heathlands on the acid volcanic outcrops.
- White Mahogany (*Eucalyptus acmenoides*) associations on the rocky flanks of Flinders Peak.
- Yellow Box (*Eucalyptus melliodora*) forest on basalt
- Brush Box (*Lophostemon confertus*). The more fertile drainage lines support more species-rich communities with Brush Box as a common canopy element.

- Silver-leaved Ironbark (*Eucalyptus melanophloia*) grassy woodland usually growing on finer sediments on warmer northerly facing slopes of ridges
- Riparian vegetation (species of *Casuarina* etc.), limited to narrow strips along drainage lines and creek flats.

The condition of the vegetation along the trail alignment varies. Past logging activity in the area has degraded some of the lower slopes and *Lantana camara* has spread among some areas of open forest, particularly in moist gullies. Nevertheless, the open forests in the upper slopes of are in relatively good condition. Vine forests are generally more degraded through a combination of previous land use, fire and weed invasion. Creeping Lantana (*Lantana montevidensis*) is becoming more of a problem in some areas of heathlands, disturbed vine forest, grassy woodlands and open forests.

Five noteworthy flora species have been previously recorded from within the area (Brown & Root - 2001). Another species with an apparently rare and restricted status was discovered during research for the BIT plan.

Table 3: Flinders Peak–Mt Goolman area noteworthy plant species

Scientific name	Common name	State status	Commonwealth status
Arundinella montana	No common name	Rare	Not Listed
Cupaniopsis tomentella	Boonah Tuckeroo	Vulnerable	Vulnerable
Marsdenia coronata	Slender Milkvine	Vulnerable	Vulnerable
Notelaea lloydii	Lloyd's Native Olive	Vulnerable	Vulnerable
Pouteria eerwah	Eerwah Plum	Endangered	Endangered

Animals

The BIT plan does not have a comprehensive collection of data in the field with information relying on previous studies. These however, tended to focus on mammals and birds rather than other fauna such as reptiles, amphibians and insects.

In context of the BIT plan, noteworthy species when assessing risks and deals mostly with more common and typical species later when outlining opportunities for interpretation. Common species are therefore not identified.

Most notably is the significant population of the Brush-tail Rock Wallaby inhabiting the rocky peaks within the Flinders Goolman Conservation Estate. It is likely that they move between the breeding colonies on the rocky peaks. Continuity of habitat between the rock wallaby colonies provides for the conservation of the species. It is unlikely that the construction of the trail will disturb the colonies due to its minimal impact on the environment and landscape.

Table 4 lists species recorded from the study area with the addition of a few likely species. It also identifies the conservation status and preferred habitat of each species. Thirteen noteworthy animals have been recorded for the area.

Table 4: Noteworthy species for the Flinders Peak/Mount Goolman Conservation Estate and Flinders Peak Conservation Park

Scientific name	***Common name***	***Conservation status***	***Preferred habitat***
Petrogale penicillata	Brush-tailed Rock-wallaby	Vulnerable	Cliffs, rocky outcrops and boulder piles
Calyptorhynchus lathami	Glossy Black-cockatoo	Vulnerable	Open forest containing she oaks (*Allocasuarina* spp.).
Pomatostomus temporalis	Grey-crowned Babbler	Otherwise significant	Drier open forests, scrubby woodlands, farmlands
Falco peregrinus	Peregrine Falcon	Otherwise significant	Cliffs and rocky outcrops over most vegetation types
Aquila audax	Wedge-tailed Eagle	Otherwise significant	Most vegetation types except closed forests
Pteropus alecto	Black Flying-fox	Otherwise significant	Mangroves, paperbark forests, rainforest and fruiting trees
Macropus dorsalis	Black-striped Wallaby	Otherwise significant	Forested areas with a dense shrub layer
Macropus parryi	Whiptail Wallaby	Otherwise significant	Hilly country in open forest and a grass understorey
Wallabia bicolor	Swamp Wallaby	Otherwise significant	Brigalow scrub, wetter areas on hill slopes of eucalypt forests with thick undergrowth, heath
Macropus giganteus	Eastern Grey Kangaroo	Otherwise significant	Semi-arid mallee scrub through to woodlands and forest
Phascolarctos cinereus	Koala	Vulnerable in SEQ	Open forest with suitable feed trees
Petauroides volans	Greater Glider	Otherwise significant	Eucalypt dominated habitats with hollow-bearing trees
Sminthopsis murina	Common Dunnart	Otherwise significant	Woodlands, open forest, heathland and these habitats close to rainforest
Ninox strenua	Powerful Owl	Vulnerable	Tall open forests
Sericulus chrysocephalus	Regent Bowerbird	Otherwise significant	Mid and upper levels of rainforests and nearby forests
Ptilonorhynchus violaceus	Satin Bowerbird	Otherwise significant	Rainforest, wet sclerophyll forests and nearby woodlands

Table 5 summarises the assessment of the threat to rare or threatened species in relation to the use of the trail.

Table 5: Threat to rare or threatened species

Species	Level of threat and recommended activity on the trail			
	Walking	**Walking with dog on leash**	**Horse riding**	**Mountain biking**
Brush-tailed rock-wallaby	No threat Minimise dusk and dawn activity	Some threat Avoid refuge areas and dusk and dawn activity	No threat Minimise dusk and dawn activity	No threat Minimise dusk and dawn activity
Koala	No threat	No threat Avoid night time activity	No threat	No threat
Black-breasted button-quail	No threat	No threat	No threat	No threat
Grey-crowned Babbler	No threat	No threat	No threat	No threat
Macropods	No threat	No threat Minimise dusk and dawn activity	No threat	No threat
Tephrosia sp.	Not known	Not known	Not known	Not known

Indigenous heritage

The traditional custodians of the corridor of the trail are the Mununjali, Yuggera, Ugarapul and Jagera peoples.

Prior to European settlement in 1841, the landscape of South-East Queensland (as elsewhere in Australia) was influenced and protected by millennia of Aboriginal stewardship. Indigenous use and management of the landscape (e.g. moving camp when resources were depleted and closing areas for particular species) maintained a balance between the land and human needs.

The most important aspect of Aboriginal life in southeast Queensland revolved around the socio-sacred bunya (*bon-ye*) festivals, held in the Bunya Mountains and Blackall Ranges, attracting thousands of participants. Every two or three years groups of Aboriginal people would follow the ancient pathways along the Brisbane River to the pine clad mountains where towering bunya pine *Araucaria bidwilli* dropped huge cones full of rich nuts.

Ipswich City Council was the first council in Queensland to enter into an Indigenous Land Use Agreement (ILUA) with the traditional owners of the land covering its entire local government area and the section of the trail from Hardings Paddock to Flinders Peak.

A cultural heritage management plan was prepared for the area surrounding Wyaralong Dam. There were a number of sites identified in the plan. These sites and significant cultural heritage values of the region are acknowledged.

European heritage

The region surrounding the BIT has a varied and interesting European history.

Pastoral occupation of the region began in the early 1840s. Grazing runs taken up included Fassifern, Maroon, Dugandan, Normanby and Coochin Coochin. At this time the small local population consisted of station workers and teamsters. In the early 1860s, after Queensland had become a separate colony, land tenure was more secure and self-contained.

From the early 1870s, predominately German families took up the small farming blocks as the large runs were subdivided for closer settlement.

Boonah was first known as Blumberville (after the Blumberg Brothers' stores opened in 1882) and Dugandan, the town was named Boonah in 1887 when the railway station was opened. It is thought that the name was derived from an Aboriginal word describing the bloodwood tree or a brigalow-type acacia.

By the late 1880s Boonah's importance was evident with the Goolman local government division's offices moved from Flinders to Boonah in 1888, the year after extension of the railway from Ipswich.

Boonah's population grew steadily until the 1960s. The Catholic community opened a primary school in 1957 and the add-on secondary department to the state primary school (1878) was replaced with a new state high school in 1965.

A number of sites and structures are listed on the Queensland Heritage Register adjacent to or very close to the trail. The Queensland Heritage Register is a list of places of cultural heritage significance to Queensland to be protected for present and future generations.

Sites of interest include the Boonah War Memorial and Memorial Park, Deebing Creek Mission (former), Purga United Church and the Purga Aboriginal Cemetery which is located on the access road to Hardings Paddock.

Scenic Amenity

The natural beauty of South East Queensland’s beaches, forests, waterways, parks and farmland is one of the region’s greatest assets and contributes to its tourism industry and our quality of life.

Protection of these scenic assets for the enjoyment of current and future generations can be achieved through the South East Queensland Regional Plan’s visionary approach to the management of growth and development in South East Queensland.

As state and local governments continue to work accommodate the region’s growing population, it is important to also consider and protect the important scenic values of our region.

The BIT traverses the highly valued scenic amenity of the Scenic Rim. The combination of a variety of landscape qualities—peaks, rock crags, valleys, rural landscapes and continuous vegetation cover means there are many significant and popular viewpoints. Flinders Peak and Mount Joyce are distinctive landscape features and are visible from many elevated areas within South East Queensland.

Currently, Goolman Lookout is the only designated viewpoint along the trail. (The alignment south of Flinders Plum picnic area has outstanding views to Flinders Peak, creating potential sites for lookouts. Further investigations will identify sites along the proposed alignment on the Mount Joyce ridge as well as Goans Hill (south of Lilybrook Station) that have a high scenic amenity value.

There are opportunities to enhance public access to the many significant and popular viewpoints along the trail. This includes promotion of these locations in trail brochures, maps and the website.

5.2.3 Adjoining landowners

During the consultation on the Draft BIT Plan, issues that were raised by adjoining landowners and other interested and concerned people were addressed as part of the consultation document. The final plan addresses many of these infrastructure and construction issues.

Adjacent landowners in general support the trail and anticipate the trail is going to be well organised and efficiently managed. They are valuable partners in the development of the final BIT plan.

Adjacent landowners can also consider business opportunities offered following the trail's development including bed and breakfasts, horse agistment and bike repairs for people who visit from elsewhere to enjoy the facility of the trail. Such users also spend money on many things including food, accommodation, and transport costs.

One of the intentions of this plan is to address and alleviate concerns of adjacent landowners and key stakeholders.

5.2.4 User preference

Users of the trail are likely to appreciate the following attributes of the BIT:

- The trail complements and adds to existing high quality tourism products—for example, the trail will be well integrated with key tourism destination of the Scenic Rim and surrounding region. Ultimately, infrastructure will be developed specifically near the trail such as a bike hire outlet/cafés, which in turn will provide a meaningful tourism experience.

- The BIT infrastructure and signage reflects the rural landscape and scenic amenity of the trail using recycled fence posts and recycled materials wherever possible. The BIT logo reinforces the location and spectacular scenery of the trail with the image of the Scenic Rim horizon included in its design.

- Marketing will provide educational context to the trail and acknowledge the historical and cultural context of the surrounding area. This will include the provision of information boards as well as sculptures or art works reflecting the creative population of Boonah. These will also assist in the interpretation of the local Indigenous and non-Indigenous history as well as providing points of interest.

- The trail enhances the natural environment through landscaping and planting. The trail maintenance will include removing introduced weeds and grasses and re-vegetation with native species. Any future re-vegetation areas will be planted with native trees, shrubs, herbaceous plants and grasses, and fenced off from stock.

5.3 Construction considerations

The trail construction and works list have taken into consideration the site and intended users. Groups such as the Australian Trail Horse Riders Association (refer to Appendix 1) and the International Mountain Biking Association (refer to Appendix 2) have produced specific recommendations for needs, specifications and infrastructure requirements for recreational horse and bike riding trails.

The trail incorporates recommendations of both organisations including rolling contours, trail surface requirements and trail width of a minimum 500 millimetres. Trail construction specifically will meet the minimum requirements of the Australian Standard™ AS 2156.2-2001 Walking tracks–Infrastructure Design (refer to Appendix 3) in conjunction with construction standards of the International Mountain Biking Association.

Ipswich City Council used an existing management road that is now the trail alignment within the Flinders Goolman Conservation Estate (refer to Map 1). South of the Flinders Goolman Conservation Estate heading towards Wyaralong Dam, the trail will follow existing surveyed formed (unsealed) and unformed roads (refer to Map 2). Trails within the Mount Joyce Escape Recreation Park are newly constructed purpose-built, multi-use recreation trail networks using International Mountain Bicycling Association's standards.

The section of trail from Hardings Paddock picnic area to the Flinders Plum picnic area is 13 kilometres long and lies within the Ipswich City Council boundary in the Flinders Goolman Conservation Estate.

The Hardings Paddock to Flinders Plum and onto Flinders Peak sections of the BIT use an already existing fire management road in the Flinders Goolman Conservation Estate.

This section of trail in Mount Joyce Escape Recreation Park uses existing fire management road and has newly constructed trail using the bench cut methodology with grade reversal and outslope to resist trail erosion. The majority of the trail is open and flowing with clear sight lines to assist with trail traffic; the trail tread width is two to three metres wide with a trail ceiling of three metres (to ensure horse riders have clearance) and constructed with a firm tread surface. The trail has been constructed where possible with a trail grade of less than 10 per cent to assist with the maintenance of the trail.

In areas containing highly erodible soils such as the ridgeline of Goans Hill the crowning method of trail construction will be utilised to provide a trail that has limited impact on the surrounding environment.

The trail will use an Seqwater fire management road from the junction of Schneider Road and the constructed trail on the northern ridge of Sandy Creek at the southern end of the Queensland Moto Park (Wyaralong). The trail alignment then follows the formed and maintained Schneider Road to the intersection with McConnel Road.

The Schneider Road to Boonah section does not require trail construction as it will be using the already maintained public roads for the trail route. The Boonah segment does however require the installation of trail signage at the specified points in the works list.

The main Boonah trailhead will be at the Boonah Visitor Information Centre at 20 Boonah–Fassifern Road and at the Boonah Sports Reserve at the pedestrian bridge across Salt Gully at the intersection of High Street and Walter Street.

5.3.1 Trail classification system

The BIT is classified as ‘Advanced’ according to the trails classification system.

Re-classification of shorter sections and connecting trails may vary depending on the land manager’s classification system. Trails at Mount Joyce Escape Recreation Park range from ‘Easy’ to ‘Advanced’. Trail markers indicate the classification of these trail networks.

Trails within the Flinders Goolman Conservation Estate have been assigned a rating under the Australian Standard for Walking Tracks, a difficulty rating under the International Mountain Biking Association Rating System, and South Australian Government’s Trails Rating Classification for Horse Riding adapted from the Draft Recreational Trails Strategy for South Australia 2005-2010.

The BIT is recommended for advanced and experienced users. The terrain on average is steep (up to 15 per cent), although users should expect to encounter very steep and long sections up to 30 per cent. Users contemplating the trail should have considerable skill in their chosen activity and be aware there are long sections of trail without water or shelter.

The proposed classification system for the completed trail was originally developed by the Department of Environment and Resource Management to rate trails on the South East Queensland Horse Trail Network according to international standards in use throughout the recreation industry.

This classification system has been endorsed by the Department of Local Government and Planning and key stakeholders for all multi-use trails developed within the. SEQ Active Trails Strategy ratings are assigned under ideal conditions and are based on technical difficulty rather than physical exertion. All sections of the BIT and other regional trails planned and constructed by the Department of Local Government and Planning will implement the following classification system.

Classification system

Easy

This classification is used to identify the easiest tracks that are suitable for users who do not have the skill or desire for more challenging trails. These tracks are appropriate for novice through to advanced users and require little skill or physical challenge to complete. They generally follow obvious, well marked tracks and roads. Grades on average are gentle (up to 5 per cent); although short sections of up to 15 per cent may be encountered. The track surface is generally smooth, level and wide with generous clearing of trees, limbs, and other vegetation. Few obstacles will be encountered. Changes in elevation are minimal. Streams are most often crossed with bridges.

Moderate

Tracks in this classification rating are designed to meet the expectations of the majority of trail users. They require skills beyond that of a novice and will at times challenge the average trail user. These routes are suitable for intermediate through to advanced users. Users should expect to encounter terrain that is on average moderate (up to10 per cent); although some short steeper sections of up to 25 per cent may be encountered. These trails are generally narrower and may contain obstacles such as fallen trees or exposed roots and rocks. Changes in elevation are moderate. Streams are most often crossed by fording.

Advanced

These trails are designed for users with advanced skills who are seeking a higher risk level. They are recommended for advanced through to expert users only and will provide a definite physical challenge. The terrain on average is steep (up to 15 per cent); although users should expect to encounter very steep and long sections up to 30 per cent. Users contemplating these tracks should have considerable

skill in their chosen activity and have a high level of competence in outdoor skills such as navigation, first aid and survival. Trails in this category are rarely graded and may be indistinct or not be well marked in places. Minimal clearing of trees, limbs or other vegetation may result in hampering the progress of the user. Users can encounter frequent and sometimes difficult obstacles. Changes in elevation are usually severe. Streams are most often crossed by fording and are sometimes difficult to negotiate.

Note: An option also exists to add a category at either end of this spectrum consisting of a white circle (easiest) or double black diamond (extreme). However, after consultation with key stakeholders, it is considered that any trail that is classified double black diamond should not be a shared trail and would require separation of trail users. Further information on classification of other land managers will be available in the final Active Trails Implementation Guidelines.

Table 6: Trail classification grade comparisons

Organisation	Gradient (percentage / degrees)		
	Easy	**Moderate**	**Advanced**
ATHRA	Max 10% / 5.17˚	Max 15% / 8.53˚	Max 20% / 11.31˚
IMBA	Max 10% / 5.17˚	Max 15% / 8.53˚	Max 20% / 11.31˚
US Forest Service (Mountain bikes)	Less that 5% / 2.86˚ (average) Max. 10% / 5.17˚ up to 30m	Less that 10% / 5.17˚ (average) Max. 30% / 16.70˚ up to 100m	Less that 15% / 8.53˚ (average) Max. 30+% / +16.70˚ up to 150m
US Forest Service (Horses)	Less that 5% / 2.86˚ (average) Max. 15% / 8.53˚ up to 70m	Less that 10% / 5.17˚ (average) Max. 25% / 14.03˚ up to 100m	Less that 15%/ 8.53˚ (average) Max. 30+% / +16.70˚ up to 150m
US Forest Service (Hiking)	Less that 5% / 2.86˚ (average) Max. 20% / 11.31˚ up to 30m	Less that 12% / 8.33˚ (average) Max. 30% / 16.70˚ up to 100m	Less that 18% / 10.20˚ (average) Max. 30+%/ +16.70˚ up to 150m
US Forest Service (multi-use)	Less that 5% / 2.86˚ (average) Max. 15% / 8.53˚ up to 70m	Less that 10% / 5.17˚ (average) Max. 25% / 14.03˚ up to 100m	Less that 15% / 8.53˚ (average) Max. 30%/ 16.70˚ up to 150m
South East Queensland Active Trails (BIT)	**Less that 5% / 2.86˚ (average) Max. 15% / 8.53˚ up to 100m section**	**Less that 10% / 5.17˚ (average) Max. 25% / 14.03˚ up to 150m section**	**Less that 15% / 8.53˚ (average) Max. 30% / 16.70˚ up to 200m section**

5.3.2 Trail width and height

The BIT is for non-motorised multi-use recreation users, except sections using public roads. In general it is recommended that multi-use trails have:

- standard trail width of 2.5–3.0 metres
- overhead clearance of approximately three metres from the trail surface to ensure that horse riders have clear head space.

The trail within the Flinders Goolman Conservation Estate and the Wyaralong Dam precinct is a minimum 2.5 metres in width.

Some sections of the trail, however, are narrower due to the terrain and environmental considerations of track construction. The section which will be heavily influenced by environmental constraints will be from Wild Pig Creek Road crossing at Wild Pig Creek which is at the base of a steep spur leading to the ridge of Mount Joyce. This particular section of the trail will require a tight and technical form of design and construction. A tight and technical design is more difficult and has sharper turns, rougher surfaces and a narrower tread. They provide mountain bikers with a challenge while keeping speeds low, which will potentially decrease user conflict. There will be consideration of separating users on this section of trail should user demand and construction prove it necessary.

5.3.3 Privacy

Due to the nature of the trail setting, no screening plantings are required.

5.3.4 Trail surface material

Choosing appropriate materials for the trail's sub-base and topping (surface layer) is critical to the longevity and suitability of the trail for the intended user groups.

The trail surfaces within completed sections of the trail are:

- Flinders Goolman Conservation Estate—trail is on a formed, maintained graded dirt management road
- Wyaralong Dam Precinct—trail has been constructed using a bench cut method with a smooth and compacted surface.

For constructed sections of the trail the surface will be composed of compacted soil that can help resist erosion, while at the same time providing a durable tread that supports the needs of trail users. The trail will use local government roads from Schneider Road to the Boonah township section which will be on a combination of sealed and dirt roads. Some sections may utilise the verge of the road and would be maintained as part of the local road works program.

5.3.5 Erosion controls and water crossings

Proper drainage construction ensures a lasting, maintenance-free facility. Fast removal of surface water and techniques, such as rolling contours are employed. On sloping landscapes, the trail construction includes water bars and, in some instances, surfacing will comprise of soil stabilising products.

The trail alignment will cross the following significant creeks:

- Flinders Plum picnic area heading east to Sandy Creek
- Woollaman Creek
- Wild Pig Creek
- Sandy Creek.

Soil on the Goans Hill ridge is shallow and erosion prone. The Goans Hill ridge is close to Teviot Brook and Sandy Creek (both of which flow into Wyaralong Dam) making management of erosion and sediment control important issues to be addressed through trail design, construction and management. Construction will be progressed in consultation with Seqwater.

5.3.6 Managing unwanted trail uses

The unauthorised use of motorised vehicles on the trail was raised as a major concern by adjoining landowners and trail users. In addition to regulatory signage and trail supervision by local authorities, trail infrastructure will be used to make access extremely difficult for trail bikes and other unauthorised motorised vehicles to access the trail.

Ipswich City Council has already adopted a metal stile system to deter trail bike riders within the Flinders Goolman Conservation Estate as well as with signage.

Should infrastructure be required in locations on the trail, horse stiles/step-overs and gate systems will be installed.

Other methods including trail design, working in partnership with adjacent landowners and local authorities will also assist with the management of mitigating unwanted trail users.

5.3.7 Trail furniture and infrastructure

The trail traverses through significant and diverse landscapes with scenic viewpoints and interesting lookouts. There are many locations well suited for trail side furniture which includes seating, shelters, interpretive signage and public art.

The sites for all furniture and infrastructure have been developed in partnership with key stakeholders through the consultation phase of the development of the final BIT plan. Current infrastructure will also be considered on completed sections of the BIT including Mount Joyce Escape Recreation Park trails, Hardings Paddock picnic area and Flinders Plum picnic area.

The main trailhead locations of the trail and completed sections including Mount Joyce Escape Recreation Park, Hardings Paddock picnic area and Flinders Plum picnic area already have furniture and infrastructure as listed in Table 7.

Table 7: Trail furniture and infrastructure

Hardings Paddock:	Flinders Plum picnic area:	Lilybrook Station:	Boonah Visitor Information Centre:
toilet shelters seating and tables BBQ picnic tables water access horse yards water tanks bins hitching rail trailhead signage car parking horse float turnaround	toilet BBQ shelter seating and tables trailhead signage water access car parking water tank	camping facilities watering point shelter seating and tables water access horse yard horse float turnaround limited car parking BBQ bins toilet shower trailhead signage hitching rail horse step up blocks manure pit	public art picnic tables water access car parking bins toilet trailhead signage

Consideration of additional trail furniture and infrastructure includes (but is not limited to):

- rubbish bins
- sheltered camp sites adjacent to the trail
- cleared rest areas
- horse mounting blocks and hitching posts
- horse stiles and gates
- information and directional signage as per signage guidelines
- public art
- trail seating
- watering points.

A review of additional infrastructure requirements will be initiated by the Steering Committee within 12–18 months following completion of the entire trail.

5.4 Trail signage

5.4.1 Recognised standards

Trail construction, classification and signage complies with recognised Australian Standards to ensure a high-quality and safe experience for all trail users.

Signage on the trail adheres to the *SEQ Active Trails Implementation Guidelines* and the *Boonah to Ipswich Trail graphic identity and signage guidelines* (refer to Appendix 4).

Trailhead signage displays code of conduct, trail classification and trail map. At all trail access points, signage will include code of conduct and warning signs and totems with directional and trail classification icons. Where the trail crosses a public road, appropriate warning signage will be installed for both trail user and oncoming road traffic.

5.4.2 Adherence to recognised standards

AS 2156.1—2001 Australian Standard™ Walking tracks classification and signage provides a classification system for walking tracks and is the basis for the signage guidelines. The standard provides guidance on the design, fabrication and use of trail markers and information signs to be used for walking trails.

There are no Australian standards for multi-use trails classification or signage. Signage for the BIT has been developed based on the Australian standards for walking tracks.

There are five types of trail signs that form part of the Australian standards which are:
1. information signs
2. descriptive signs
3. interpretive signs
4. warning or risk signs
5. regulatory signs.

A sixth type of sign—event and temporary signs—has been included as an independent category.

Information signs
Information signs provide information relating to the trail and its use, including:
- registration and reporting recommendations
- equipment recommendations
- personal safety precautions
- environmental protection (minimal impact practices)
- skill and fitness level required
- specific conditions.

Descriptive signs
Descriptive signs specify information necessary for the safe and enjoyable use of the trail. Signs will be large enough to be read at some distance and will be mounted in a shelter at the trailhead if it is the primary sign for trail information. Descriptive signs may include:
- type of trail (e.g. loop, one-way, return)
- effect of weather conditions
- elements of interest, trail conditions or difficulties (e.g. facilities, waterfall, slippery rocks)
- opening and closing hours of the trail
- distance to designated point
- estimated completion time
- direction of the initial course of the track
- graphic image/map for orientation.

Interpretive signage
Interpretive signage on the cultural heritage and landscape of a trail will add interest to the trail and will also engage the trail user in other aspects and encourage increased use of the trail. Interpretation signs convey educational material about a natural or cultural feature on a trail. An interpretive plan including signage will form part of the overall trail plan.

Warning or risk signs
Warning signs play an important role in risk and safety management of recreational areas such as trails for three principal reasons:
- It informs users of dangers, safety issues and other relevant information.
- It offers some protection to the land manager who is required to warn users of dangers, prohibitions and other safety information.

- It provides an economic alternative to staffing visitor areas where there is a risk. Further investigations through planning and design considerations will determine specific localities for warning signage along the trail alignment.

Warning or risk signs advise users of particular danger or risk and will include the following information:
- appropriate pictogram identifying the hazard
- statement of danger or hazard
- statement of consequence
- statement of precautionary action.

Regulatory signs
Regulatory signs specify legal requirements and regulations associated with the use of a trail.

Event and temporary signs
Event and temporary signs may be appropriate where an event or visitor attraction or service has limited and seasonal opening times. These signs may be subject to the approval of the land manager, the local planning authority for public roads and easements or the Department of Transport and Main Roads if it is on a major arterial road. Costs are paid by the applicant including the sign and advertising costs.

If a sign is erected for a period of less than nine months of the year it is classed as a temporary sign. A temporary tourist sign, however, can only be erected if the attraction is open to the public for more than three months of the year. The location and period of the event or road closure will be advertised through local print media and local visitor information centres prior to the event or road closure. This requirement, however, will vary with local planning laws.

5.4.3 Trail markers

In relation to trail markers, the key recommendations of the Australian Standard 21.56.1—2001 have been applied to the trail. They are as follows:

- Directional arrows will be positioned on a square background of a minimum of 100 millimetres by 100 millimetres.
- Directional arrows will either be at 90 or 45 degree angles only.
- Trail markers will be designed for durability and will be made of either aluminium alloy (at least 1.4 millimetres thick) or galvanised steel.
- Markers will have a white, reflective finish to assist with night-time identification and will be clearly visible within the landscape.
- Intervals at which trail markers are placed will be in accordance with trail classification and local site conditions such as vegetation, topography and weather.
- Trail markers will be placed at a consistent height above ground (between 0–2 metres) and will relate to topographical conditions.
- Directional markers do not need to be placed at frequent intervals along straight sections of trail as the formation is clear. They will only need to be placed where the main trail deviates from the corridor or intersects with another trail network.

The multi-use recreation trail will accommodate two-way traffic; therefore trail markers will be bi-directional. Directional markers will be displayed in conjunction with square trail markers showing the BIT logo, the classification of the trail and the code of conduct sign for the safety of the trail user.

All other logos and branding (i.e. logos of the Queensland Government and land managers such as councils) will be located on other signage at trailheads, information stops, shelters and major trail intersections. More information can be found in the *Boonah to Ipswich Trail graphic identity and signage guidelines* Appendix 4.

The BIT trailhead signage at Hardings Paddock has been incorporated into Ipswich City Council's standalone trailhead signage at the two entry points of the trail. Code of conduct signage will be located at all entry and exit points that connect to public roads along the BIT. Trail markers will be implemented along the trail as per signage guidelines to provide clear trail navigation.

5.4.4 Code of conduct signage

Recognising that users will join the trail at any number of points, distance and direction signs will be installed at all trail entrances. This will provide information to users joining the trail at locations other than at trailheads and will provide additional information for users already on the trail.

The full code of conduct signage will be installed as per the works list that includes all major trailhead locations and entrances to inform all user groups about appropriate behaviour when sharing the trail to alleviate potential conflict between different trail users.

5.4.5 Emergency response signage

An emergency response plan will be formulated and will indicate all major hazards. A GPS reference/identifier in degrees, minutes and seconds will be placed on posts as each section is completed for use in emergencies as well as a location aid for those in stress.

The emergency telephone numbers (000, 112 or 106 for text-based service) will be displayed on all trailhead signage and clearly identify that numbers will contact all three emergency services (fire, ambulance and police). Below is a description of the different phone numbers and how they work:

Triple zero (000) is Australia's primary emergency service number and will be used if urgent emergency assistance is required. Australia also has two secondary emergency service numbers for use only in connection with particular technologies:

- 112 is the GSM international standard emergency number which can only be dialled on a digital mobile phone.
- 106 is the text-based emergency number for people who are deaf, or who have a hearing or speech impairment. This service operates using a text phone (TTY) or a computer with modem access.

Trail signs will also tell users which agency or body is responsible for the trail and associated infrastructure if there is a problem that needs to be addressed.

5.4.6 Trailhead signage

As most users of the trail will be visitors from other regions who are not familiar with the local area comprehensive signage at trailheads is important. All trailhead signage includes map panels, interpretive material and emergency information. The standards for trailhead signage are prescribed within the *Boonah to Ipswich Trail graphic identity and signage guidelines*.

Trailheads will be located at Hardings Paddock picnic area, Flinders Plum picnic area, the eastern point of Wyaralong Dam, Lilybrook Station, Boonah Showgrounds and the Visitor Information Centre in

Boonah. These locations have been chosen as they are easily accessible and have existing infrastructure.

5.4.7 Promotional signage

The BIT in its entirety will be a trail of regional significance which will attract potential tourists from other regions, interstate or overseas. The trail will have a number of promotional signs erected at major road intersections to promote the trail to tourists, motorists and other road users. Potential sites will be investigated along the Boonah–Ipswich Road and the Boonah–Beaudesert Road which provide good access to the trail. Installation of promotional signs has the potential to increase trail usage if placed close to trailhead or points of interest.

Promotional signage has been used to great effect on other trails throughout Australia, including the Bicentennial National Trail, and has increased general awareness of the trail among the broader community.

5.4.8 General trail signage maintenance

Each trailhead, road crossing and access point to the trail will be checked to ensure that all required signage is present and clearly visible and legible. Long-term management will ensure that signage is in good condition and will form an important part of the management schedule. An inventory of locations will be based on the attached works list to assist in regular maintenance.

5.4.9 Optimum viewing distances for trailhead or roadside signage

The diagrams below are a guide to the preferred heights that offer optimum viewing to trail users and will inform the trail signage.

Figure 4: Optimum viewing distances for low position signs

As a general rule, low position signage intended for close viewing (indoor directory or directional signage) should be centred at a height of 1500mm.

Overhead or suspended signage should (as a general rule) be no lower than 2500mm at its lowest point to prevent accidental or intentional impact.

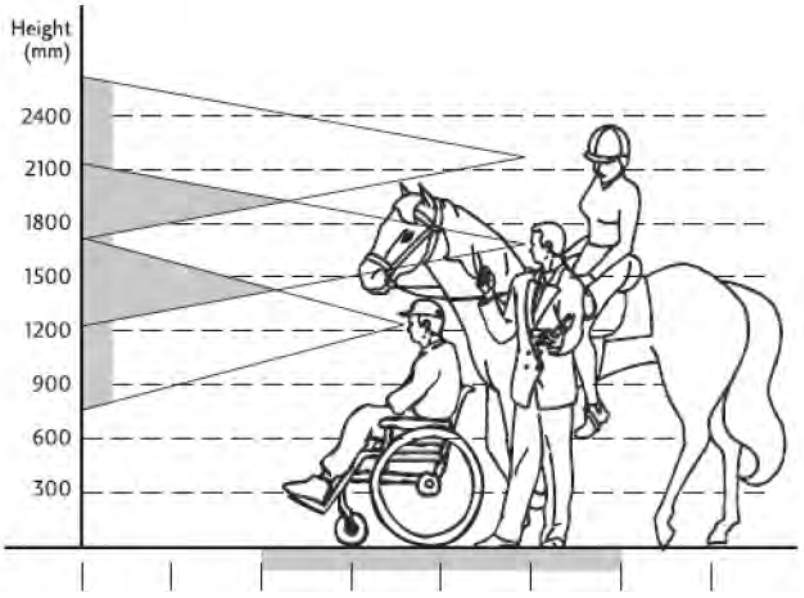
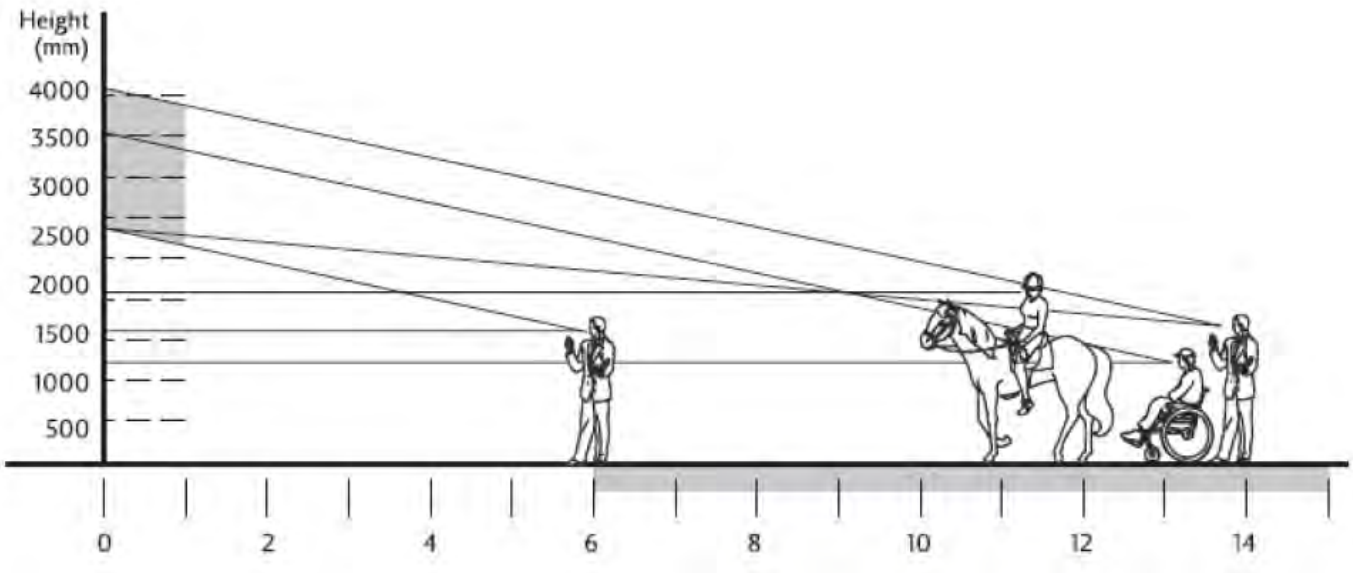


Figure 5: Optimum viewing distance for high position signs



6. Works list

This section of the BIT plan details works required for the construction of the trail. At the time of publication, the works list for Flinders Goolman Conservation Estate was completed.

The works list is based on previous trail construction projects in South East Queensland and will require review and evaluation throughout the lifespan of the BIT construction project.

Table 8.1: Flinders Goolman Conservation Estate –Total distance: 19.9 km

Map ref	Location	Scope of works
156	BIT trailhead	Install BIT trailhead signage on both sides of peak roof signage display unit (condensed sign on side A and full sign on side B).
157	Hardings Paddock horse yards	Install code of conduct sign.
158	Hardings Paddock North information sign (ICC)	BIT information redirects horse riders to trailhead at the Hardings Paddock horse yards.
159	Gate out of Hardings Paddock	Install directional totem (BIT, give way, advanced, directional) and code of conduct sign.
162	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
165	Trail gate	Install trail markers on totem (BIT, give way, advanced, directional).
172	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
173	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
174	Trail gate	Install trail markers on totem (BIT, give way, advanced, directional, distance). Install trailhead signage inside BIT trail heading southeast.
176	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
184	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
180	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
181	Spowers Road exit	Install code of conduct.
186	Trail junction	Install directional totem (BIT, advanced, directional, watering point).
187	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
191	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
193	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
196	Steep hill	Remove ‘rider dismount’ sign.
200	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
201	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
202	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
204	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
205	Trail junction	Install trail markers on totem (BIT, give way, advanced,

		directional).
206	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
210	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
212	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
217	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
218	Steep hill	Remove “rider dismount” sign.
219	Steep hill	Remove “rider dismount” sign.
220	View point	Install trail markers on totem (BIT, give way, advanced, directional).
221	View point	Install trail markers on totem (BIT, give way, advanced, directional).
225	Steep hill	Remove “rider dismount” sign.
226	Horse redirection gate	Install trail markers on totem (BIT, give way, advanced, directional and distance.
227	Flinders Plum gate	Install no horses sign on gate.
255	BIT trailhead	Install BIT trailhead signage. 5 x hitching rails installed.
253	Gate	Install code of conduct sign at start of trail.
254	Gate	No horse access sign.
252	Gate	Install trail markers on totem (BIT, give way, advanced, directional).
457	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
249	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
248	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
247	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
246	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
245	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
244	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
243	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
242	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
241	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
240	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
458	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
235	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
233	Gate	Install trail markers on totem (BIT, give way, advanced, directional).
232	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
231	Gate	Install trail markers on totem (BIT, give way, advanced, directional).

230	Trail junction	2 x install trail markers on totem (BIT, give way, advanced, directional) including Mount Elliott exit and BIT.
228	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
459	Mount Elliott exit	Install code of conduct sign and directional totem (BIT, give way, advanced, directional, distance).
256	Flinders Peak gate	Install horse step over, code of conduct sign and directional totem (BIT, give way, advanced, directional, distance).

Table 8.2: Flinders Peak–Northern Boundary of Wyaralong Dam–Total distance: 17.1 km

Map Ref	Location	Scope of works
256	Flinders Peak gate	Install code of conduct signage at gate; install trail markers on totem (BIT, give way, advanced, directional) install horse step-over.
256-257	Flinders Peak gate	Construct rolling grade dips down the steep hill (90m).
257	Hill	Install trail markers on totem (BIT, give way, advanced, directional).
258	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
258-259	Trail junction	Construct 30m trail, 3m tread width, 5% outslope using small bench cut with compacted trail surface.
259-269	Hill	Install rolling grade dips over 960m steep sections of trail, install a 5% outslope and clear 3m trail ceiling.
260	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
269	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
269-268	Hill	Construct 360m trail, 3m tread width, 3m ceiling, 5% outslope using small bench cut with rolling grade dips down hill with a compacted trail surface.
268	Washpool Road junction	Install gate for vehicle access and horse step over that provides access to Washpool Road.
311	Gate	Install trail markers on totem (BIT, give way, advanced, directional).
310	Washpool Road	Install trail markers on totem (BIT, give way, advanced, directional)
309	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
308	Junction of Wild Pig Creek Road (WPCR) and Washpool Road	Install code of conduct sign, install gate for vehicle access and horse step over and install directional totem (BIT, give way, advanced, directional)
404	Creek Crossing	Install trail markers on totem (BIT, give way, advanced, directional). Drop rocks in creek crossing to provide a stable crossing and allow for water flow.
405	Fallen tree	Install trail markers on totem (BIT, give way, advanced, directional) and remove fallen tree.
406	Fence alignment	Install trail markers on totem (BIT, give way, advanced, directional) along fence alignment.
408	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional) at trail junction.
409	Creek crossing	Minor repair works required at creek crossing, drop rocks to allow stable crossing point and creek flow.
453	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
455	Trail junction	Install trail markers on totem (BIT, give way, advanced,

		directional).
456	Watering point	Install trail markers on totem (BIT, give way, advanced, directional, watering point).
412	Creek crossing	Minimal rock drop required at creek crossing to allow stable crossing point and water flow.
415	Uphill section	Install trail with climbing turns up hill to avoid rocky outcrop.
501	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
415-418	Cadastral Road	Upgrade and construct 530m trail, 3m tread width, 3m ceiling, 5% outslope using small bench cut with rolling grade dips and a compacted trail surface.
418-419	Uphill section	Construct trail, 3m tread width, 3m ceiling, 5% outslope using small bench cut with rolling grade dips and a compacted trail surface.
419	Trail junction	Install trail markers on totem at farm road junction (BIT, give way, advanced, directional).
401	Creek crossing	Install trail markers on totem at creek crossing (BIT, give way, advanced, directional).
400	Trail junction	Install trail markers on totem at trail (BIT, give way, advanced, directional).
399	Farm road	Install woah buoys down steep section of farm road to extract water off trail.
398	Farm road	Install trail markers on totem (BIT, give way, advanced, directional) and drop small rocks on boggy section of trail 10m x 4m.
396	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
395	Farm road	Install knick in farm road to extract water off trail.
394	Trail junction	Upgrade section of boggy trail to a grade reversal to extract water off trail. Install directional totem (BIT, give way, advanced, directional).
392	Farm road	Upgrade section of boggy trail to a grade reversal to extract water off trail. Install directional totem (BIT, give way, advanced, directional).
391	Creek crossing	Minor repair works required at creek crossing, drop rocks to allow stable crossing point and creek flow.
389	Cattle yards	Install trail markers on totem (BIT, give way, advanced, directional).
388	Erosion point	Install 20m light fencing to avoid trail users having contact with erosion point and remove rubbish.
387	Water hole	Install water hole signage.
270	Gate	Install gate for vehicle access, install directional totem (BIT, give way, advanced, directional) install code of conduct sign.
271	WPCR Nth	Install trail markers on totem (BIT, give way, advanced, directional).
272	WPCR Nth	Install trail markers on totem (BIT, give way, advanced, directional).
273	WPCR Nth	Install trail markers on totem (BIT, give way, advanced, directional).
274	WPCR Nth	Install trail markers on totem (BIT, advanced, directional)
275	Gate WPCR Nth	Install code of conduct sign, install directional totem (BIT, give way, advanced, directional).
278	Road junction	Install information sign and directional totem (BIT, give way, advanced, directional).
279	WPCR Sth	Install trail markers on totem (BIT, give way, advanced, directional).

282	WPCR Sth	Install trail markers on totem (BIT, give way, advanced, directional).
285	WPCR Sth	Install trail markers on totem (BIT, give way, advanced, directional).
289	WPCR Sth	Install trail markers on totem (BIT, give way, advanced, directional).
292	WPCR Sth	Install trail markers on totem (BIT, give way, advanced, directional).
290	WPCR Sth	Install 2 x vehicle access gates and 40m fence with BIT logo.
293	WPCR Sth	Install trail markers on totem (BIT, give way, advanced, directional) and code of conduct sign.
293-297	WPCR Sth	Upgrade and construct 160m of trail with a 3m tread width, 3m ceiling, 5% outslope using small bench cut with rolling grade dips and a compacted trail surface.
297	Creek crossing	Causeway crossing.
297-303	Spur section	Construct 250m of trail with 1.2 -2 m tread width, 3m ceiling, 5% outslope using small bench cut with climbing turns utilising rolling grade dips with a compacted trail surface. Install objects at key points on trail to slow traffic down.
304	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional). Install private road signage for road heading northwest from junction.
305	Northern boundary of Wyaralong Dam	Install trail markers on totem (BIT, give way, advanced, directional).
306	Mt Joyce Escape Recreation Park	Install BIT trailhead

Table 8.3: Wyaralong Dam Precinct–Total distance: 23.7 km

Map Ref	Location	Scope of works
307	Ridgeline	Install trail markers on totem (BIT, give way, advanced, directional).
322	Hill	Install trail markers on totem (BIT, give way, advanced, directional).
325	Ridgeline and Shoreline Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
328	Entrance to Shoreline Trail from Knehrs Road	Install code of conduct sign and trail markers on totem (BIT, give way, advanced, directional).
330	Entrance to Lilybrook Station from Old Beaudesert Road	Install code of conduct sign.
331	Boonah Beaudesert Road underpass	Install log to prevent trail users traversing 3rd and 4th entrance to underpass.
334	North west of Boonah Beaudesert Road underpass	Install 30m fence on northern side of underpass entrance preventing users shortcutting the trail.
335	Lilybrook Station	Install trail information signage and code of conduct sign.
436	Stock Underpass to south west of Boonah Beaudesert Road Underpass	Install trail markers on totem (BIT, give way, advanced, directional and distance). Construct 40m trail, 1.2m tread width, 3m ceiling, 5% outslope using a small bench cut and compacted trail surface. Redirect trail users out of the boggy area near stock underpass.
435-431	Queensland Moto Park	Upgrade and construct 900 m trail, 3m tread width, 3m ceiling, 5% outslope using small bench cut with rolling grade dips and a

		compacted trail surface.
431	Goans Road	Install gate for vehicle access, install trail markers on totem (BIT, give way, advanced, directional), install caution trail crossing sign.
432	Goans Road	Install gate for vehicle access, install trail markers on totem (BIT, give way, advanced, directional), install caution trail crossing sign.
432-437	Goans Road – Goans Hill Loop	Upgrade and construct 900m trail, 3m tread width, 3m ceiling, 5% outslope using small bench cut with rolling grade dips and a compacted trail surface.
437	Goans Hill junction	Install trail markers on totem (BIT, give way, advanced, directional).
437-426	Eastern side of Goans Hill	Upgrade and construct 1120m trail, 3m tread width, 3m ceiling, 5% outslope using small bench cut with rolling grade dips and a compacted trail surface.
437-97	Western side of Goans Hill	Upgrade and construct 3000m trail, 3m tread width, 3m ceiling, 5% outslope using small bench cut with rolling grade dips and a compacted trail surface.
97	Western junction of Goans Hill	Install trail markers on totem (BIT, give way, advanced, directional).
427-425	Coulson Ridge	Upgrade 190m section of eroded trail, 3m tread width, 3m ceiling, using materials to create rolling grade dips with a compacted trail surface and 5% outslope.
426	Coulson Ridge	Install trail markers on totem (BIT, give way, advanced, directional, distance).
420	Coulson Ridge	Erosion repair works required, drop rocks, widen trail from 2m wide to 3m wide x 6m long and harden tread.
424	Coulson Ridge	Install trail markers on totem (BIT, give way, advanced, directional).
424-423	Coulson Ridge	Construct 60m trail, 3m tread width, 3m ceiling, 5% outslope using small bench cut with rolling grade dips and a compacted trail surface.
423-435	Queensland Moto Park (Wyaralong)	Upgrade 500m of existing trail, 3m tread width, 3m ceiling, 5% outslope using small bench cut with rolling grade dips and a compacted trail surface.
435	Trail junction	Install trail markers on totem (BIT, give way, advanced, directional).
421	Queensland Moto Park (Wyaralong)	Install trail markers on totem (BIT, give way, advanced, directional).
17-353	South west corridor	Upgrade 340m trail, 3m tread width, 3m ceiling, 5% outslope using small bench cut with rolling grade dips and a compacted trail surface.
43	South west corridor	Install vehicle access gate in partnership with Queensland Moto Park (Wyaralong) and directional totem (BIT, give way, advanced, directional).
351	Sandy Creek	Install code of conduct sign.

Table 8.4: Schneider Road–Boonah township–Total Distance: 10.5 km

Task ID	Location	Scope of works
349	Schneider Road	Install trail markers on totem (BIT, give way, advanced, directional).
348	Schneider Road	Erosion repair works required, drop capping materials and compact surface 10m x 4m.
345	Schneider Road	Repair existing gate. Install code of conduct sign.
344	Schneider Road	Repair existing gate.
343	Schneider Road	Install trail markers on totem (BIT, advanced, give way, directional).
341	Schneider Road	Install trail markers on totem (BIT, advanced, directional).
339	Schneider Road junction	Install trail markers on totem (BIT, advanced, directional, distance).
338	Corner (Cnr) McConnel Road and Old Rifle Range Road	Install trail markers on totem (BIT, advanced, give way, directional).
336	Cnr Old Rifle Range Road and Gorkow Road	Install trail markers on totem (BIT, advanced, give way, directional).
333	Cnr Gorkow Road and Elliot Road	Install trail markers on totem (BIT, give way, advanced, directional).
332	Cnr Elliot Road and Ley Road	Install directional totem (BIT, give way, advanced, directional).
315	Cnr McDonald and East Street	Install trail markers on totem (BIT, advanced, directional).
314	Cnr Dover and McDonald Street	Install trail markers on totem (BIT, advanced, directional).
313	Dover Street	Install trail markers on totem (BIT, give way, advanced, directional, distance).
312	Boonah Showgrounds, Macquarie Street	Install BIT trailhead signage.
300	Salt Gully Park	Install BIT trailhead signage.
301	Boonah Visitor Information Centre	Install BIT trailhead signage.

7. Trail management and maintenance

The trail traverses three local government areas of Ipswich City Council, Logan City Council and Scenic Rim Regional Council. The section at Wyaralong is currently managed by Seqwater but it is intended this section will ultimately be managed by a trust that is to be established to manage Mount Joyce Escape Recreation Park. It is recommended that a similar trust arrangement be established to manage the remaining sections of the BIT.

A trail management and maintenance plan provides guidance to the Trust on the standards of trail and facility maintenance. The plan also addresses the management of risks and hazards, guiding principles, community groups, management roles and group usage policies.

7.1 Trail management plan

A BIT management plan will be developed during the next 12 months to provide long-term and day-to-day management objectives for the trail. The management plan will be flexible and responsive to change and set a clear management framework for future planning and priorities.

The management plan covers four sections of the BIT that extend through Ipswich City Council, Logan City Council and the Scenic Rim Regional Council. The management of the trail at this stage is broken into four areas: the Flinders Goolman Conservation Estate, Flinders Peak to the northern boundary of Mount Joyce, Wyaralong Dam Precinct and Schneider Road to Boonah township.

7.1.1 Planning framework

Vision and outcomes

The BIT was identified in the SEQ Active Trails Strategy as part of a regional trails network for South East Queensland. The trail will provide opportunities for residents and visitors to explore and experience some of South East Queensland's most scenic landscapes. Key outcomes for the trail are:

- long term trail sustainability
- providing enhanced outdoor recreation opportunities
- increasing in trail access and usage
- future development of trail and linking trail networks.

Standards

Standards define the worth and quality of the BIT. The management of trail maintenance will adhere to the listed standards to ensure that the trail quality is in line with the desired trail user experience. Trail standards are listed in the trail design and construction considerations section of the BIT plan.

Philosophical background to trail development

The use of recreation trails by residents and visitors has quantifiable benefits in physical and psychological health in both social and environmental terms. Research from Australia and overseas shows significant tourism and economic benefits derived from recreation on trails. These benefits include expenditure in rural and regional areas, return visits and increased overnight stays by domestic and international tourists.

7.1.2 Guiding principles

The following overarching management principles are recommended for the trail. These principles will serve as a guide to use, upgrading, management, maintenance and promotion of the trail:

Accessibility
The trail and associated networks are accessible by public and private transport from the major urban centres of Brisbane and Ipswich and the townships, residential areas and villages of the surrounding districts.

Ease of access, including for the disabled
Where practical and appropriate, the trail will be developed or upgraded to enable access by people in wheelchairs and with disabilities, family groups and the elderly. Due to the advanced classification of this trail, access for wheelchairs will be limited.

Providing enhanced outdoor recreation opportunities
The trail will be promoted as an additional component to the range of low cost outdoor recreation opportunities within the Flinders Peak–Karawatha Landscape Corridor.

Minimal conflict between trail users
The trail will cater for non-motorised trail users only (walkers, cyclists and horse riders) to create minimal conflict between user groups.

Providing access to, and an enhanced understanding of, the natural attributes of the area.
The region, and particular the Flinders Peak–Karawatha landscape corridor, has a diverse and outstanding range of physical attributes and the trail will enable greater opportunities to access these natural features.

Quality promotion
The trail manager will give emphasis to promoting the trail as part of a broader visitor experience of the Scenic Rim region.

Effective and ongoing maintenance
The trail will be regularly maintained and a detailed audit conducted every two to three years.

Quality construction
The trail will be built to appropriate standards and to a high quality, minimising the need for maintenance and giving users a quality experience.

Quality information and outstanding interpretive material
The trail will have quality on-trail information (including brochures and mapping) and interpretive material as well as a professionally produced and widely available trail brochure and map.

Consistency and uniformity of signage
Signage is recognised as an essential element of a quality trail. All signage erected at trailheads, along nearby and adjoining roads and along the trail will conform with accepted standards and will maintain a consistent theme along the entire trail.

Adherence to recognised standards
Trail construction and classification as well as signage and trail markers will comply with recognised Australian Standards.

Community involvement
The management and maintenance of the trail will involve the local communities and adjoining landowners along the corridor on an ongoing basis. Involvement with other sectors of the community will ensure that the trail is meeting their expectations.

Trail user survey
Trail users will be surveyed on a bi-annual basis to ensure the trail is meeting their needs and expectations and a survey of adjoining landowners and businesses will be undertaken to the same effect.

Regularly policed
It is recommended that the trail will be regularly supervised by a trail manager or ranger on an ongoing basis to deter and police unauthorised motor vehicle use, notably trail bikes.

7.1.3 Trail protection policy

Recreation trails can be vulnerable to the negative impacts of surrounding urban development. The development and inclusion of a trail protection policy to prevent damage to the trail corridor has been investigated. A BIT policy will be developed in partnership with the trail trust to set out the primary use of the trail corridor - namely recreation and fire and emergency management. Any use that is incompatible with this primary use will be denied.

The trail protection policy will provide the trail manager/managing body with the authority to:

- regulate all secondary uses of the trail corridor in a fair and consistent manner
- minimise inconvenience to trail users and assure protection of wildlife habitat and natural and historic resources within the trail corridor
- minimise damage to the trail corridor at all times
- establish uniform standards for construction and restoration of the trail corridor if it is damaged by a secondary use
- ensure that the managing body recovers all of its administrative costs and receives appropriate compensation for the use of, and damage to, the trail corridor by secondary users
- inform all public and private interests of the expectations and intentions of the trail managing body with respect to secondary uses
- issue permits and licences for secondary users and prohibit the transfer of ownership of rights through the use of easements or other mechanisms.

7.1.4 Management issues

Some basic initial questions need to be answered and some crucial decisions made. This will inform the development of the trail management plan.

Dogs on the trail
Dogs are only allowed on certain sections of the trail such as public roads and trailheads that specify dogs are welcome. Local council regulations apply in these areas. Dogs will be on a lead at all times and dog waste must be collected and disposed of appropriately. Dogs will not be permitted on any other sections of the trail. This is primarily due to the number of wild dogs in the area and dog baiting that occurs frequently in the region.

Dogs are strictly not permitted in official conservation parks such as the Flinders Peak Conservation Park which is governed under the *Nature Conservation Act 1992*.

Camping
Camping will not be permitted outside of designated camp sites along the trail and on connecting trails and networks.

Boonah Showgrounds has camping facilities including accommodation for horses. Lilybrook Station provides camping facilities including horse yards, showers and barbeque facility. Ipswich City Council is constructing a camp site at Hardings Paddock picnic area. Further designated sites for camping along the trail will be considered on review of trail use and user demand during the next 12-18 months. A potential camp site at the old homestead site at Flinders Plum will be considered should there be demand at this location.

Vegetation management
In order to improve aesthetic and nature conservation values, the removal of introduced weeds and grasses and revegetation with native species will be undertaken. Revegetation is also important in some areas for visitor comfort, as some long sections of the rail trail are unpleasant to walk along on hot days due to the absence of shade. Any revegetation areas will be fenced off from stock and planted with native trees, shrubs, herblike plants and grasses.

The assistance of dedicated volunteer groups and programs such as the Green Army will help ensure that revegetation programs are quickly implemented and successful.

Erosion and sediment management
To maintain and improve surrounding natural areas of the recreation trail, the managing body will monitor, assess and upgrade sections of trail to original construction standards especially if the trail is exposed to prohibited vehicle use or storm events. By monitoring these issues the managing body will extend the life of the trail for all to enjoy and minimise the effects and costs of top soil erosion and siltation in the surrounding creek sections.

Pest management
Regular monitoring and control programs will need to be conducted by the managing body of the trail to limit the impact of pest animals to the surrounding flora and fauna of the recreation trail. Pest issues arise from the increase of domestic animal incursions and or dumping with increasing urbanisation of the surrounding areas and poor pest management coordination with neighboring property owners.

Cultural heritage management
Cultural heritage sites and places are those parts of our landscape which are important to the community, or to sections of the community, because of their cultural heritage significance or value. They are places which contribute to an understanding of who we are and where we came from. They contribute to our sense of identity as individuals and our sense of continuity as a community.

Group usage policy
In natural areas in Australia, management agencies are trying to implement minimal impact policies to protect natural values. These policies can often involve limiting group sizes both on trails and at campsites.

The key management issue (at least in the medium term) will be social sustainability or a sense of crowding on the trail, particularly given the forecast population growth in South East Queensland and the Ripley Valley.

The Lilydale-Warburton Rail Trail on the outskirts of Melbourne has 100 000 user trips per year and there are no reported issues with social carrying capacity.

No formal group usage policy will be adopted at this stage until visitor numbers are monitored and user surveys are carried out to determine if there are issues with group usage.

Although banning group horse riding activities would not be equitable, restrictions on horse riding competition and events includes exclusion of the competition endurance rides and limiting numbers in any group trail ride event.

It is recommended that long-term visitor management for the entire trail will follow the current system of using permits and codes of conduct. If groups want to utilise the section of the trail within the Flinders Goolman Conservation Estate, they will need a permit from council's Parks and Facilities Division.

Fire management
The trail managers will be responsible for implementing fire protection and management measures along the trail corridor. The fire management objectives for the BIT are as follow:

- protect life and property of surrounding residents from fire
- prevent occurrence of human-caused, unplanned fires in the trail corridor and surrounding areas
- minimise the potential for spread of unplanned fires on, from or into the trail corridor
- plan prescribed burning activities to manage fuel hazard and foster biodiversity outcomes
- plan prescribed burning activities to promote patchiness or a mosaic of burnt and non-burnt areas
- protect, human life and all listed assets in the trail corridor from fire
- provide a diversity of habitat types for the range of plant and animal species present
- minimise the impact of weed grass species (such as molasses grass) and assist with the control and spread of lantana.

<u>Relevant legislation</u>
Queensland–*Fire and Rescue Service Act 1990* defines the roles and responsibilities of authorised fire officers and clearly states the responsibilities of the occupier of the land in regards to fire.
Commonwealth–*Environment Protection and Biodiversity Conservation Act 1999* generally recognises that state and territory governments have primary responsibility for care and management of the

environment. National environment law does not generally regulate fire prevention measures taken by state and territory governments, and only applies in limited circumstances.

Key contact
The Queensland Rural Fire Service contact for both the Ipswich City Council and Scenic Rim Regional Council is based out of Ipswich on (07) 3381 7122.

The Boonah to Ipswich trail alignment falls under the following fire wardens:

- Washpool Fire Warden - (07) 5467 2214
- Undullah Fire Warden - (07) 5543 1283
- Roadvale Fire Warden - (07) 5463 5766
- Allandale Fire Warden - (07) 5463 1374
- Boonah Town Fire Warden - (07) 5463 1215

For more information regarding the Queensland Rural Fire Service please visit the website www.ruralfire.qld.gov.au and for more information regarding the fire warden boundaries please view http://mapping.dcs.qld.gov.au/external/firewardenfinder/

Key issues for effective fire management along the trail consist of the following
Communication and cooperation–to improve communication and facilitate more effective fire management along the trail and the surrounding landscape, it is critical that all stakeholders (trail trust/manager, Department of Local Government and Planning, councils, fire brigades and Queensland Fire and Rescue Service and adjoining private landholders) work together in the longer term to develop a comprehensive fire management plan.

Access–Addressing identified barriers to vehicular access along the developed section, for both emergency responses and routine management, should be a high priority action for the trail manager/s. Barriers can include overhanging vegetation, erosion points along the trail, illegally placed fences, creek crossings, gates and rocks. Fire infrastructure plans should incorporate access points, crossings, gates and water points developed as part of the fire management plan to be shared with all local and regional emergency response agencies (Queensland Fire and Rescue Service, Police, Ambulance, and SES).

Safety along the trail
Hazard reduction–following seasonal risk assessments, hazard reduction burns should be undertaken at identified high risk locations in partnership with local fire brigades and adjoining landholders to minimise threats to people, infrastructure and the environment.

Grazing management–where possible, sustainable grazing should be encouraged at appropriate locations to manage fuel loads, reduce maintenance costs and help control weeds.

Signage–the establishment of emergency response signage along all developed sections of the trail should be a high priority action. The installation of trail signage every 500 m and GPS identifiers on all directional totems, will be a key component of the emergency response plan.

Education and awareness–key messages regarding bushfire awareness and emergency responses for fires should be incorporated into existing trail brochures, signage and future material. Examples will include reference to signage regarding closure of the trail due to existing fires or extreme risk periods, and messages regarding what to do in case of fire for trail users including identified safe areas (e.g. water bodies, rock cuttings and bare areas with low fuel loads).

Asset protection–annual risk assessments should be conducted with experienced, local people as part of the longer term fire management plan to minimise risk to heritage features, built trail infrastructure and fences from unplanned fires.

Responsibilities for the trail manager/managing body
Under the *Fire and Rescue Services Act 1990*, all land managers are required to obtain a permit to light a fire. The trail manager needs to obtain a permit for hazard reduction activities along the trail from relevant fire wardens and ensure all permit conditions are followed, including notification of neighbours.

The development of the long term fire management plan with the managing body, councils, local fire brigades and adjoining landholders, will further clarify roles and responsibilities and provide for communication and cooperation for effective fire management along the trail and the surrounding landscape.

Ecological considerations

Fire plays a key role in many ecosystems and is an important factor in maintaining the diversity of plant and animal species. However, if fire is used inappropriately (too frequently/infrequently, too intense, wrong season) some species will decline or disappear from the local area. Different vegetation communities have different requirements with regard to fire, with the following four factors to be considered when planning appropriate fire regimes to maximise biodiversity outcomes:

- fire frequency
- fire intensity
- fire extent
- fire season.

Roads and trails

The Boonah to Ipswich trail will be used additionally by the managing body as a fire maintenance road. The trail is narrow (three metres) but wide enough to permit light four-wheel drive access for fire maintenance duties and to be used as a fire break for scheduled burn offs.

The trail has numerous access points from main roads that can be used for fire maintenance vehicles and rural fire brigade services. These formed and maintained public roads are:

- Carmichaels Road
- Spowers Road
- Mt Flinders Road
- Mt Elliott Road
- Washpool Road
- Woolooman Road
- Wild Pig Creek Road
- Knehrs Road
- Boonah–Beaudesert Road
- Goans Hill Road
- Lilybrook Road
- Schneider Road.

Fire weather

The weather conditions that provide the potential for a significant fire event are hot, dry winds that occasionally come from the north and north-west. The windiest period of the year is usually from August.

The driest three months of the year in the Wyaralong area are July to September (average rainfall is 38 millimetres per month), with mean rainfall increasing to 70 millimetres in October. The combination of wind and low rainfall can lead to the most severe fire weather in this area. Therefore the period of the year when fire weather has the potential to be most severe is August, September and leading into October.

Average weather data does not account for fluctuations in any one year and fire weather (and fuel moisture) should be monitored regularly. With this in mind fire preparedness activities should be conducted during winter, prior to the most likely period of severe fire weather.

Asset bushfire risk assessment

The asset bushfire assessment methodology is described in NSW BFCC (2008). Using this methodology, the level of bush fire risk is determined using a combination of likelihood and consequence.

The likelihood of bushfire risk for all assets is defined as the chance of a bush fire igniting and spreading. There are four likelihood ratings–unlikely, possible, likely and almost certain.

Consequence is the outcome or impact of a bushfire event. The assessment for consequence is different for each asset type–human settlement, economic, environmental and cultural. These assessment procedures are described in NSW BFCC (2008). There are four consequences ratings–minor, moderate, major and catastrophic. Once the likelihood and consequence ratings have been determined, the risk level is classified according to Table 9.

Table 9: Likelihood and consequence of bushfire risk

Likelihood	Consequence			
	Minor	**Moderate**	**Major**	**Catastrophic**
Almost certain	High	Very High	Extreme	Extreme
Likely	Medium	High	Very High	Extreme
Possible	Low	Medium	High	Very High
Unlikely	Low	Low	Medium	High

Action plan

The annual works plan is presented below. The assessment of fuel load throughout the trail corridor provides data to inform and prioritise areas requiring prescribed burning. Plans are then created for these burns and the ideal seasonal window for conducting these burns is during the cooler, dryer months.

Fire preparedness begins in April with an assessment of the trail. All subsequent works based on these assessments should be completed before the potential start of the fire season (August).

During the fire season, fire danger levels should be monitored daily and appropriate actions taken (e.g. closure of sections of the trail)

Table 10: Fire danger monitoring

Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Assess fire tracks and trails				X	X							
Slash and maintain fire breaks						X	X					
Assess fuel loads											X	X
Prescribed burning planning	X	X	X									
Prescribed burning operations				X	X	X						
Liaise with local fire warden(s)						X	X					
Check fire danger level (respond accordingly)								daily	daily	daily	daily	daily

Table 11: Emergency response procedure

Step	Procedure
1	Fire fighting procedures are instigated by ringing 000.
2	The communication centre mobilises the local Queensland Rural Fire Service (RFS) Brigade who respond and assess the situation. First attack commences if safe.
3	The QLD RFS notifies the property manager or whoever is nominated as the emergency contact. The QLD RFS will attempt to contact adjoining landowners.
4	The RFS First Officer will decide who takes control of the incident and will determine appropriate fire fighting action.

Other management issues
There are a number of other management issues that are being considered in consultation with project partners. As options and recommendations are developed, these will be posted on the trail website for consideration. Many of these will also be addressed as part of ongoing work on other strategies. These issues include:

Enforcement powers, procedures and responsibilities
These will be considered in the emergency response plan and as part of finalising the management arrangements.

Complaints management
Procedures and responsibilities for managing complaints will be considered as part of finalising the management arrangements.

Communications and marketing
This will be addressed in the department's communications strategy.

On-trail events
It is worth noting that the recreation trails being developed as part of the Wyaralong Dam project have already hosted mountain biking events such as the Maxxis Boonah Marathon.

On-trail advertising
Regulations that govern roadside advertising appear to be the most appropriate.

Management of impacts on adjoining landholders
This covers issues such as fencing, privacy and trespassing and will set out how these will be dealt with. One of the guiding principles is that the trail manager will seek to involve the local communities and adjoining landowners on an ongoing basis in decision making processes. This involvement will ensure that the use of the trail does not impinge on private operations and that disputes are resolved, wherever possible, quickly and to the satisfaction of both the trail manager and the landowner.

7.1.5 Trail corridor protection

The SEQ Active Trails Strategy recommends that potential trail alignments be secured to meet increased recreational user-demand in the future. The BIT and other potential trail corridors will be included in relevant strategic plans, management plans, and where appropriate, in local and regional statutory plans.

The primary use of the trail is for community purposes as recognised in the definitions and provisions of regional plans and local planning schemes made under the *Sustainable Planning Act 2009*.

7.1.6 Risk management

A risk is the chance of something happening as a result of a hazard or threat that will impact on an activity or planned event. Risk arises out of uncertainty. It is measured in terms of the likelihood of it happening and the consequences if it does happen. Risk needs to be managed. Ignoring the risks that apply to a recreation trail or events planned along a corridor could impact on the:

- health and safety of trail users, staff, volunteers and event participants
- reputation, credibility and status of the trail and its manager (or trail body)
- public and customer confidence in the trail manager
- trail managers financial position
- plant, equipment and the environment.

7.1.7 Property management plan

A property management plan will be prepared separately and will address the following issues:

- weed control
- revegetation
- on-trail grazing and its impacts on revegetation
- fire management.

Additional matters that will need consideration include:

- legislative matters relating to weed control and revegetation in the corridor such as the *Vegetation Management Act 1999* and the *Nature Conservation Act 1992*
- future directions for a property management plan
- identification of opportunities for the integration of recreational and property management planning activities along the trail.

7.2 Trail maintenance

The following table provides an overview of the type of maintenance work required on sections of the trail and the anticipated frequency of work.

Table 12: General trail maintenance

Activity	Site	Frequency
Undertake full inspection of the trail	Entire trail	Every 2nd month
Check signage and clean, replace or repair signage and directional markers as required	All locations	Every 2nd month at each trail inspection
Check trail surface and arrange repair as required; check for erosion at each inspection.	Entire trail	Every 2nd month Arrange repairs immediately if acute or schedule maintenance every 6 months
Maintain trail surface	Entire trail	Every 6 months
Sweep or rake debris from trail surfaces	Various locations	Every 6 months
Maintain culverts and other drainage measures	Entire trail	Every 6 months
Cut back regrowth	Entire trail	Every 6 months
Check structural stability of interpretive signage, and interpretive shelters	Various locations	Every 6 months
Undertake hazard inspection and prepare hazard inspection report	Entire trail	Annually
Check structural integrity of bridges	Various locations	Every 3 years
Undertake major repairs and replacements	Entire trail	Every 5 years
Undertake major repairs and replacements	Entire trail	Every 10 years

7.3 Marketing and promotion

Marketing and promotion of the trail is essential and the associated recreation trail networks and facilities will play an important part of trail planning and development. It is vital to keep trail users informed, develop user surveys, promote use of the trail and ensure the local community is supportive and helps endorse the trail.

Successful marketing and promotion will improve and increase engagement by users, local community and businesses in using and promoting the trail. It may also provide long-term management links with the trail users and the community.

7.3.1 Boonah to Ipswich Trail communications strategy

The Department of Local Government and Planning has developed a comprehensive communications plan. This will assist with the delivery of marketing activities and targeting the right audiences with the right tools at the right time. It provides a means for a systematic approach to promoting the trail and surrounding region, but needs to be based on a clear understanding of the qualities and potential of the trail, the needs of the users and the commitment of the local community.

The plan supports other communications, community engagement and consultation initiatives being undertaken by Seqwater, Scenic Rim Regional Council, Logan City Council and Ipswich City Council.

7.3.2 Marketing and communication collateral

Roadside and trailhead signage, brochures and information from visitor information centres are essential sources of information or collateral. These have historically offered prime opportunities for the passing or casual visitor to be informed of local trails.

A BIT website www.boonahipswichtrail.org.au will enable trail users to access information about different sections of the trail, animals and plants, and cultural and landscape heritage of the towns along the trail route. The website provides:

- information for day, overnight or multi-day trail trips
- maps and brochures on the trail and individual sections
- images of the trail and places of interest
- online forms to provide feedback and ask further questions
- links to GPS coordinates and interpretive information.

Word of mouth is an important and valuable means of information dissemination among families, friends and work colleagues. Viral marketing and the use of social networking sites such as Facebook or Twitter will provide significant community engagement and marketing opportunities for the trail. A BIT Facebook page has been created and to date has over 155 members.

Many trail user groups have their own online communities which they use for sharing information, photos, ideas, travel tips etc. For example, www.meetup.com is an online community that allows people to find and start up groups based on their interests. In the greater Brisbane area alone, there are four bushwalking groups that can be contacted online and provided with information about the trail. Community or privately run outdoor recreation websites provide cost-effective ways of promoting trails by featuring an online banner or trail-related news, editorial stories and images.

7.3.3 Trail interpretation plan

A trail interpretation plan will be developed to provide recommendations for interpretive signage and will contain stories that could be read along the trail.

Interpretive signage is only successful if there are at least three important considerations in relation to the delivery of the message:

- something original and attention-grabbing about the primary signage
- sufficient challenge in processing the significance for it to require central processing in long-term memory
- interaction in a cognitive, effective and tangible fashion with some features of the message.

7.3.4 Community engagement and consultation

The involvement and enthusiasm of the local community are vital to the success of any recreation trail.

Trails present a wealth of opportunity for community involvement and interaction through volunteer programs, social events and general usage. By involving people in planning and developing trails, they feel more a part of the social fabric in which they live. As Burke (1998) points out 'an engaged citizenry is a critical determinant of the health of a nation's stock of social capital'. Trails can also provide cross-cultural experiences, particularly in small rural areas, as trails draw urban residents, domestic and international visitors.

Local residents have been and will continue to be involved in the planning process for the BIT. All consultation with local communities has developed an agreed vision among both the community and other stakeholders.

7.3.5 Trail volunteers

The Queensland Government's Towards Q2 ambition is to support safe and caring communities and to increase the proportion of Queenslanders involved in their communities as volunteers by 50 per cent. According to the Australian Bureau of Statistics, the type of organisations that individuals volunteer for is as diverse as our culture, but people are most likely to volunteer for sport and physical recreation organisations.

Recreation trails engage the community and encourage involvement and volunteer opportunities in every aspect of the planning, delivery, marketing, maintenance and advocacy of the trail.

A summary of the roles of volunteer groups comes from the Rails-to-Trails Conservancy in the USA. From Designing Rail Trails for the 21st Century (Flink et al 2001) comes the following advice:

'The single most important function of a friends organisation is to act as an advocate for the trail, defending it when necessary and promoting it the rest of the time. Funding decisions often depend on public pressure, and money is generally allocated to projects with high public visibility.'

The Rails-to-Trails Conservancy recommends the use of an adopt-a-trail (or a section of trail) program—a good approach for trails of anything over five kilometres. The Appalachianl, Bibbulmun and Gippsland Trail all use this approach.

It is envisaged that through the trust model, volunteer trail groups will undertake any number of tasks. It will be noted that, in many instances, the volunteer groups will not the trail manager. This responsibility will fall to the trust and local council authorities.

7.4 Visual identity and branding

The department has developed the *Boonah to Ipswich Trail–Graphic identity and signage guidelines* which aligns with the recommendations given in the SEQ Active Trails implementation guidelines. The Boonah to Ipswich Trail branding:

- builds a strong brand that people recognise, want to associate with and feel they are part of
- raises people's awareness of the trail and its events and activities
- provides consistency across all trail-related communications materials regardless of who is creating and publishing it (e.g. the department, trail partners or volunteers).

It is essential that the visual identity is applied consistently in all Boonah to Ipswich Trail communications materials and signage without exception. All communications materials and signage must be approved by the department prior to publishing.

The branding of the Boonah to Ipswich Trail consists of the following elements (for further detail refer to the *Boonah to Ipswich Trail—Graphic identity and signage guidelines*):

- trail logo (featured on the cover of this plan)
- typefaces including supporting fonts
- colour palette
- tagline–*On the right track*.

Boonah to Ipswich Trail—Graphic identity and signage guidelines outlines the correct use of other logos such as those of the Queensland Government and partners and provides a signage/branding matrix that helps identify what logos should be used on what type of sign. The guidelines also provide information on how to acknowledge funding provided by the Queensland Government.

7.4.1 Trail logo

The trail logo follows the guidelines in the SEQ Active Trails implementation guidelines and includes the following features:

- rectangular shape
- dotted or dashed line representing the trail route
- typeface in capitals
- design elements that symbolise specific landscape/historic features along the trail, e.g. the trail logo includes the green mountain range of the Scenic Rim.

7.4.2 Trail typeface

Meta is the corporate typeface and Rotis Serif is the supporting typeface to be used within the framework of the Queensland Government's corporate identity and are recommended for consistent use in trail-related material.

Meta may be substituted by Arial in desktop-generated documents or when the corporate typeface is unavailable.

Verdana is the Queensland Government typeface for the web.

Trail colour palette

The colour palate of the trail logo is:

C81 M37 Y0 K76

C65 M12 Y0 K7

C54 M0 Y51 K63

All trail-related marketing material and signage must use the identified colour palette.

7.4.3 Other logos

If the trail is funded by the Queensland Government, the Toward Q2 and Queensland Government logos are to be included on all marketing material. As of 2010, the trails program is linked with the Queensland Government initiative *Find your 30 minutes of activity a day*; and this logo can be included next to the Toward Q2 and Queensland Government logos if space allows.

As the Ipswich City Council, Logan City Council and Scenic Rim Regional Council are partners in the development of the BIT project, council's logos are also to be included on all marketing material, where possible.

The following guidelines help with placement of government-related logos:

- The trail logo and government-related logos must not be placed too closely to other logos or each other, except for the Toward Q2 and Queensland Government logos which are placed next to each other with a divisional line in between them as shown above.
- Where possible, there should be sufficient space around the Queensland Government logos so that these are not misinterpreted or seen as being part of another logo.
- Graphic elements in any marketing collateral should not overpower the Queensland Government logos.
- The trail and Queensland Government logos should be the same size.
- The Queensland Government logos should not be reproduced at less than the minimum size (13 millimetres high x 14.5 millimetres wide).
- The preferred position for the Queensland Government logo is top or bottom right of the front cover of materials. However, the logo may be positioned elsewhere according to layout requirements. The trail logo may be placed next to the Queensland Government logos.

The Queensland Government logos are managed under the Queensland Government Corporate Identity Guidelines. For access to these guidelines email corporate.id@premiers.qld.gov.au.

Any supporting regional or local councils need to be acknowledged through their council logo. Specific council corporate identity requirements apply.

7.4.4 Government funding acknowledgement

If local governments or other partners receive funding from grants for any trail-related projects from the Department of Local Government and Planning, they need to adhere to the department's funding acknowledgement requirements which are available at www.dlgp.qld.gov.au.

These guidelines outline the correct use of the Queensland Government logo, appropriate wording of acknowledgement statements and production of signage. It is a requirement to use the Queensland Government and Toward Q2 logo on all signage.

All new project and temporary signs relating to major infrastructure projects (for projects where the Queensland Government's contribution is $250 000 or greater) must now include an authorisation statement including the words: 'Authorised by the Queensland Government, xx Street, Brisbane, the printer's name and location as well as the date of the sign production or installation. For example: *Authorised by the Queensland Government, George St, Brisbane. XYZ Printer, Brisbane. August 2010.'*

Please consult the revised signage policy in section 10 of the Corporate Identity Manual, available by contacting corporate.id@premiers.qld.gov.au.

7.4.5 Trail signage

The following matrix outlines the different types of signage along trails and provides guidelines on when to use the trail and Queensland Government logos as well as the trail web address on signage. The trail web address is www.boonahipswichtrail.org.au. The department's web address for BIT is www.dlgp.qld.gov.au/regional-planning/boonah-to-ipswich-trail

Table 13: Signage–branding matrix

	Trail logo	Trail web address	Queensland Government/Toward Q2 logo*	Partner logos, e.g. councils
Information signs	√	√	√	√
Descriptive signs	√ (except for small, square trail markers)	√ (except for small, square trail markers)	√ (except for small, square trail markers)	√ (except for small, square trail markers)
Interpretive signs	√	√	√	√
Regulatory signs	√	x	x	x
Warning or risk signs	√	x	x	x
Event/temporary signs	√	√	√	√
Trailhead signs	√	√	√	√
Promotional signs	√	x	√	√
Directional signs	x	x	x	x

* The *Find your 30 minutes of activity a day* logo is optional on signage.

7.4.6 Who does the visual identity apply to?

The visual identity applies to local governments, partners, sponsors and grant recipients associated with the trail must use the trail and the Queensland Government logos to acknowledge the government's partnership and funding support for the trail. All trail-related marketing material, regardless whether it is being produced by the Queensland Government or local governments, partners, sponsors, grant recipients or community volunteers, will need to use the established visual identity of the trail to maintain consistency and brand integrity.

Other Queensland Government departments may choose to use the trail visual identity in their own marketing material relating to the trail. The Queensland Government Corporate Identity Guidelines apply in this instance.

7.4.7 Approval of trail-related marketing and signage material

Any marketing material, including newly developed trail signage, must adhere to the visual identity and branding guidelines set out in the *Boonah to Ipswich Trail—Graphic identity and signage guidelines*.

Approvals for any marketing material must be sought prior to publishing by contacting:

GMQ Communications
Department of Local Government and Planning
Email: info@dlgp.qld.gov.au
Telephone: 07 3227 8548

8. Emergency response plan

8.1 Introduction

The key elements of an emergency response plan are:

- the provision of appropriate signage
- trail access for emergency service vehicles
- the provision of helicopter landing zones
- emergency responses—how and who
- the provision of adequate information and mapping to the services' communications centres
- the need for special agreements between emergency service providers and the trail manager
- the provision of on-trail communication systems.

8.2 Appropriate signage

Signage is discussed extensively in section 7. In summary, the recommended emergency signage is:

- trail markers signs every 500 metres where visibility is restricted
- GPS identifiers on all trail markers (degrees, minutes and seconds)
- trailhead signage specifying what to do in an emergency, the numbers to call, and the capacity for signage indicating trail closure (due primarily to fire, flooding or maintenance work).

8.3 Access for emergency vehicles

The main recommendations for emergency vehicle access are:

- Passing opportunities for emergency service vehicles are required. Parts of the corridor may be leased to adjoining landholders and they may choose to fence the sections they use, reducing trail corridor width to three metres. However, all other sections of the corridor will be 20 metres wide, providing sufficient passing opportunities for emergency vehicles.
- Emergency vehicles will need to have access to the trail. The simplest option is to ensure that all locked management gates along the trail have the same locking system.

8.4 Helicopter landing zones

The provision of helicopter landing zones will be coordinated with emergency services and managing bodies of trail sections.

There are already four existing landing zones in the Wyaralong Dam precinct.

The requirements for a helicopter landing zone are set down in Civil Aviation Safety Authority standards. The designated sites will have GPS coordinates which can be conveyed to the communications centre for all three emergency services for loading onto their database. Helicopters have GPS equipment that can direct them to a known point (as do ambulances). The zones will also be marked with on-ground signage for the benefit of trail users.

Helicopters like to set down as close to an emergency as they can, so the zones may not be used if there is a more convenient landing place (and emergency helicopters have the authority to set down on any property as needed).

8.5 Emergency responses—who and how

In an emergency situation, one of the key issues is how an emergency is communicated. The emergency number from a landline is 000, while the emergency number that works best from a mobile phone is 112.

Once a call is made by a trail user, the communications centre for the appropriate service dispatches the required personnel and vehicles. The trail manager is only likely to be involved after the emergency situation is resolved, to review and record the incident, and to review the response.

It is a different situation when the emergency is a slowly emerging situation, such as a total fire ban or the likelihood of flooding.

The trail manager needs the vested authority to close the trail under such circumstances. Once the trail manager advises police that the trail (or part of the trail) is closed, police have the powers to ensure that people do not go onto the trail or can be removed from the trail if they are on it (an administrative trespass). In an emergency such as a fire or flood, emergency services have 'command and control' powers which allow them to remove people from a situation considered to be dangerous. In such circumstances, emergency service personnel are 'out and about' and see people and move them to an appropriate place.

When the trail needs to be closed, police will be able to travel to trailheads in their area and install a trail closed sign.

8.6 Provision of adequate information for communications centres

As the trail develops, mapping data will be provided to the communications centres for each of the emergency services. The data that will be entered into their system covers maps with the location of trail distance markers (and their reference points), road crossings (and their GPS coordinates) and any helicopter landing zones (and their GPS coordinates) marked on the maps. One data set will be developed and given to all the communications centres.

8.7 Special agreements

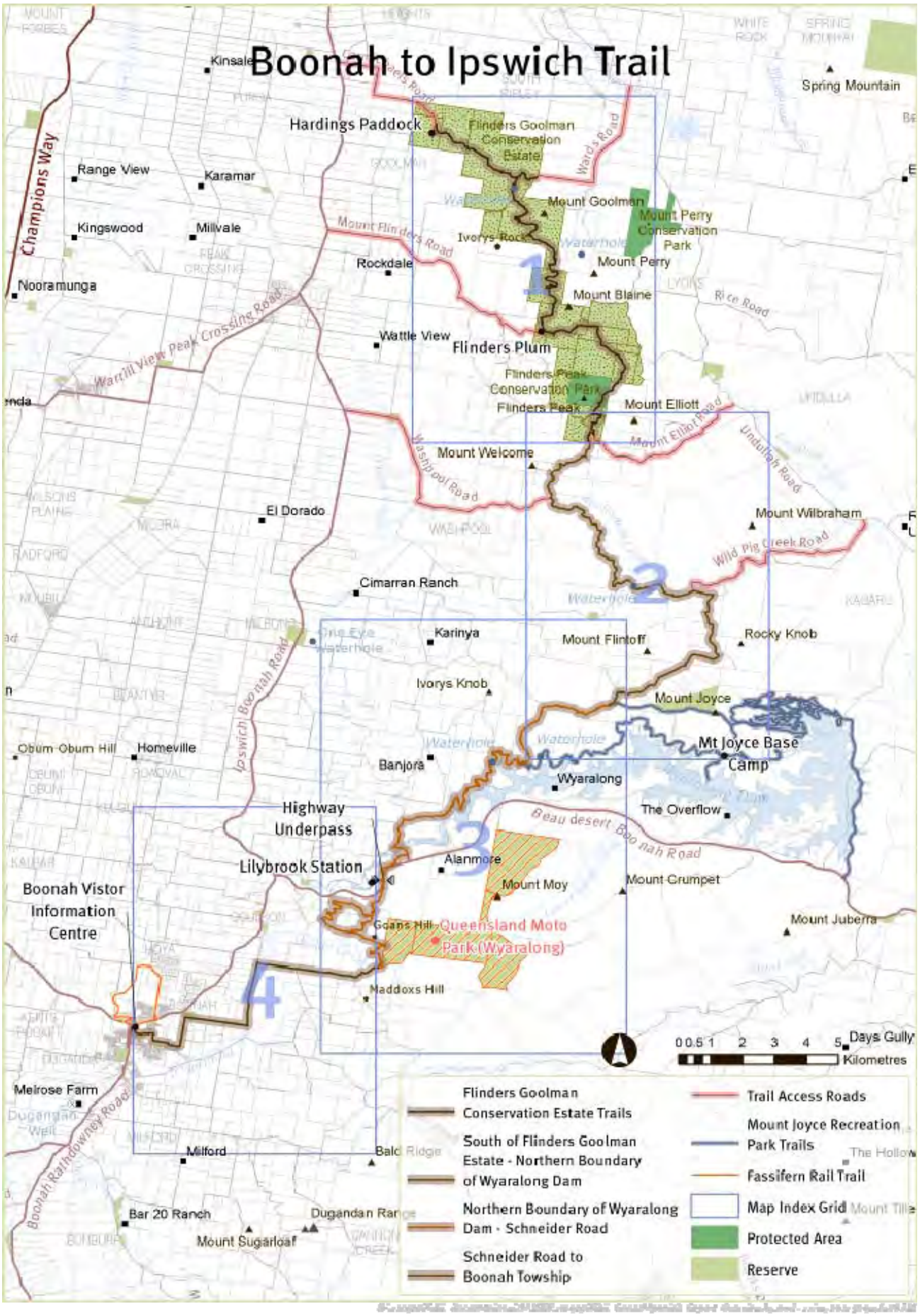
Previous experience has indicated there is no need for special formal arrangements between the trail manager and the emergency services for the trail. It is a resource and an activity that the emergency services need to deal with as part of their everyday activities. Any major events on the trail will trigger early involvement by police and ambulance in particular—this is good practice and ensures good relationships.

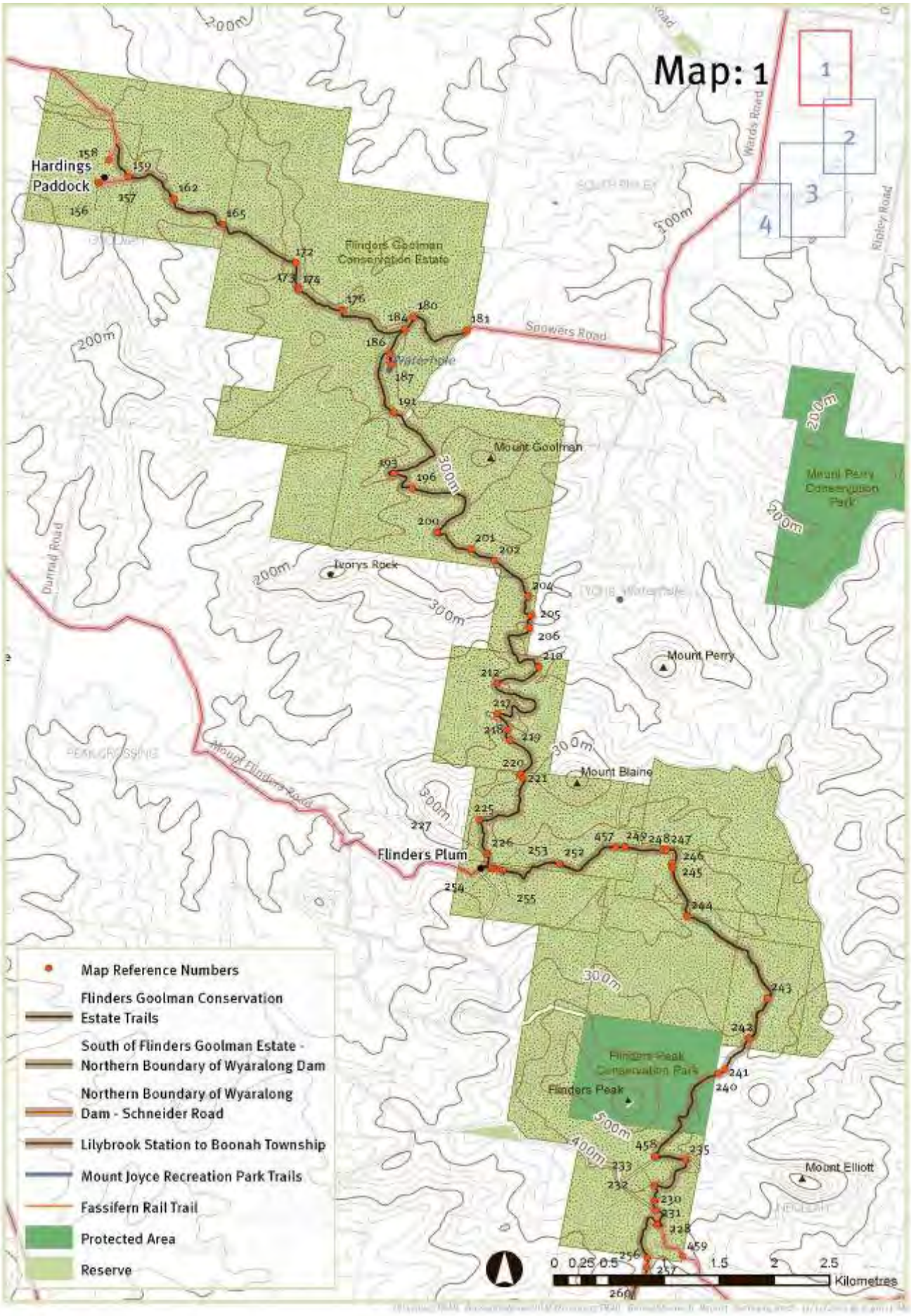
8.8 On-trail communications systems

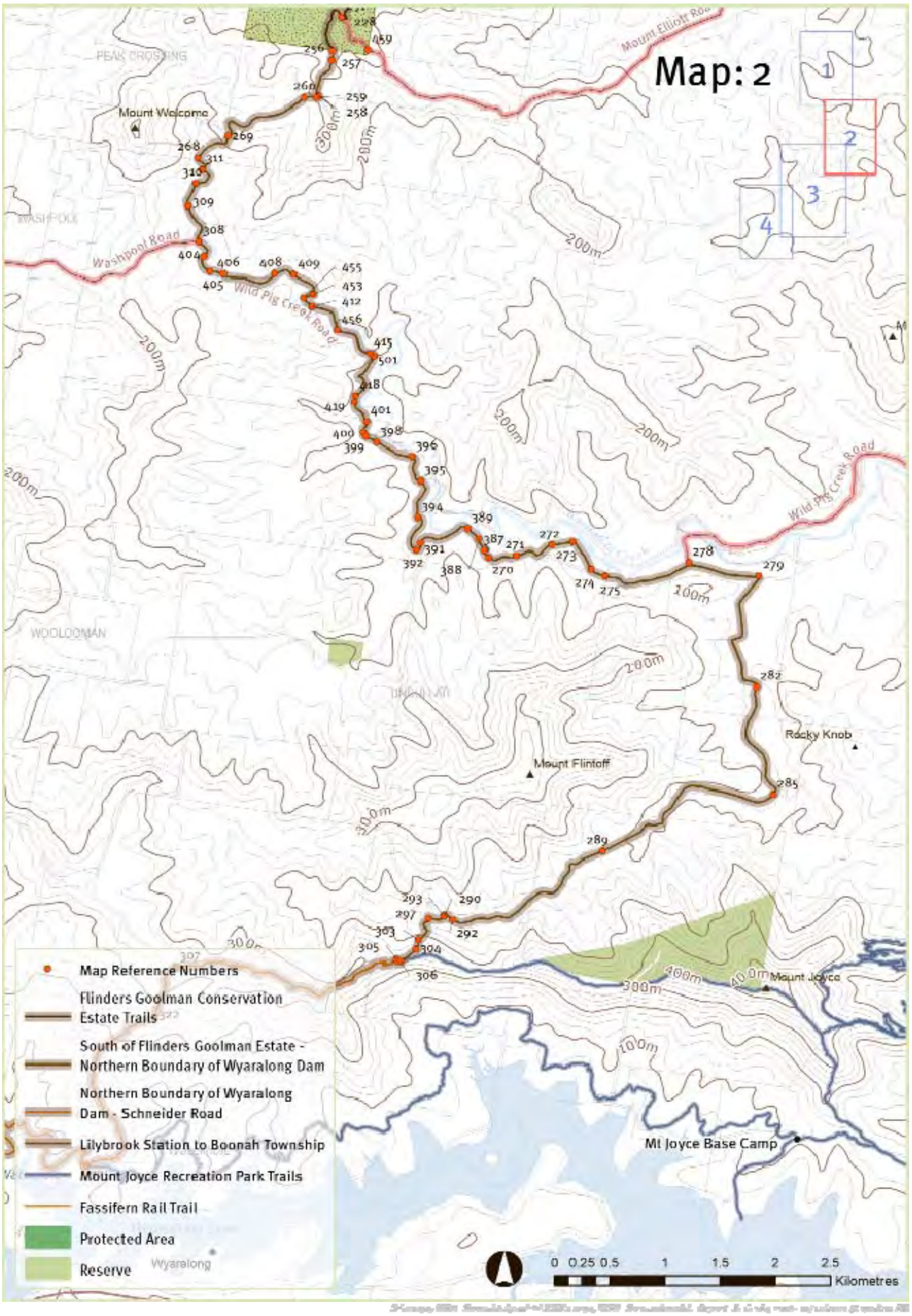
During consultation a suggestion was made for the installation of emergency phones on the trail as a way of ensuring that emergencies could be managed. However, this would be a significant cost to install, replace and maintain. Most trail users will have some form of mobile phone. Mobile reception is relatively good over much of the trail depending on the service provider. It is always recommended that trail users do not use the trail alone and always let someone know where you are likely to be and when you are likely to return.

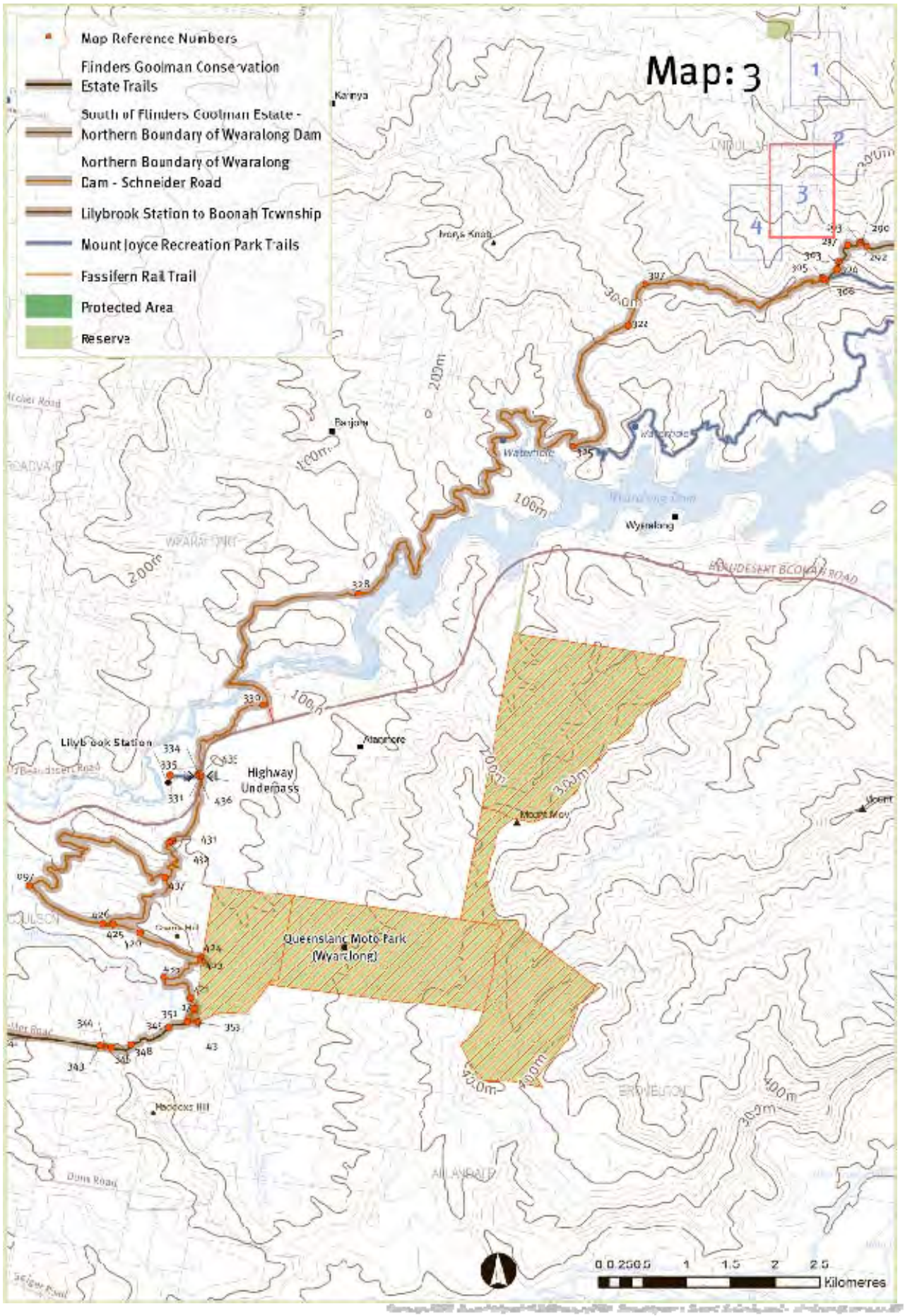
9. Maps

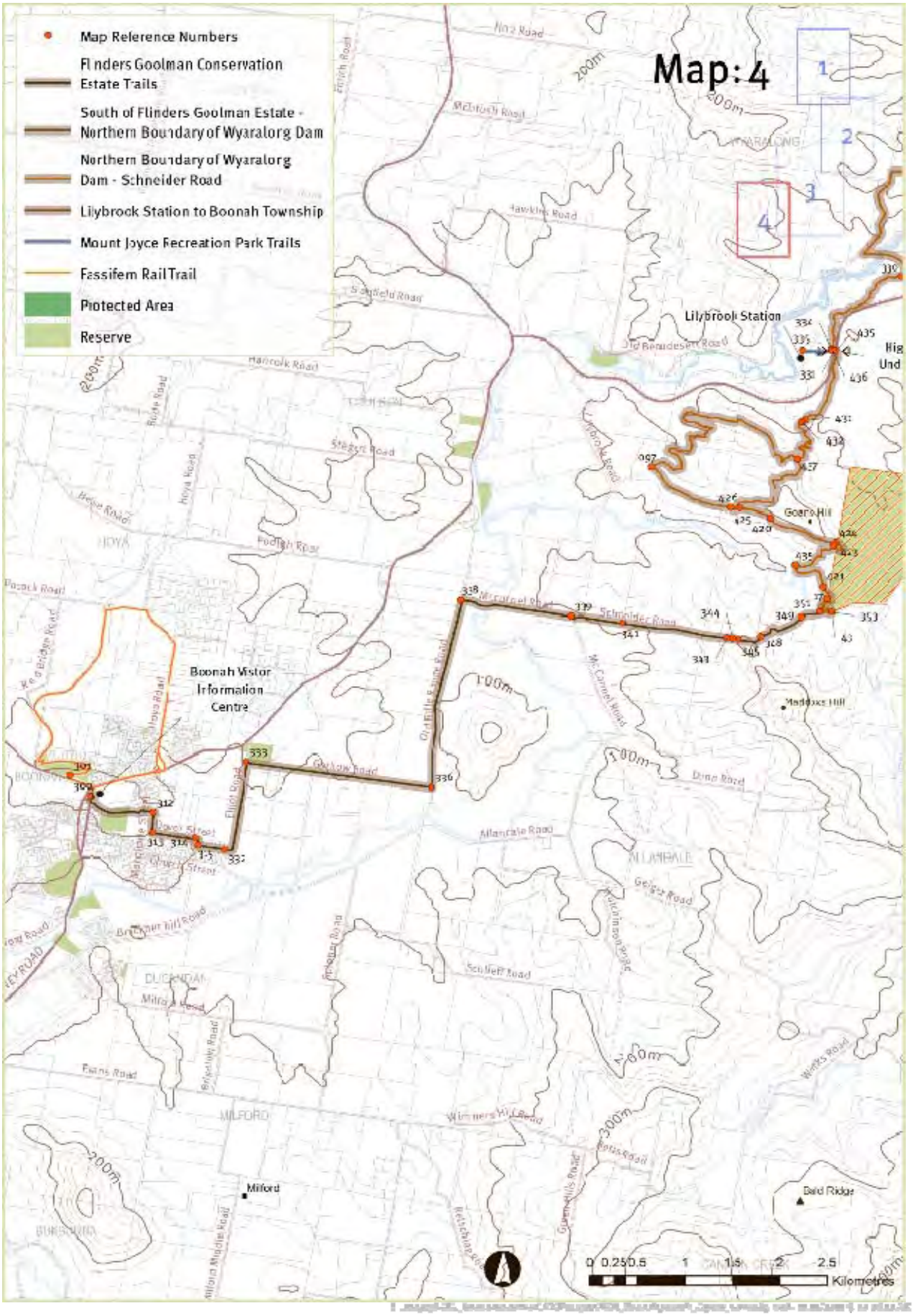
- **Overview map**
- **Map 1: Flinders Goolman Conservation Estate**
- **Map 2: South of Flinders Goolman Conservation Estate–North of Wyaralong Dam**
- **Map 3: Wyaralong Dam Precinct**
- **Map 4: Schneider Road–Boonah Township**


Boonah to Ipswich Trail
Kinsale
Spring Mountain
Hardings Paddock
Flinders Goolman Conservation Estate
Champions Way
Range View
Karamar
Kingswood
Millvale
Nooramunga
Rockdale
Mount Goolman
Mount Perry Conservation Park
Ivorys Rock
Mount Perry
Mount Blaine
Mount Flinders Road
Rice Road
Warrill View Peak Crossing Road
Wattle View
Flinders Plum
Flinders Peak Conservation Park
Flinders Peak
Mount Elliott
Mount Elliott Road
Undullah Road
Washpool Road
Mount Welcome
El Dorado
Mount Wilbraham
Wild Pig Creek Road
Cimarran Ranch
Karinya
Mount Flintoff
Rocky Knob
Ivorys Knob
Mount Joyce
Mt Joyce Base Camp
Obum Obum Hill
Homeville
Ipswich Boonah Road
Banjora
Wyaralong
The Overflow
Highway Underpass
Lilybrook Station
Alanmore
Mount Moy
Mount Crumpet
Beau desert Boonah Road
Boonah Vistor Information Centre
Goans Hill
Queensland Moto Park (Wyaralong)
Mount Juberra
Naddoxs Hill
Days Gully
0 0.5 1 2 3 4 5 Kilometres
Melrose Farm
Milford
Boonah Rathdowney Road
Bar 20 Ranch
Mount Sugarloaf
Duganda Range
Flinders Goolman Conservation Estate Trails
South of Flinders Goolman Estate - Northern Boundary of Wyaralong Dam
Northern Boundary of Wyaralong Dam - Schneider Road
Schneider Road to Boonah Township
Trail Access Roads
Mount Joyce Recreation Park Trails
Fassifern Rail Trail
Map Index Grid
Protected Area
Reserve


Map: 1
1
2
3
4
Hardings Paddock
Flinders Goolman Conservation Estate
Spowers Road
Mount Goolman
Ivorys Rock
Mount Perry
Mount Perry Conservation Park
Mount Blaine
Flinders Plum
Flinders Peak
Flinders Peak Conservation Park
Mount Elliott
Durrad Road
Mount Flinders Road
Wards Road
Ripley Road
200m
300m
400m
500m
Map Reference Numbers
Flinders Goolman Conservation Estate Trails
South of Flinders Goolman Estate - Northern Boundary of Wyaralong Dam
Northern Boundary of Wyaralong Dam - Schneider Road
Lilybrook Station to Boonah Township
Mount Joyce Recreation Park Trails
Fassifern Rail Trail
Protected Area
Reserve
0 0.25 0.5 1 1.5 2 2.5
Kilometres


Map: 2
Mount Welcome
Washpool Road
Wild Pig Creek Road
Mount Elliott Road
Rocky Knob
Mount Flintoff
Mount Joyce
Mt Joyce Base Camp
WOOLOOMAN
Wyaralong
Map Reference Numbers
Flinders Goolman Conservation Estate Trails
South of Flinders Goolman Estate - Northern Boundary of Wyaralong Dam
Northern Boundary of Wyaralong Dam - Schneider Road
Lilybrook Station to Boonah Township
Mount Joyce Recreation Park Trails
Fassifern Rail Trail
Protected Area
Reserve
0 0.25 0.5 1 1.5 2 2.5
Kilometres


Map: 3
Map Reference Numbers
Flinders Goolman Conservation Estate Trails
South of Flinders Goolman Estate - Northern Boundary of Wyaralong Dam
Northern Boundary of Wyaralong Dam - Schneider Road
Lilybrook Station to Boonah Township
Mount Joyce Recreation Park Trails
Fassifern Rail Trail
Protected Area
Reserve
Lilybrook Station
Highway Underpass
Queensland Moto Park (Wyaralong)
Wyaralong
Kalbar
Beaudesert Boonah Road
Dons Road
0 0.25 0.5 1 1.5 2 2.5
Kilometres


Map Reference Numbers
Flinders Goolman Conservation Estate Trails
South of Flinders Goolman Estate - Northern Boundary of Wyaralorg Dam
Northern Boundary of Wyaralorg Dam - Schneider Road
Lilybrock Station to Boonah Township
Mount Joyce Recreation Park Trails
Fassifern Rail Trail
Protected Area
Reserve
Map: 4
Lilybrook Station
Boonah Visitor Information Centre
Milford
Bald Ridge
Kilometres

Bibliography

Some useful recreation trail references include:

Klein, J (2003) Sustainable Mountain Bike Trails. PowerPoint presentation for the International Mountain Bike Association (IMBA). www.mtbdirt.com.au

(Queensland) Department of Communities, Sport and Recreation Services (website: www.sportrec.qld.gov.au/) has links to information on outdoor recreation activities and issues including outdoor recreation demand and trends in demand, available at www.sportrec.qld.gov.au/Outdoorrecreation/OutdoorRecreationTrends.aspx and trail bike riding, available at www.srq.qld.gov.au/Outdoorrecreation/TrailbikeridinginQueensland.aspx

Queensland Government and the Council of Mayors - South East Queensland (2007) Active Trails – a Strategy for Regional Trails in South East Queensland. Available online from Queensland Department of Local Government and Planning at: www.dlgp.qld.gov.au/regional-planning/active-trails-strategy.html
This is a set of six documents:

- The executive summary - *Active Trails – a Strategy for Regional Trails in South East Queensland*
- *Active Trails – a Strategy for Regional Trails in South East Queensland Project Report*
- *Review of Recreation Participation and Demand Studies for Trail-Based Recreation Activities – Technical Report No 1 to the SEQ Regional Trails Strategy*
- Inventory of Recreation Trails in and around SEQ and a Summary of Trail Availability in SEQ – *Technical Report No 2 to the SEQ Regional Trails Strategy*
- Development of a Strategic Trail Assessment Methodology -*Technical Report No 3 to the SEQ Regional Trails Strategy*
- Review of Considerations Applicable to Recreational Trails Planning, Development and Management in South East Queensland – *Technical Report No 4 to the SEQ Regional Trails Strategy.*

Queensland Outdoor Recreation Federation website (www.qorf.org.au) has links to information on outdoor recreation activities and issues including:
• mountain bike riding www.qorf.org.au/01_cms/details.asp?ID=725
• trail bike riding www.qorf.org.au/01_cms/details.asp?ID=738
• adventure activity standards www.qorf.org.au/01_cms/details.asp?ID=830
• risk management www.qorf.org.au/01_cms/details.asp?ID=615
• recreation track/trail design and construction www.qorf.org.au/01_cms/details.asp?ID=912

Standards Australia website online order for Australian Standards for walking track classification, signage and design:
• AS 2156.1-2001 Walking tracks - Classification and signage
• AS 2156.2-2001 Walking tracks - Infrastructure design

Benefits – Health, physical, psychological, social and spiritual

Australian Bureau of Statistics (2006) National Health Survey – summary of results 2004 05. Available online at: www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/4364.02004-05?OpenDocument

Dickson, T J. Gray, T. and Mann, K. (2008) Australian Outdoor Adventure Activity Benefits Catalogue. University of Canberra. Available online at: www.qorf.org.au/01_cms/details.asp?ID=1066

California State Parks (2005) Health and Social Benefits of Recreation California State Parks. Available online at: www.parks.ca.gov/planning

Fuller, R A. Irvine, K N. Devine-Wright, P. Warren, P H. and Gaston, K J. (2007) Psychological benefits of green space increase with biodiversity. *Biology letters (Community Ecology)*

Louv, R. (2008) Last Child in the Woods - Saving our Children from Nature Deficit Disorder. Algonquin Books of Chapel Hill, North Carolina, USA.

Maller, C. Townsend, M. St Leger, L. Henderson-Wilson, C. Prosser, L. Pryor, A. and Moore, M. (2008) Healthy Parks, Healthy People - The Health Benefits of Contact with Nature in a Park Context - A Review of Current Literature 2nd Ed. Victorian Government, Parks Victoria and Deakin University. Available online at: www.parkweb.vic.gov.au/1process_content.cfm?section=99&page=16

Queensland Government Eat Well Be Active Queensland, website: www.your30.qld.gov.au/Home/tabid/36/Default.aspx

Queensland Public Health Forum (2004) Strategic Statement – Active Living www.health.qld.gov.au/qphf/key_priorities/active_living.asp

Queensland Public Health Forum (2006), Be Active Queensland 2006–2010 – a framework for health sector action for physical activity in Queensland, available online at: www.health.qld.gov.au/qphf/documents/31830.pdf

Stephenson J. Bauman A. Armstrong T. Smith B. and Bellew B. (2000), The costs of illness attributable to physical inactivity in Australia. A report prepared for the Commonwealth Department of Health and Aged Care and the Australian Sports Commission.

Watson, A E. Aplet, G. and Hendee, J C. (1999) *Personal, Societal, and Ecological Values of Wilderness*: 6th World Wilderness Congress Proceedings on Research Management and Allocation. Volume II, Proc. RMRS-P-000. Ogden, UT.

Ulrich, R S. Simons, R F. Losito, B D. Fiorito, E. Miles, M A. and Zelson, M. (1991) Stress recovery during exposure to natural and urban environments. Journal of Environmental Psychology 11: 201-230. VicHealth (2003) Mental health and wellbeing, VicHealth Letter, Issue No 21 Spring.

Ecological impacts

Bamford, A R. Davies S J J F. & Van Delft, R. (1990) The effects of model power boats on waterbirds at Herdsman Lake, Perth, Western Australia, *Emu*, Journal of the Royal Australasian Ornithologists Union, vol. 90, no. 4, pp. 260-265, 1990.

Buckley, R. Breakdown of Human Waste in Three Sub-Tropical Australian Ecosystems. Available online from the National Outdoor Leadership School website at: www.nols.edu/

Burger, J. (1998) Effects of motorboats and personal watercraft on flight behaviour over a colony of Common Terns. *Condor,* vol. 100 no. 3. pp. 528 - 534, August 1998.

Cessford, G R. (1995), Off-Road Impacts of Mountain Bikes: A review and discussion. *Science and Research Series No. 92*, Department of Conservation, Wellington, New Zealand.

Cilimburg, A. Christopher M. C. and Kehoe, S. (2000) Wildland Recreation and Human Waste: A Review of Problems, Practices, and Concerns. *Environmental Management* Vol. 25, No. 6, pp. 587–598.
Ells M D. 1997. Impact of Human Waste disposal on surface water runoff. *J. Env. Health*, 59, 8:6-12.

Hammitt, W E. and Cole D N. (1987) Wildland Recreation : ecology and management. John Wiley and Sons, New York.

Hammitt, P. Freimund, W. Watson, A. Brod, R. and Monz, C. Responsible Environmental Behaviour – Metaphoric Transference of Minimal Impact ideology Available online from the National Outdoor Leadership School website at: http://www.nols.edu/

Jones, M E. (2000). Road upgrade, road mortality and remedial measures: impacts on a population of eastern quolls and Tasmanian devils. *Wildlife Research Journal, Vol. 27, 2000, pp. 289-296.*

Leon, L M. and Warnken, J. (2008) Copper and sewage inputs from recreational vessels at popular anchor sites in a semi-enclosed Bay (Qld, Australia): Estimates of potential annual loads *Marine Pollution Bulletin, Volume 57, Issues 6-12, 2008, Pages 838-845*

Liddle, M J. (1991) Recreation Ecology: Effects of trampling on plants and corals, *Tree, Vol. 6, no. 1, January 1991, pp. 13-17*.

Liddle, M J. (1997) Recreation Ecology: the ecological impact of outdoor recreation and ecotourism. Chapman & Hall, Melbourne.

Mosisch, T D. Arthington, A H. (1998) The impacts of power boating and water skiing on lakes and Reservoirs, *Lakes & Reservoirs: Research and Management*, *vol. 3, no. 1, pp. 1-17, Mar 1998*.

Sun, D. and Walsh, D. (1998) Review of studies on environmental impacts of recreation and tourism in Australia. *Journal of Environmental Management* 53, 323-338.

Temple K L. Camper A K. and McFeters G A. 1980. Survival of Two Enterobacteria in Feces Buried in Soil Under Field Conditions. *Appl. Env. Microbiology*. 40.

Temple K L. Camper A K. and Lucas R C. 1982. Potential health hazard from human wastes in wilderness. *J. Soil and Water Cons.* 37:357-359.

Economic impacts

American Hiking Society (2002) The Economic Benefits of Trails. Available online at: www.AmericanHiking.org

Campbell, D. and Murphy, J J. (2005) The 2000-01 National Recreational Fishing Survey Economic Report. Available online at:
www.daff.gov.au/__data/assets/pdf_file/0014/23522/economic_report_july05.pdf

Kinhill Economics, Kinhill Pty Ltd (1998a) The Value of Protected Areas to Queensland – Final report. Prepared for the Queensland Department of Environment (in 2009, incorporated within the Queensland Department of Environment and Resource Management).
Kinhill Economics, Kinhill Pty Ltd (1998b), Assessment of the significance of forests to the recreation and tourism industries of South East Queensland, prepared for the (Commonwealth) Bureau of Agricultural and Resource Economics.

Lazarow, N. (2007) The value of coastal recreational resources: a case study approach to examine the value of recreational surfing to specific locales. *Journal of Coastal Research*, SI 50 (Proceedings of the 9th International Coastal Symposium), pg12 – pg20. Gold Coast, Australia.

Queensland Government, Treasury, Office of Economic and Statistical Research (2006) The Contribution of Domestic Visitor Queensland Economy: 2003–04.
Available online at: www.oesr.qld.gov.au/publications/single-publications/index.shtml

Laws

Queensland Government. *Civil Liability Act 2003* GOPRINT, Brisbane, Australia.

Queensland Government. *Brisbane Forest Park Act 1977.* GOPRINT, Brisbane, Australia.

Queensland Government. *Forestry Act 1959*. Sections 33 and 40. GOPRINT, Brisbane, Australia.

Queensland Government. *Integrated Planning Act 1997.* GOPRINT, Brisbane, Australia.

Queensland Government. *Marine Parks Act 1984.* GOPRINT, Brisbane, Australia.

Queensland Government. *Nature Conservation Act 1992*. GOPRINT, Brisbane, Australia.

Queensland Government. *Police Powers and Responsibilities Act 2000*. GOPRINT, Brisbane, Australia.

Queensland Government. *Recreation Areas Management Act 2006.* GOPRINT, Brisbane, Australia.

Queensland Government. *Transport Operations (Road Use Management) Act 1995.* GOPRINT, Brisbane, Australia.

Queensland Government. *Transport Operations (Marine Safety) Act 1994.* GOPRINT, Brisbane, Australia.

Planning documents

Queensland Government. (1993) Open Space and Recreation – a policy paper of the SEQ 2001 Project. Regional Planning Advisory Group, GOPRINT, Queensland. ISBN 0 7242 5457 9

Queensland Government, Department of Infrastructure and Planning (2009) South East Queensland Regional Plan 2009 – 2031 Available online at: www.dlgp.qld.gov.au/regional-planning/regionalplan.html

Queensland Government, Department of Infrastructure and Planning (2005) South East Queensland Regional Plan 2005 – 2026 Available online at: www.dlgp.qld.gov.au/regional-planning/seqregional-plan-2005-26.html

Wood, J. and Swartz, L. (1993) *A Strategic* Overview of Recreation Opportunity Settings in South East Queensland. Unpublished report for the Department of Tourism Sport and Racing prepared by Loder and Bayly Consulting Group.

Queensland Government, Sport and Recreation Queensland (2003) Open Space for Sport and Recreation – Planning Principles and Implementation Notes for Local Government. Available online at: www.sportrec.qld.gov.au/Industryinformation/Recreationplanning/Planningnotes.aspx

Policy, planning and management concepts and issues.

Clark, R N. & Stankey, H. (1979) The Recreation Opportunity Spectrum: A Framework for Planning, Management, and Research. U.S. Department of Agriculture.

Conroy, R. and Harden, R. (1997) Horses for courses? Recreational horse riding in New South Wales National Parks, Australia. *Proceedings of the Tread Lightly! On the World Conference*. Tread Lightly! Australia PL, Corinda, Queensland, Australia.

Low Choy, D. and Prineas, T. (2006) Parks for People – meeting the outdoor recreation demands of a growing regional population. *Annals of Leisure Research* Vol 19 No.1 pp. 86-109

McCool, S F. Clark R N. & Stankey G H. (2007) An Assessment of Frameworks Useful for Public Land Recreation Planning. *General Technical Report, PNW-GTR-705* Portland, Oregon. U.S.

Queensland Government, Environmental Protection Agency (2001) Master Plan for Queensland's Park System.

Queensland Government, Environmental Protection Agency (2003) Operational Policy: Landscape classification system for visitor management.

Stankey, G H. Cole D N. Lucas R C. Petersen, M E. & Frissell, S S. (1985) The Limits of Acceptable Change (LAC) System for Wilderness Planning. U.S. Department of Agriculture, Forest Service, *General Technical Report, INT-176*, January 1985.

Victorian Government, Department of Sustainability and Environment (2002) Policy for Sustainable Recreation and Tourism on Victoria's Public Land ISBN 1 74106 1849 *(Note: Originally published by Department of Natural Resources and Environment which was subsequently re-named Department of Sustainability and Environment)*
www.dse.vic.gov.au/DSE/nrenrt.nsf/LinkView/9AF29927FB6EF83CCA256C61001794D640805DA7754769794A256DEA00241084

Recreation conflict

Tumes, K. (2007) Out of my way: Using qualitative methods to understand recreation conflict between bushwalkers and mountain bike riders. *Anthropological Notebooks 13 (1): 45–55*.

Wisconsin Department of Natural Resources: Recreation Conflict – a review of research in USA. Available online at:
www.wisc.edu/urpl/people/marcouiller/projects/clearinghouse/Applied%20Research%20Clearinghouse.html#clearinghouse

Risk management

Australian Government, National health and Medical Research Council (2008) Guidelines for Managing risks in Recreational Water. Available online at:
www.nhmrc.gov.au/publications/synopses/eh38.htm

Batt, D. (ed) (1997) Proceedings of the 1997 South East Queensland Rockclimbing and Abseiling Risk Management and Litigation Conference.

Statistics

Australian Sports Commission (2001-2008) Exercise Recreation and Sport Surveys
www.ausport.gov.au/information/scors/ERASS

Australian Bureau of Statistics (2004-05) Participation in sports and physical activity
www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/4177.02005-06?OpenDocument

Bryden, N. (2002) Does your survey include the canary factor? Measuring displacement and succession at recreation sites. *Parks and Leisure Australia* June 2002 pp 22 - 23.

Henry, G. and Lyle, J. (2003), The National Recreational and Indigenous Fishing Survey, Fisheries Research and Development Corporation, Natural Heritage Trust and NSW Fisheries, ACT.

Queensland Government (2008) Outdoor Recreation Trends in South East Queensland 1997-2007.

Queensland Government (2008*)* South East Queensland Outdoor Recreation Demand Study 2007. Note: Surveys were completed in 1997, 2001 and 2007 with reports for each published respectively in 1998, 2002 and 2008.