

Appendix 4: Trail Types/Classifications

Australian Walking Track Grading System

Pre-2010, the grading systems applied to walking trails and the information conveyed to walkers varied considerably between states and territories and even between different land managers within states. The lack of consistent standards for walking trail grading makes it difficult for the public to choose walking trails that are suitable to their skills and level of fitness. Where grades vary, are confusing or are poorly understood, it can act as a deterrent to people undertaking walks, particularly to less confident and able walkers.

Australian Standard 2156.1-2001 Walking Tracks - Classification and Signage

In 2010 a proposed Australian Walking Track Grading System was developed and this system was endorsed by Parks Forum (the former peak body for park management organisations) as a voluntary industry standard. The aim of the Australian Walking Track Grading System is to encourage people who are not regular or confident bushwalkers to get out there and give it a go. It is specifically designed to reassure entry level walkers, particularly persons with a disability or people walking with children, that a particular trail is suitable for their skill level. Victoria's Department of Sustainability and Environment (DSE) has committed to re-grading its State Forest walking trail network to be consistent with the new grading system³⁵.

Under the new system, walking trails are graded on a difficulty scale from grades one to five, as follows:

- Grade One is suitable for persons with a disability with assistance
- Grade Two is suitable for families with young children
- Grade Three is recommended for people with some bushwalking experience
- Grade Four is recommended for experienced bushwalkers
- Grade Five is recommended for very experienced bushwalkers



Figure 16: Walking track grading system icons

The Australian Walking Track Grading System was developed by the Walking Tracks Grading and Improvement Project and funded by 'Go for your life' – a Victorian Government Initiative. The first walking track to have been re-graded was the Whipstick Loop Walk. Below is an image of the newly installed sign which includes the symbol showing the walk's grade as well as information on its distance, time to complete, gradient and quality of path.



Figure 17: Whipstick Loop Walk, Victoria



Whipstick Loop Walk

Grade of Walk ¹ :	Grade 3
Distance:	Circuit 5.0km
Time:	2 hours return
Gradient:	Short steep hills
Quality of Path:	Formed track, some obstacles
Quality of Markings:	Sign posted
Steps:	Occasional steps
Experience required:	Some bushwalking experience recommended

Refer www.dse.vic.gov.au for more information.

Mountain Bike Trail Classifications

The International Mountain Bicycling Association (IMBA) has developed a guide for developing trails to specific ratings or for assessing existing trails. This system has been adopted worldwide and is shown in the table below.




Table 39: Mountain bike trail classifications

Classification		Description
Very Easy	○	Likely to be a fire road or wide single track with a gentle gradient, smooth surface and free of obstacles. Frequent encounters are likely with other cyclists, runners, walkers and horse riders.
Easy	●	Likely to be a combination of fire road or wide single track with a gentle gradient, smooth surface and relatively free of unavoidable obstacles. Short sections may exceed these criteria. Frequent encounters are likely with walkers, runners, horse riders and other cyclists.
Intermediate	■	Likely to be a single trail with moderate gradients, variable surface and obstacles.
Difficult	◆	Likely to be a challenging single trail with steep gradients, variable surface and many obstacles.
Extreme	◆◆	Extremely difficult trails will incorporate very steep gradients, highly variable surface and unavoidable, severe obstacles.

Horse Trail Classifications

Horse SA have produced a brochure *Trail Difficulty Rating System – Horse*³⁶ which includes a description of horse trail classifications, as shown in the table below.

Table 40: Horse trail classifications

Classification	Description
<p>Easiest</p> 	<p>Easy Trails are most suitable for novices; social groups and others seeking a relatively short distance trail requiring a basic level of skill and horse & rider fitness.</p> <p>Easy Trails are most likely to be fire roads or wide single tracks (bridlepaths) with a gentle grade (not exceeding 10%) and a relatively obstacle free, hardened natural surface.</p> <p>Easy Trails are likely to be shared-use and frequent encounters with other users including cyclists, walkers & runners can be expected.</p>
<p>Intermediate</p> 	<p>Intermediate Trails are most suitable for individuals and smaller social groups seeking a short to medium distance trail requiring a moderate level of skill and fitness.</p> <p>Intermediate Trails are most likely to be a combination single trail and/or fire road with obstacles, variable surface, and a moderate slope.</p> <p>Intermediate Trails are likely to be shared-use so encounters with other users including cyclists, walkers, runners and horse riders should be expected.</p>
<p>Advanced</p> 	<p>Advanced Trails are suitable for individuals and small social groups seeking a very challenging trail requiring a high level of skill, fitness, and basic navigation skills.</p> <p>Advanced Trails are most likely to consist of challenging single trail and/or fire road with many obstacles, variable surface, and steep sections. Some trail routes may not be marked at all.</p> <p>Advanced Trails may possibly be shared-use so encounters with other users possibly including cyclists, walkers, vehicles and other stock should be expected, however, many of these trails may be located in remote areas and encounters with others is expected to be minimal.</p>

Canoe and Kayak Trail Classification

The International River Grading System³⁷ provides an indication of the degree of difficulty of a rapid and/or river. The following table provides a description of the first three grades (Easy, Medium and Difficult) of the rapid ratings, however it has a total of six levels including Advanced, Expert and Extreme.

Table 41: International river grading system

Grade	Description
Easy (Grade 1)	Slow to medium flowing water with very small, regular waves or riffles. Relatively few obstacles, with an easy path to find and follow. Suitable for novices.
Medium (Grade 2)	Rapids are straightforward with medium sized, regular waves. The path through rapids can be clearly seen from the water and is often indicated by well-defined chutes or Vs of water. There are some obstacles that require manoeuvring around, but paddlers with a good command of basic strokes can easily miss them.
Difficult (Grade 3)	Rapids have moderate, irregular waves and strong currents. Manoeuvring is required to follow the preferred route. Small to medium sized stoppers may have to be negotiated. The route is difficult for inexperienced paddlers to see and scouting is advisable. Suitable for experienced Whitewater paddlers, with the ability to roll an advantage.

Appendix 5: Trail Audit Details

Casuarina Walk Reserve/Parkview Reserve



Description			
This trail links Parkview Reserve to the wetlands at Casuarina Walk Reserve. The wetlands have active birdlife and provide views of farmland to the south and east.			
Trail length	Trail classification	Permitted trail use	Hierarchy
1,300m loop	Grade 2	Walk	Local
Reserve		Suburb	Street
Parkview Drive Reserve & Casuarina Walk Reserve		Murray Bridge	Parkview Drive & Casuarina Walk
Land tenure		Reserve feature/s	
RCMB land		<ul style="list-style-type: none">• Wetlands• Views	
Formal marketing and promotion			
<ul style="list-style-type: none">• OPAL Brochure• RCMB website			
Trail infrastructure and facilities		Other reserve infrastructure	
<ul style="list-style-type: none">• Management/warning signage• Bridges• Viewing platform• Seating		<ul style="list-style-type: none">• Playground• Picnic facilities/BBQ• Half basketball court• On road carparking	
Audit notes			
<ul style="list-style-type: none">• The trail can be accessed from Parkview Reserve, Carex Ct, Sedge Ct and Casuarina Walk, however there is no trail signage.• Carparking is available on surrounding residential streets• Parkview Reserve does not have any signage• Trail infrastructure (i.e. bridges and seating) have been installed recently• A vehicle access track exists from the footbridge near Carex Ct to Parkview Reserve• The trail and viewing platforms offer views of the wetlands, associated birdlife and farmland.			

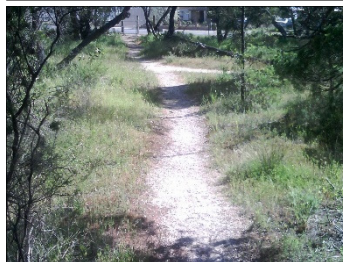
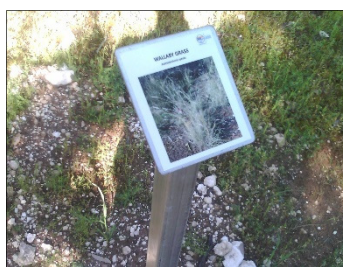




The Rural City of
**MURRAY
BRIDGE**

Bridge to Opportunity

Murray Park



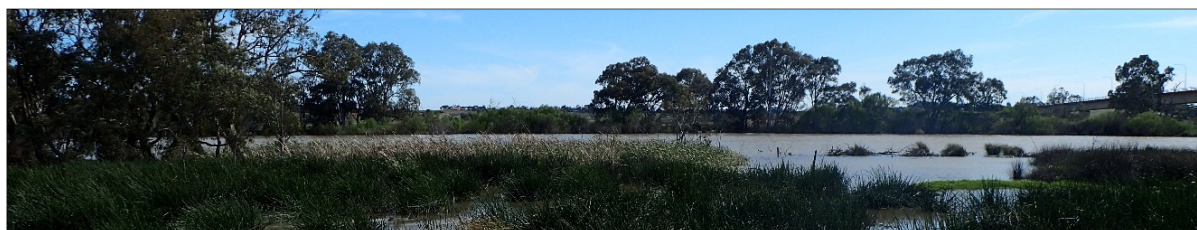
Description			
Murray Park provides a small network of trails within the bushland reserve, with historical value containing the original Murray Bridge cemetery.			
Trail length	Trail classification	Permitted trail use	Hierarchy
975m loop	Grade 2	Walk	Local
Reserve		Suburb	Street
Murray Park		Murray Bridge	Thomas Street
Land tenure		Reserve feature/s	
RCMB land		<ul style="list-style-type: none">Historical site: Cemetery	
Formal marketing and promotion			
<ul style="list-style-type: none">OPAL BrochureRCMB website			
Trail infrastructure		Other reserve infrastructure	
<ul style="list-style-type: none">Trailhead signageInterpretation signageWarning/management signagePedestrian entry gates		<ul style="list-style-type: none">Public amenitiesOn road carparking	
Audit notes			
<ul style="list-style-type: none">On road car parking is available on the streets surrounding the reserve.The reserve is fenced, with access provided through a gate at each of the four corners of the reserve and at the toilet block.Reserve information is provided at the eastern entrance point.The naming sign matches the signage style at other reserves, such as Rocky Gully Wetlands.The historical site (cemetery) is highlighted on the entry signage and on a sign internally featuring the names of 18 of the 19 burials.The trail alignment has recently been defined with crushed rock.Interpretive signage along the trail relates to the park's flora and fauna.Public amenities are available			



Swanport Wetlands



Description			
This is a wetland of national significance, located adjacent to the Swanport Bridge and promoted through signage on the highway directing travellers to the site. The wetland trail consists of segments of boardwalk accessing the wetlands and the river. The wetland trail offers opportunity for nature appreciation and birdwatching.			
Trail length	Trail classification	Permitted trail use	Hierarchy
1,100m loop	Grade 3	Walk	Regional
Reserve		Suburb	Street
Swanport Wetlands		Monteith	Princes Hwy
Land tenure		Reserve feature/s	
RCMB land		<ul style="list-style-type: none">Wetlands	
Formal marketing and promotion			
<ul style="list-style-type: none">OPAL BrochureRCMB website			
Trail infrastructure		Other reserve infrastructure	
<ul style="list-style-type: none">Warning/management signageInterpretation signagePedestrian entry gateBoardwalkSeatingViewing platformBird hide		<ul style="list-style-type: none">Public amenitiesPicnic facilities/shelterPontoonInformal carparking	
Audit notes			
<ul style="list-style-type: none">This reserve is accessible via Frank Jackman Lookout, linking to the Princes Highway.Informal carparking is available under the Swanport BridgeA “welcome to Swanport Wetlands” management/warning sign is located at the reserve entranceInconsistent and dated signage existsDebris throughout reserve (e.g. metal steps, sleepers, rubble)Boardwalk sections of the trail require maintenance/upgradesAn informal trail exists from the amenities to the north east with no defined endThe low-lying fire track (south-west of the reserve) is subject to flooding after heavy rainA pontoon provides access to the riverThe shelter and amenities do not feature on any signageA bird hide (on the south-western edge of the trail) has been decommissioned.			



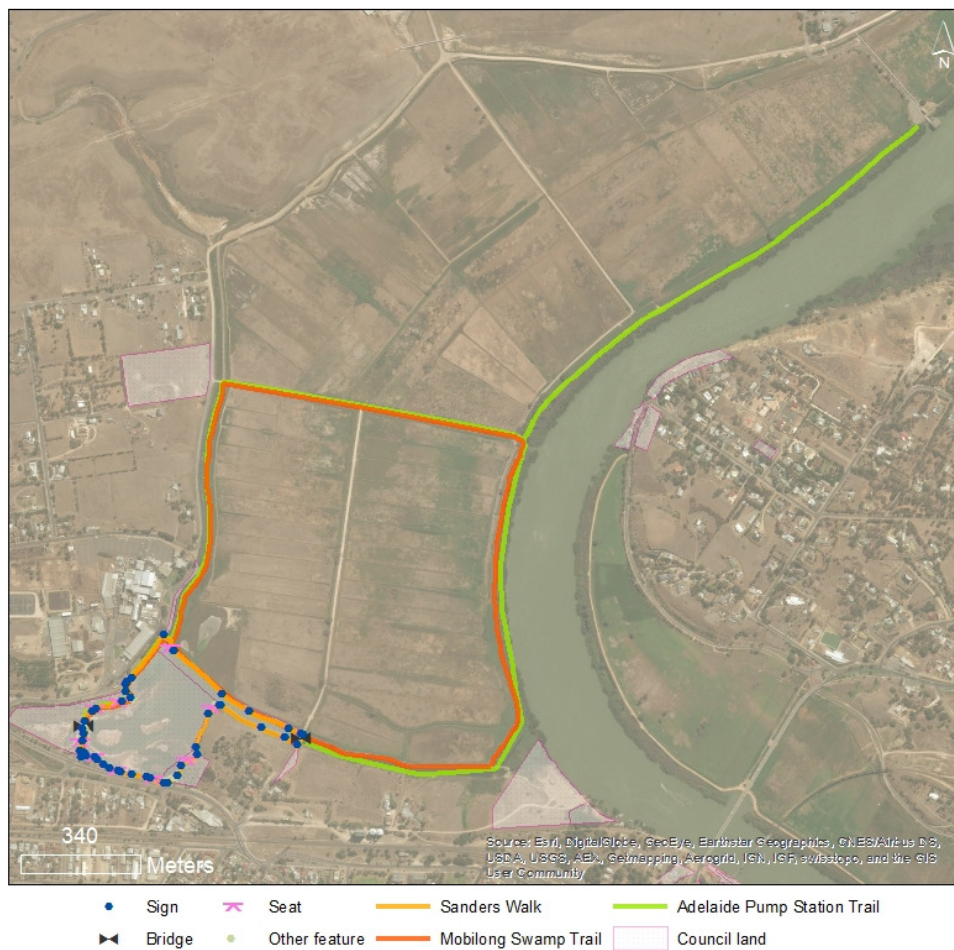
Murrundi Reserve



Description			
Murrundi Reserve was once a quarry site and is now being rehabilitated by a community group. The wetland ecosystem provides opportunity for walking and birdwatching within the reserve. The reserve is also approved for houseboat mooring.			
Trail length	Trail classification	Permitted trail use	Hierarchy
1,100m loop	Grade 2	Walk	Local
Reserve		Suburb	Street
Murrundi Reserve		Jervois	Jervois Road
Land tenure		Reserve feature/s	
RCMB land		<ul style="list-style-type: none">Wetlands	
Formal marketing and promotion			
<ul style="list-style-type: none">RCMB website			
Trail infrastructure		Other reserve infrastructure	
<ul style="list-style-type: none">Interpretation signageSeatingShelter		<ul style="list-style-type: none">On road carparking	
Audit notes			



Rocky Gully Wetland



Description			
Rocky Gully Wetland has a diverse range of wildlife, particularly birds. The wetland consists of three local trails; Sanders Walk, Mobilong Swamp Trail and Adelaide Pump Station Trail. The Lavender Federation Trail shares alignment with parts of Sanders Walk and Mobilong Swamp Trail.			
Sanders Walk			
Trail length	Trail classification	Permitted trail use	Hierarchy
1,886m loop	Grade 2	Walk	Local
Mobilong Swamp Trail			
Trail length	Trail classification	Permitted trail use	Hierarchy
4,407m loop	Grade 2	Walk/Cycle	Local
Adelaide Pump Station Trail			
Trail length	Trail classification	Permitted trail use	Hierarchy
3,513m loop	Grade 2	Walk/Cycle	Local
Reserve		Suburb	Street
Rocky Gully Wetlands and road reserves		Murray Bridge	Mannum Road
Land tenure		Reserve feature/s	
RCMB, DEWNR, SA Water, Private		<ul style="list-style-type: none">Wetlands	
Formal marketing and promotion			
<ul style="list-style-type: none">OPAL BrochureRCMB website			
Trail infrastructure		Other reserve infrastructure	
<ul style="list-style-type: none">Trailhead, interpretive, waymarking & management/warning signageBridgesPhoto pointsSeatingBird hide		<ul style="list-style-type: none">Community notice boardCarpark	
Audit notes			
Sanders Walk <ul style="list-style-type: none">Reserve information is provided at the Mannum Road access pointMany interpretation signs exist, and require upgradeMany waymarkers define the trail alignmentUnclear wayfinding at the bridge at the eastern end of trail and at western side (boundary with Thomas Foods)Bird hide is functional, however requires minor repairs (a stick is used to hold window open)			

- Many seats along the trail
- Maintenance regime (i.e. grass cutting, spraying)

Mobilong Swamp Trail

- This trail does not have specific trail infrastructure or signage, except for that it is featured on the Rocky Gully Wetlands reserve sign
- The trail alignment is on a levee bank alongside Toora Rd, the unsealed Pump Rd and the levy bank along the river before joining the alignment of the Lavender Federation Trail on a levee bank leading back to the trailhead

Adelaide Pump Station Trail

- This trail does not have specific trail infrastructure or signage, except for that it is featured on the Rocky Gully Wetlands trailhead sign
- There are issues associated with safety and access to the levy banks (negotiations will be required with SA Water, DEWNR and private land owners).



Appendix 6: Current Trail Marketing and Promotion

Online Promotion

There are a number of websites that promote and provide information on trails within the RCMB. These are outlined in the table below.

Table 42: Online trail promotion

Website	Information provided	Trails referenced within the Murray Bridge region
RCMB: Parks, Gardens and Reserves³⁸	Basic information and location maps on areas with recreational trail	<ul style="list-style-type: none"> • Callington Hill Grassland • Casuarina Walk Reserve • Hume Reserve • Rocky Gully Wetlands • Sturt Reserve • Swanport Wetlands
Walking SA³⁹	Location and details about walking trails across the state	<ul style="list-style-type: none"> • Lavender Federation Trail • River Bend Heritage Trail • Monarto Conservation Park Trails
Lavender Federation Trail⁴⁰	Lavender Federation Trail information and updates about other trails in the region between Murray Bridge and Eudunda	<ul style="list-style-type: none"> • Lavender Federation Trail • Kinchina Conservation Park Trails
Adelaide Mountain Bike Trails⁴¹	Location and details relating to mountain bike trails around Adelaide	<ul style="list-style-type: none"> • Murray Bridge Hills Trails (Kinchina Conservation Park)
Discover Murray⁴²	Sights and attractions along the Murray River between Canberra and the Coorong	<ul style="list-style-type: none"> • Murray Bridge Canoe Trail
South Australian Trails⁴³	Location and details of walking, horseriding, cycling, diving and canoeing trails across the state	<ul style="list-style-type: none"> • Lavender Federation Trail • Kidman Trail
Horse SA⁴⁴	Details of horse riding facilities across the state with the opportunity to purchase trail maps or download digital maps, such as the free Google Maps file for the Kidman Trail ⁴⁵	<ul style="list-style-type: none"> • Kidman Trail
DEWNR: Good Living	Article: <i>Visiting South Australia's wetlands</i> ⁴⁶	<ul style="list-style-type: none"> • Swanport Wetlands • Riverglades Wetlands • Paiwalla Wetlands
DEWNR: News	Media Release: <i>Two New Conservation Parks for SA</i> ⁴⁷	<ul style="list-style-type: none"> • Kinchina Conservation Park Trails
User-generated websites⁴⁸	User-recorded alignments of walks with comments on shared experiences	<ul style="list-style-type: none"> • Various informal routes, primarily along footpaths

Visitor Information Centre Resources

The Murray Bridge Visitor Information Centre has the potential to be key source for the promotion of the region's trails. Currently, the Visitor Information Centre has a small range of brochures and maps to support locals and visitors who are interested in using trails. Examples of the trail promotion resources currently available are outlined below.



Figure 18: Walking Trails around Murray Bridge trail brochure

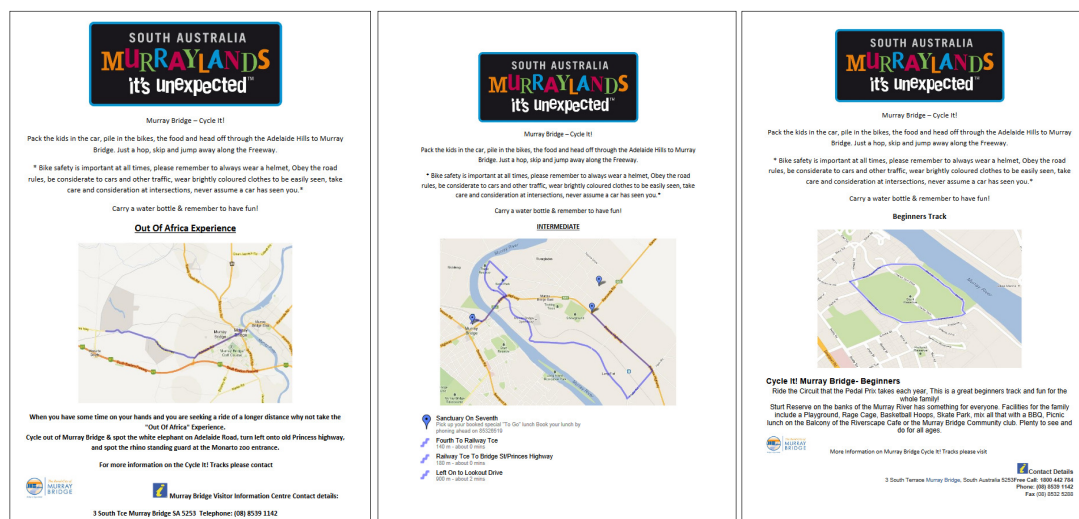


Figure 19: Cycle III! trail brochures



Figure 20: Riverglades Community Wetlands brochure

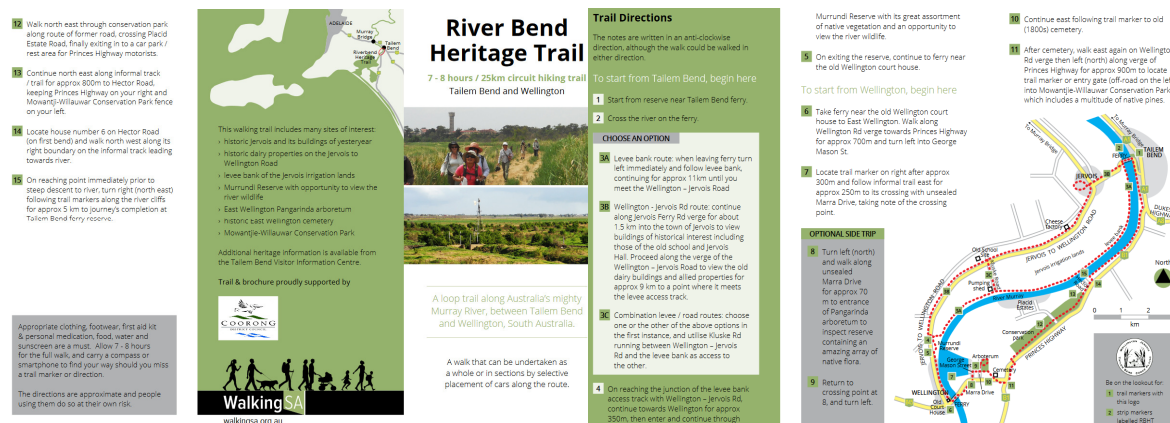


Figure 21: River Bend Heritage Trail brochure

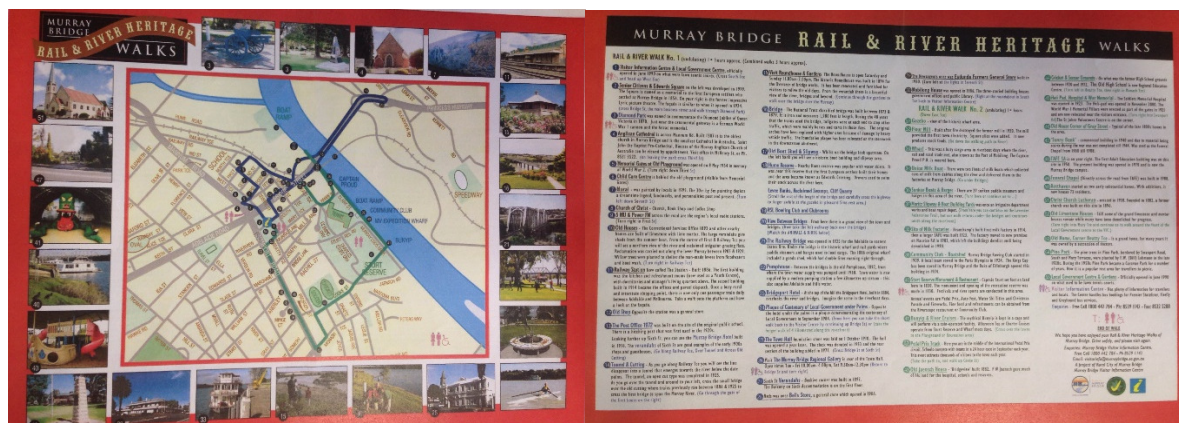




Figure 23: Lavender Federation Trail brochure



Figure 24: Swanport Wetland brochure

In addition to the trail brochures outlined above, there are also brochures available for drive trails in the RCMB region. These are the *Discover Murray Trail* and *River Boat Trail* which both begin across state borders upstream, and the *Murray Bridge Tourist Drive* which guides people to sites around the city.

Appendix 7: Online Community Survey Findings

Trail Usage

- The top three trail activities were;
 - Bushwalking/Walking (77)
 - Nature appreciation/photography (34)
 - Mountain biking (27)
- The top 5 reasons people use trails
 1. Fitness/Health (83)
 2. Enjoyment from being outdoors (81)
 3. Landscape/ Scenery (57)
 4. Nature appreciation/ Photography (45)
 5. Social interaction (34)
- 70% of respondents used a trail within the Murray Bridge Region in the last 12 months
 - 16% more than weekly
 - 15% weekly
 - 11% fortnightly
 - 10% monthly

There were however a significant number of people with limited participation with 16% using the trails less than monthly and 29% who had not used a trail over the last 12 months.

- The most popular amount of time to spend out on a trail
 1. 1-2 hours
 2. 30-60 minutes
 3. 2-3 hours

Facilities and Needs

In response to the question 'In general, would you say the existing trails in the Murray Bridge Region are suitable for current demand?' over half (53%) responded No.

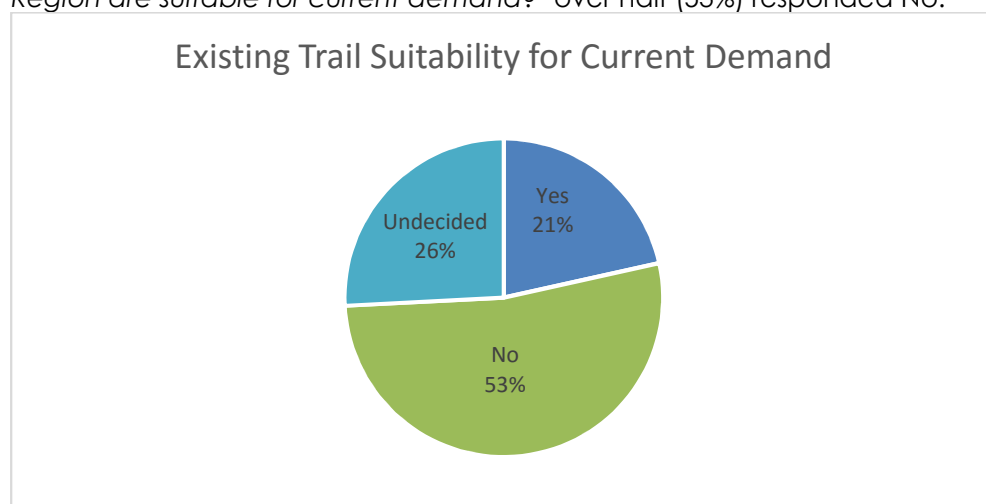


Figure 25: Existing trail suitability for current demand

In response to the question 'Overall how would you rate the trail experience in the Murray Bridge Region?' the majority stated it was average or good.

Table 43: Overall trail experience rating

Very Good	Good	Average	Poor	Very Poor
7	33	35	15	1

The trails that respondents used the most in the Murray Bridge Region over the last 12 months are illustrated in the table below in ascending order. The top 3 trails utilised were:

- Lavender Federation Trail
- Beginners Track
- Rocky Gully Wetlands Walks

The condition of each of the trails was judged by the respondent numbers in the table below as either Very Good, Good, Average, Poor or Very Poor. The colour in the table highlights where the largest number of respondents are grouped, for example The Lavender Federation Trail is rated as Good, whereas Swanport Wetland – Main Track is rated at Average.

Table 44: Trail condition ratings

No.	Trail	Very Good	Good	Average	Poor	Very Poor
1	The Lavender Federation Trail	7	23	17	4	0
2	Beginners Track ("Sturt Reserve Loop")	10	25	10	3	0
3	Rocky Gully Wetlands Walks	13	17	14	3	3
4	Wharf to Rocky Gully	4	13	10	6	2
5	Riverglades Community Wetlands - Circuit Walking Track	5	17	11	2	1
6	Swanport Wetland - Main Track	3	7	15	4	1
=7	Murray Park	4	11	8	2	0
=7	Rail and River Heritage Walk 1	2	10	7	2	0
8	Adelaide Road Vegetation Loop & Linear Corridor	3	8	12	4	0
9	Murray Bridge Tourist Drive	1	10	9	1	0
10	Rail and River Heritage Walk 2	0	8	6	3	0
11	Tumbella Drive Reserve to Wharf	0	3	8	2	2
12	The Kidman Trail	1	8	3	2	0
13	Casuarina Walk	0	4	6	3	1
14	Out of Africa Experience	1	6	1	2	0
15	River Bend Heritage Trail (Murray Coorong Trail)	0	1	2	3	0
16	Rural Avenue Wetlands Walk	1	4	2	3	0
17	Murray Bridge Canoe Trail	0	2	3	1	0
18	River Boat Drive Trail	1	1	1	2	0
19	Discover Murray River/War Drive Trail (Canberra to Coorong)	0	2	2	0	1

In September 2016, Kinchina Conservation Park was proclaimed by the SA Government. Respondents were asked to 'Please indicate where you have used the following trails'. Only a small number of respondents had used these trails as the official opening recently occurred on the 6th of November 2016. Those who had visited the conservation park rated the trails as per the table below.

Table 45: Kinchina Conservation Park trail condition ratings

Kinchina CP Trail Name	Very Good	Good	Average	Poor	Very Poor
Jailbreak Trail	2	4	1	0	0
Jailhouse Rocks Loop	1	0	3	0	0
Rocky Gully Link	0	4	1	0	0
Cemetery Trail	0	0	2	0	0
Getaway Car Loop	0	0	1	0	0

Respondents were asked to select their favourite trail in the Murray Bridge Region and note the reason for this. The Lavender Federation Trail was selected by almost half of the respondents as their favourite trail, followed by two wetlands trails, and the Wharf to Rocky Gully trail which has a similar alignment to the initial part of The Lavender Federation Trail.

Table 46: Favourite trails

No.	Favourite Trail	Reason
1	The Lavender Federation Trail	Beauty (river/wetland/mallee), peaceful, variety/diversity, convenient, good signage & maintenance, connection/linkages
2	Riverglades Community Wetlands - Circuit Walking Track	Beautiful scenery, plentiful birdlife/wildlife, river, well maintained
3	Rocky Gully Wetlands Walks (Sanders Walk, Mobilong Swamp Trail & Adelaide Pump Station Trail)	Scenery, pretty, accessible
4	Wharf to Rocky Gully	River, relaxing, scenery, diversity, easy access
5	Beginners Track ("Sturt Reserve Loop")	Easy, flat, pram friendly, location, convenience

Future Ideas

Respondents were asked 'Do you have any ideas of where new extended trails should be developed in the Murray Bridge Region?'. The key ideas included

River

- Levi banks
- Along the river
- Link - Swanport Bridge, Long Island Reserve and Sturt Reserve
- Alongside the river to Mypo and Wellington without walking/riding on busy roads
- Mannum to Murray Bridge. Mypo to Murray Bridge

Wetlands

- Around wetlands
- Link the wetlands

Disused Railway Line

- Monarto Railway to Millindella

Murray Bridge Township

- Around the town fringe
- Township walk
- Alternative Parkrun 5 km trail

Wellington

- Linking East Wellington with Wellington to viewing area of Lake Alexandrina
- A walking trail from Wellington to Jervois

Callington

- Trail along Bremer river in Callington
- In the forestry at the top of Callington Hill

Monarto

- Link Monarto woodlands with trails through to Murray Bridge in/around Old Princes Hwy
- The northern side of Rocky Gully to make a loop of the LF trail in there. The trail in front of Monarto Zoo needs to be made mountain bike friendly
- Trails in the rest of the Monarto Plantings, and Frahn's Farm, bush trails join up to the in-town trails

Mypolonga

- Walk to Mypolonga

Horse

- A horse riding trail along the river, with yards, loop ride
- An equivalent Quilty Cup (endurance horse race) going up one side of the river, crossing over at the Mannum punt and coming home through Rockliegh using existing trails, private property and differing terrain to add to the mix.
- Horse and carriage around Monarto Zoo
- Link new racecourse with trails

Heritage/ History

- A Ngarrindjeri Ngurunderi walk along the river pointing out key features of the Ngurunderi dreaming story
- Historical trails in Murray Bridge, Mypolonga and all minor townships where we put in laminated pictures of the location from pre 1900's. This could focus around the main township areas and also extend to other key locations around the region such as Wellington, Jervois, Woods Point, you can have short ones and longer ones and include a GPS based trail app for downloading to smart phones. Should also do a playground trail, river trail for boaties and walkers. Talk to Pomberuk and look at a Native foods trail in the parks.

Mountain bike/Cycling

- Cycling trails at least 10km to 15km long around the Murraylands
- Murray Bridge Hills/Kinchina Conservation Park
- Mountain bike trails in the Murray Bridge Hills
- Develop the levee banks for cycling from Mannum to Tailem Bend
- Make a bike trail from Sturts Reserve to Toora along River Bank and return to Sturts via Toora Rd, Swamp Rd, Hume Reserve Rd back to Sturts Reserve

Existing trails

- To better connect existing + Murray Coorong Trail
- Improve existing trails and build from there
- Anywhere in conjunction with the current trails

Other Comments

- Southside area
- In concert with creation of wildlife and vegetation corridors
- Avoca Dell
- Connect Lavender Federation Trail to Mt Lofy
- no - something into the hills/palmer area or the lakes and Ferries-McDonald CP or possibly links to other neighbouring towns like Mypolonga, Jervois etc.

Respondents were asked an open-ended question 'What do you believe is the highest priority for trails improvement in the Murray Bridge Region?'. The word cloud below is used to highlight some of the key findings. A word cloud analyses the frequency of a specific word or category within a text field, which then builds an image of the words depending on how often they appear.

The key priorities related to

1. **Signage**, better/clearer/more signage, mapping and online information
2. **Walking**, safe walking, good condition, more walking trails, amenities
3. **River**, river frontage, river connection, river bank trails, river trail
4. **Parking**, appropriate/adequate/safe parking for all types of vehicles
5. **Publicity**, better publicity, in the public arena
6. **Safe**, provide a safe trail environment



Figure 26: Word cloud – highest priority for trails improvement

The trail experiences that people are looking to see offered in the region in the future are;

- Trails to make the most of the natural assets
 - River trails
 - Wetlands
 - Flora (bush)
 - Fauna (birdlife, wildlife)
- Canoe trails
- Shared bike/walking trails
- Mountain bike trails (including pump track)
- Horse trails (with facilities such as overnight camping facilities)
- Running trails
- History trail (European and Ngarrindjeri)
- Art trail
- Rail trail
- Treasure trail
- Dog walking trail
- Long distance trail

- Bike trail separate from roadways
- "Lookout" over the river on the Wellington to Jervois track
- Guided tours
- Promotion (Facebook, Council website, iPhone compatible)
- Information (interpretative signage, directional)

Other constructive comments relating to the trails in the Murray Bridge Region included:

- *"It has been good to see an expansion of trails but some are hard to find and there could be better linkages between trails from "hub" trail heads".*
- *"Ensure trails have decent break spots where a family could fish, or have a picnic before continuing. Cultural area of significance, nature appreciation or an app linked to educational info. EG: Eagles frequent this area, they are endangered.....or at a wetland, sounds of the frog calls. Benefits of being outdoors, wellbeing physical but also mental and respect for the environment"*
- *"Just that we need to fix the signage and get the promotion right especially for the tourist market. Use of Ngarrindjeri words and terminology would be marvelous as it is our history and unique to us"*
- *"If we get a decent trail network starting from the river, that is linked, safe, has facilities and goes somewhere, we will draw a lot more tourism to Murray Bridge. We could have bike rentals available from the river, better coffee and cafes down there, hordes of people come up from the hills and Adelaide to hang out at Sturt reserve and enjoy our wonderful asset that is the river".*
- *"We need better brochures about all the region has to offer. We have a plethora of sites to see and yet people don't know of them. Please do more brochures and update what we have got".*
- *"Trails need to be clearly mapped out with maps available freely - not having to fork out a fortune to purchase maps - i.e. Heyzen and Kidman trail maps! Routes need to be clearly marked so path cannot be lost".*
- *"I support the implementation of new trails and also support existing trails. They are good for the region and its populace".*
- *"Utilise the natural assets the region has. Murray Bridge has ignored them for too long".*
- *"If we want people to be out on the trails we need to have them linked so they can access them from all over town".*
- *"It's a nice part of the world to see on foot".*
- *Needs to be more awareness of what's available - feature a walk or trail on the RCMB Facebook page weekly perhaps with a 'did you know...' part that explains where it begins or ends and what you can see along it".*

Appendix 8: Project Benchmarks

Five Mile mountain bike trail

Five Mile mountain bike trail provides 7km of purpose built mountain bike trails within the Murray Valley National Park, NSW. The trails provide a unique mix of fast and rolling terrain with features such as wall rides, drops and flowing bridges. There is also a skills area, a pump track and a well-stocked inventory of berms, jumps and rollers.

The Five Mile mountain bike area has been highlighted due to its similarities to the Kinchina Conservation Park.

Table 47: Benchmark comparison

	Murray Bridge	Echuca & Moama
Population 2011	19,742	12,980 + 5,559 = 18,539
Relative socio-economic advantage (SEIFA)	900.6	964.1
Location	Murray River Region	Riverina Region, NSW
National Park	Kinchina Conservation Park	Murray Valley National Park
Activity	Mountain biking/Walking	Mountain biking
Mountain Bike Features	Rocky Gull Link 0.6 Cemetery Trail 1.7km Getaway Car Loop 1.9km Jailhouse Rocks Loop 1.8km Jailbreak Trail 4.2km	7km trail Skills area pump track

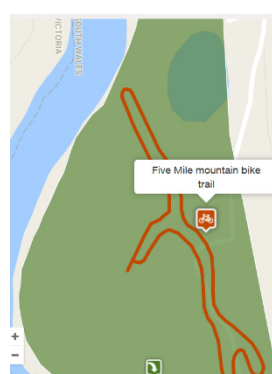
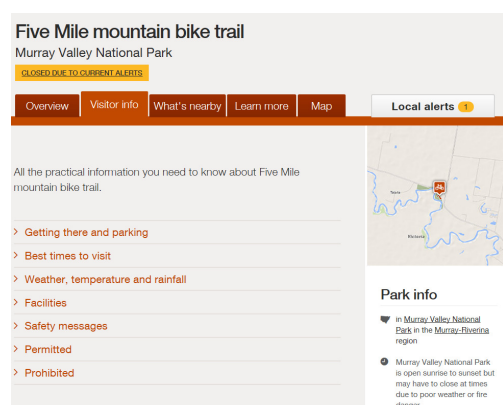


Figure 27: Five Mile mountain bike trail details

Winton Wetlands

The Winton Wetlands are in Winton North, approximately two hours north east of Melbourne. Visitors to Winton Wetlands can enjoy a wide variety of activities including bushwalking, cycling, canoeing, birdwatching, picnicking, boating and many others. It is home to a number of historical sites within the wetlands where visitors are encouraged to learn about their significance to the region.

<http://www.wintonwetlands.org.au/index>

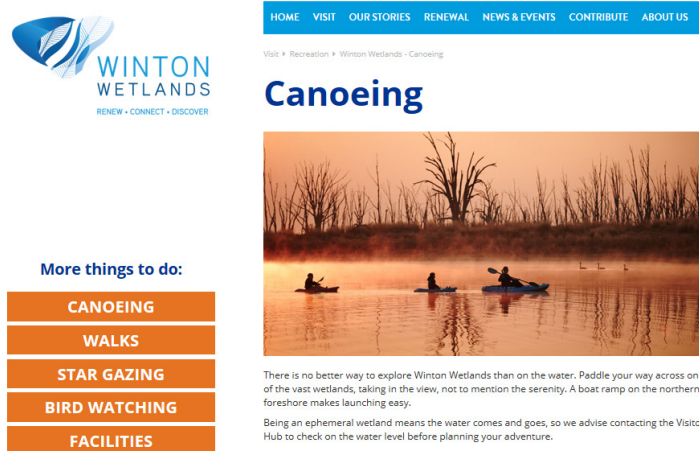


Figure 28: Winton Wetlands details

Massive Murray Paddle

The Massive Murray Paddle is a 404 km, 5-day canoe/kayak flatwater race on the Murray River, bordering Victoria and New South Wales. One of the longest annual flatwater canoe races in the world, it starts in Yarrawonga on and heads downstream through Tocumwal, Picnic Point, Echuca, Torrumberry and Murrabit before finishing in Swan Hill five days later. The Massive Murray Paddle is a 5 day paddling adventure that raises funds to assist local community-driven programs.



Figure 29: Massive Murray Paddle details

Waikerie Bird Watcher's Trail

The Waikerie Bird Watcher's Trail is intended to provide a self-guiding tour of the best birding sites accessible in a packed half day or a more leisurely one or two-day experience. A PDF map is available to download that includes 13 key destinations for birdwatching, along with the Waikerie Wetlands Scenic Drive (blue) and the Waikerie Nor West Scenic Drive (red).

<http://www.waikerie.com/waikerie-bird-watching-trail-riverland>

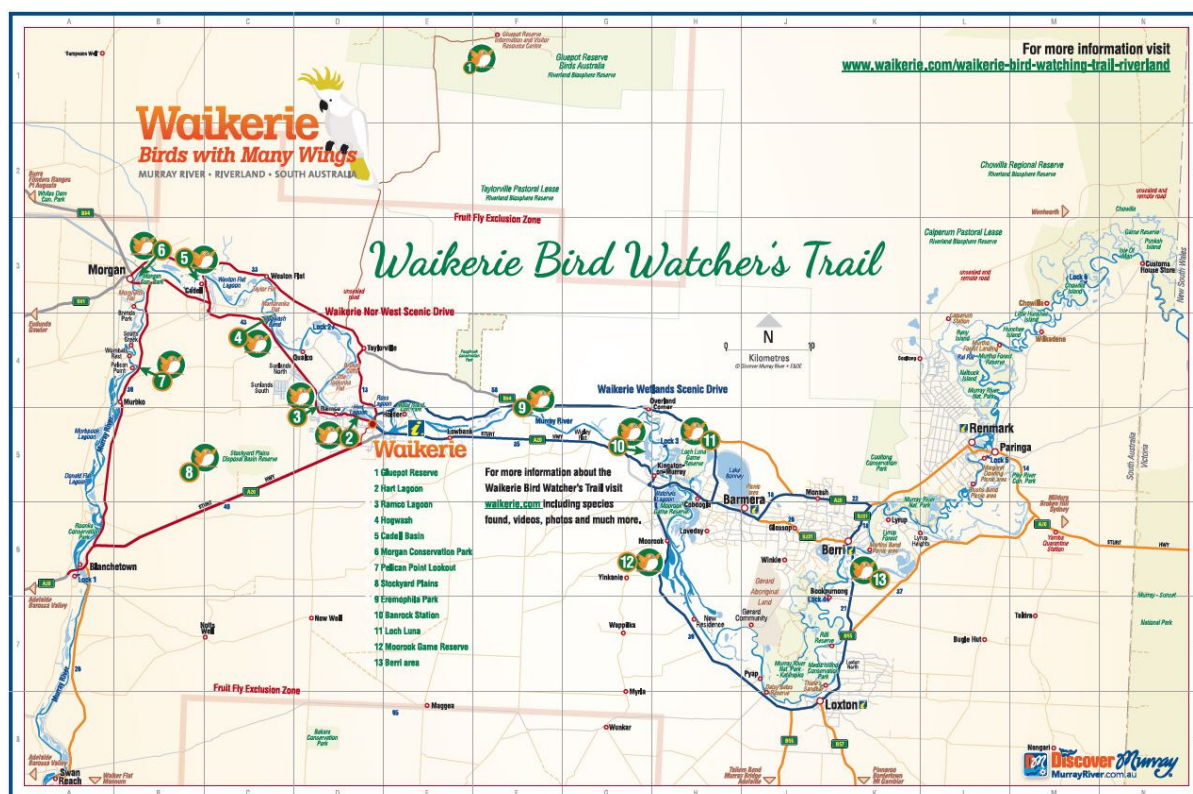


Figure 30: Waikerie Bird Watcher's Trail details

The Mudlangga to Yertabulti Track involves 16 signs and 8 special nodes around Port Adelaide and the Lefevre Peninsula. The City of Port Adelaide Enfield council offices and the Port Adelaide Visitor Information Centre provide copies of a brochure and it is also available online
<http://www.portenf.sa.gov.au/page.aspx?u=2185>



Figure 31: Mudlangga to Yertabulti Track details



Figure 32: Mudlangga to Yertabulti Track Signage

The SA Museum with the active support of Ngarrindjeri communities created an exhibition about Ngurunderi's people, the Ngarrindjeri of the Lower Murray River, Lakes and Coorong. This exhibition describes the culture of the Ngarrindjeri people of the Lower Murray River and Coorong areas of South Australia. There may be an opportunity to use this information to create 'An Aboriginal Dreaming' trail for the region, not dissimilar to the Mudlangga to Yertabulti Track.

<http://www.samuseum.sa.gov.au/gallery/ngurunderi/>

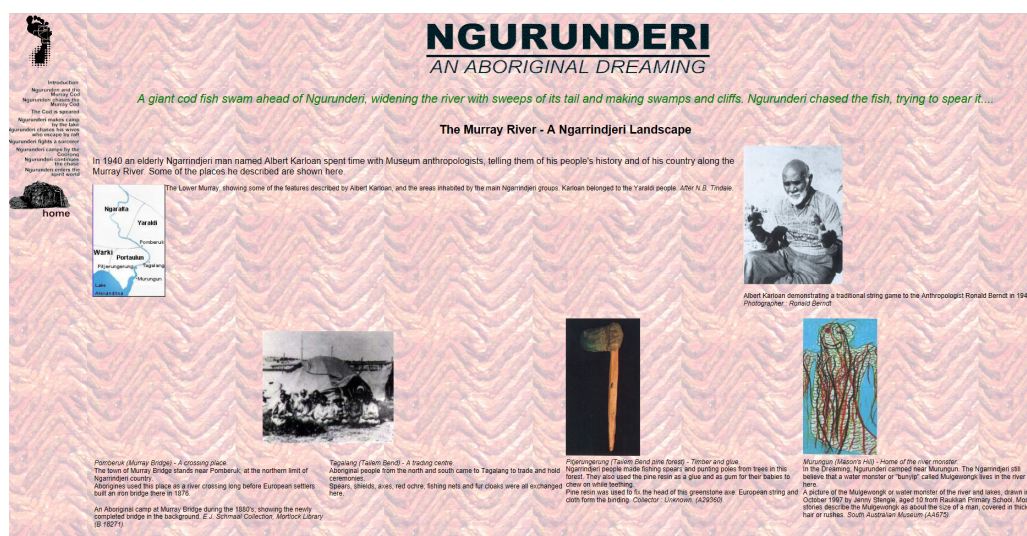


Figure 33: Ngurunderi exhibition

Bushwalking in the Ikara-Flinders Ranges National Park

The Ikara-Flinders Ranges National Park offers people the opportunity to select a trail that suits their fitness level, experience and requirements. They vary from a short walk of 500m expected to take 30 minutes return, to intermediate walks of 8km with a 4 hour return time, through to 23km hike expected to take 9 hours return.

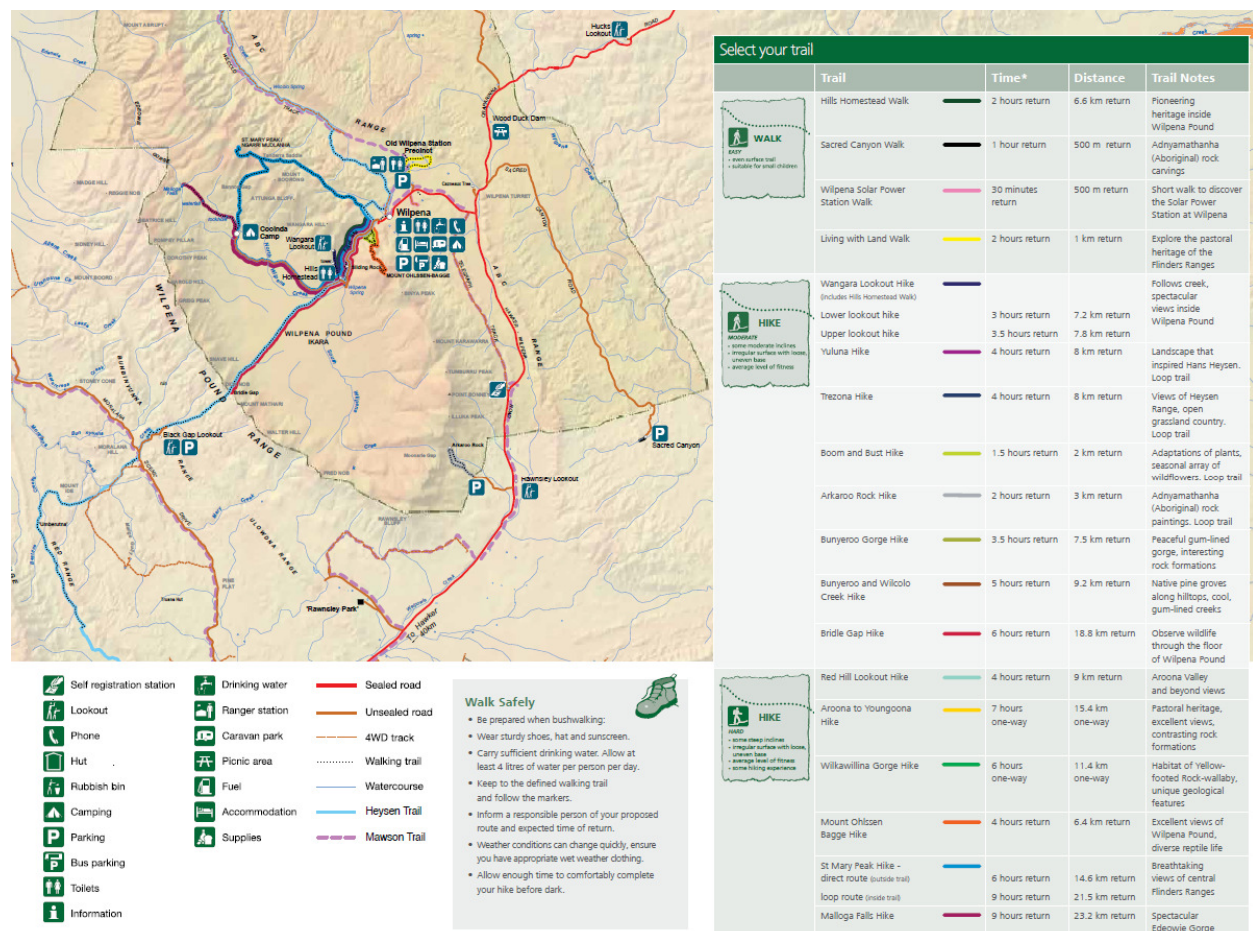
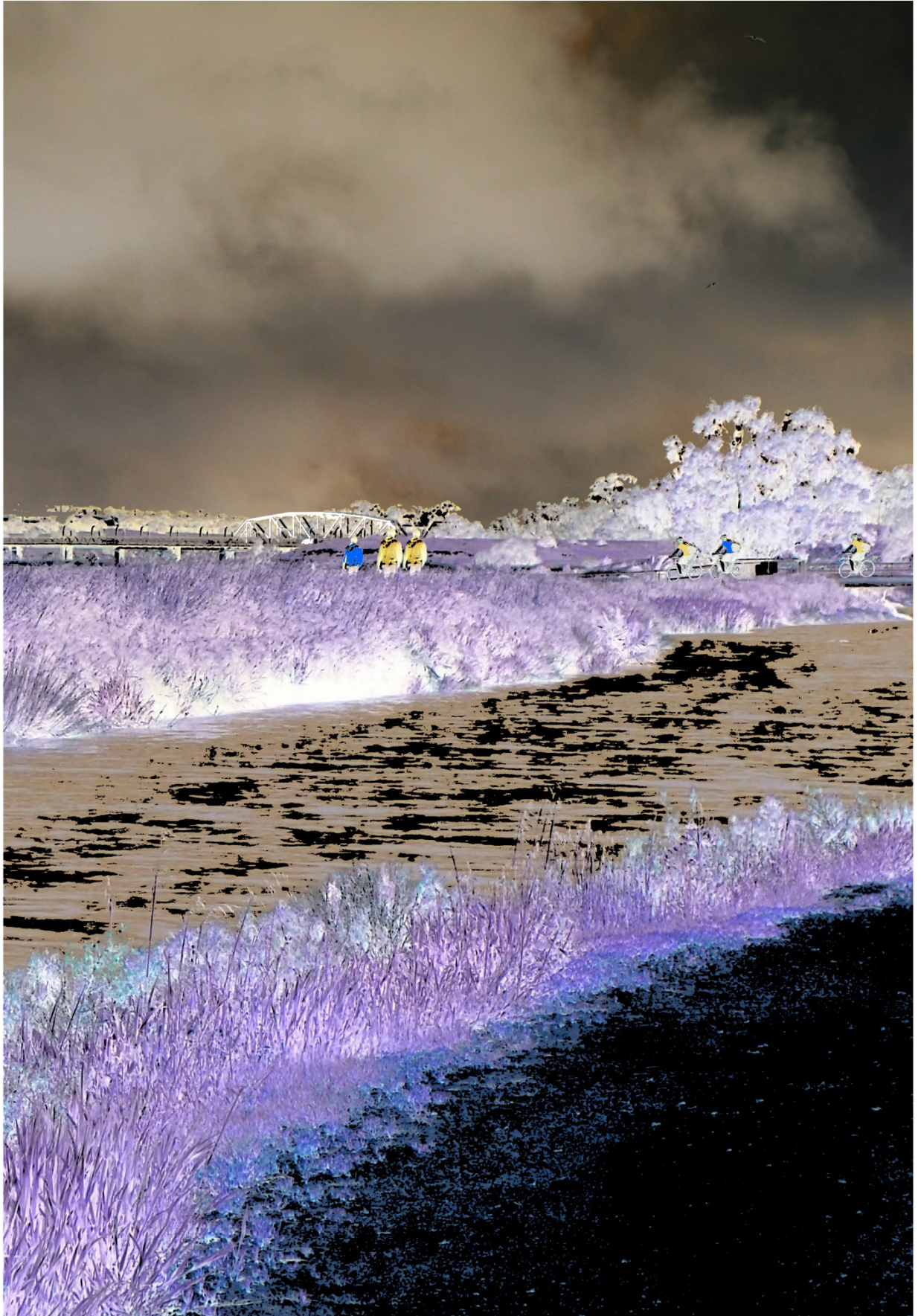


Figure 34: Ikara-Flinders Ranges National Park trail map and details



APPENDIX 9

TRAIL MANAGEMENT PLAN

THE RURAL CITY OF MURRAY BRIDGE



The Rural City of
MURRAY
BRIDGE

Bridge to Opportunity

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Introduction

This Trail Management Plan is complementary to the *Rural City of Murray Bridge (RCMB) Trail Strategy* (2017). The *Trail Strategy* provides a framework for the future strategic direction of trails across the council area, based on community consultation and a trails audit and analysis.

This Trail Management Plan has been prepared as a working document, requiring involvement from RCMB staff and other relevant stakeholders in line with all relevant Council policies. As new recreational trails are constructed, and as informal trails are formalised, the Trail Management Plan will require update to include all prescribed trails on RCMB land. The *South Australian Recreational Trails Master Plan*¹ recommends that Trail Management Plans are reviewed annually and updated every three years.

The Trail Management Plan includes the following sections:

1. Trail Strategy Vision
2. Marketing and Promotion
3. Asset Management and Maintenance
4. Risk Management

1. RCMB Trail Strategy

1.1 Trail Strategy Vision

As outlined in the *RCMB Trail Strategy*, the vision for the region's trail network is as follows:

“The trails network will provide healthy, active and nature-based recreational opportunities for the local community and offer visitors to the region enhanced trail experiences through capitalising on the region’s distinctive river, land, Indigenous and European cultural heritage”

The following trail planning principles have been developed and have broadly guided the Strategy and Action Plan within the *RCMB Trail Strategy*:

- Ensure socially, economically and environmentally sustainable trail development and management;
- Provide trails which are readily accessible and provide links between communities and landscapes;
- Provide a diverse range of trail opportunities relevant to the needs and demands of the community;
- Maximise use of existing trails where they are appropriately located and have the capacity to sustain additional use;
- Manage trails professionally, effectively and equitably;
- Provide safe trails through adherence to relevant legislative and activity safety requirements;
- Encourage community involvement in the planning and design of trails.
- Trails that have identified Aboriginal heritage values should involve local Indigenous People in their planning, design and interpretation;
- Support, promote and advocate for trail users in relation to relevant issues within the region; and
- Partnerships with the private sector, the community, local businesses, tourism providers and other tiers of government to provide trails and associated facilities will be pursued where possible.

The following tables outline the trail experiences which could be developed by implementing the detailed actions outlined in the *RCMB Trail Strategy*. Each potential trail is colour coded according to its identified trail status, as outlined below.



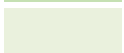
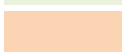
Colour	Status
	Existing prescribed routes
	Existing social/informal trails
	Trail concept - underway
	Trail concept

Table 1: Potential trail opportunities: primary trailhead

Potential Trail Opportunities									
Trailhead Hierarchy	Trailhead	Trail Name/Identifier	Status	Primary Use	Classification	Approx. Distance	Approx. time		
							Walk (4-5km/hr)	Cycle (15 -20km/hr)	Canoe (5 6km/hr)
Primary Trailhead	Sturt Reserve	Lavender Federation Trail (Murray Bridge – Webb Gap)	Prescribed	Walk	Grade 2 / Grade 3	245km one way	10 – 15 days	-	-
		Sturt Reserve to Rocky Gully Wetland	Prescribed	Walk/Cycle	Grade 2	6km return	1 h 30 m	20 mins	-
		Sturt Reserve to Monarto Zoo	Prescribed	Walk	Grade 2 / Grade 3	15km one way	3 h 30 m	-	-
		Murray Bridge Discovery Trails (Heritage Trails)	Prescribed	Walk	-	-	-	-	-
		Sturt Reserve to Hume Reserve	Social/informal	Walk/Cycle	Grade 2	2km return	30 mins	6 mins	-
		Sturt Reserve to Long Island Reserve	Social/informal	Walk/Cycle	Grade 1 / Grade 2	4km return	1 hour	12 mins	-
		Sturt Reserve to Tumbella Drive Reserve (via Long Island Reserve)	Social/informal	Walk/Cycle	Grade 1	5km return	1 hour	15 mins	-
		Sturt Reserve to Casuarina Walk	Social/informal	Walk/Cycle	Grade 2	7km return	1 h 30 m	25 mins	-
		Murray Bridge Canoe Trail (Beginners Trail & Intermediate Trail)	Social/informal	Canoe/Kayak	Easy (Grade 1)	8km return	-	-	1 h 30 m
		Murray Bridge Canoe Trail Network (Toora Reserve to Swanport Reserve)	Social/informal	Canoe/Kayak	Easy (Grade 1)	20km return	-	-	4 hours
		Murray Coorong Trail (Priority stage: Sturt Reserve to Toora Reserve)	Design stage	Walk/Cycle	Grade 2	9km one way	2 hours	30 mins	-
		Murray Coorong Trail (Cadell to Salt Creek))	Feasibility complete	Walk/Cycle	Grade 2 / Grade 3	450km one way	20+ days	5+ days	-
		Murray Coorong Canoe/Kayak Trail (Cadell – Goolwa – Salt Creek)	Concept	Canoe/Kayak	Easy/Medium	450km one way		-	15+ days
		Sturt Reserve Shared-use Recreation Loop	Concept	Walk/Cycle	Grade 1	1.5km loop	20 mins	5 mins	-
		Sturt Reserve to Kinchina CP Loop Trail (via Rocky Gully & Adelaide Rd)	Concept	Walk/Cycle	Grade 2	16km loop	2 h 30 m	1 hour	-
		Sturt Reserve to Thiele Reserve	Concept	Walk	Grade 2 / Grade 3	5km return	1 hour	-	-
		Sturt Reserve to Avoca Dell Reserve	Concept	Walk	Grade 2 / Grade 3	12km return	1 h 30 m	-	-
		Sturt Reserve to Swanport Wetlands	Concept	Walk/Cycle	Grade 2 / Grade 3	12km return	2 h 30 m.	45 mins	-

Table 2: Potential trail experiences: secondary, local trailheads & individual reserves

Trailhead Hierarchy	Trailhead	Trail Name/Identifier	Status	Primary Use	Classification	Approx. Distance	Approx. time	
							Walk (4-5km/h)	Cycle (15-20km/hr)
Secondary Trailheads	Rocky Gully Wetlands	Sanders Walk	Prescribed	Walk	Grade 2	2km loop	30 mins	-
		Mobilong Swamp Trail	Prescribed	Walk/Cycle	Grade 2	4.5km loop	1 hour	15 mins
		Rocky Gully Wetlands to Casuarina Walk (via Sturt Reserve)	Social/informal	Walk/Cycle	Grade 2	13km return	3 hours	45 mins
	Swanport Wetland	Swanport Wetlands Trail	Prescribed	Walk	Grade 3	1km loop	15 mins	-
		Swanport Wetlands to Monteith	Concept	Walk/Cycle	Grade 3	7km return	1h 30 m	25 mins
		Swanport Wetlands to Thiele Reserve	Concept	Walk/Cycle	Grade 3	15km return	3 h 30 m	1 hour
		Swanport Wetlands to Avoca Dell Reserve	Concept	Walk/Cycle	Grade 3	22km return	5 hours	1 h 15 m
	Adelaide Road	Trailhead for Kinchina CP Trail Network. Refer to Maurice Road Trailhead.						
	Maurice Road	Rocky Gully Link	Prescribed	Walk/MTB	Approximately 10km of shared use trails (Walk/Mountain bike/Horse)			
		Cemetery Trail	Prescribed	Walk/MTB				
		Getaway Car Loop	Prescribed	Walk/MTB				
		Jailhouse Rocks Loop	Prescribed	Walk/MTB				
		Jailbreak Trail	Prescribed	Walk/MTB				
Local Trailheads	Avoca Dell Reserve	Riverglades Wetland Circuit	Prescribed	Walk	Grade 2	4km loop	1 hour	-
		Avoca Dell Reserve to Thiele Reserve	Concept	Walk	Grade 3	7km return	1h 30 m	-
Individual reserves		Murray Park Trail	Prescribed	Walk	Grade 2	1km loop	15 mins	-
		Casuarina Walk	Prescribed	Walk	Grade 2	1.5km loop	20 mins	-
		Murrundi Reserve	Prescribed	Walk	Grade 2	1.5km return	20 mins	-
		Callington Hill Grassland	Social/informal	Walk	Grade 2	500m return	10 mins	-
		Rural Avenue Reserve	Social/informal	Walk	Grade 2	550m loop	10 mins	-
		Callington Riverside Walk	Social/informal	Walk	Unknown	Unknown	Unknown	-



Table 3: Potential trail experiences: concepts

	Trail Name/Identifier	Status	Primary Use	Classification	Approx. Distance	Approx. Time		
						Walk (4-5km/h)	Cycle (15-20km/hr)	Horse (~30km/day)
Bridle Trail Concepts	Loop trail off the Kidman Trail (Rockleigh, Monarto, Callington)	Concept	Horse	Undetermined	90km loop	-	-	3 days
	Gifford Hill, Murray Bridge, Monarto Loop	Concept	Horse	Undetermined	90km loop	-	-	3 days
	Gifford Hill Equestrian Precinct Link	Concept	Horse	Undetermined	2km	-	-	-
Theme Trails	Wetland Trail	Concept	Drive/Walk	-	-	-	-	-
	Rare/Endangered Habitats Trail	Concept	Drive/Walk	-	-	-	-	-
	Birdwatching Trail	Concept	Drive/Walk	-	-	-	-	-
	Indigenous Heritage/Native Food Trail	Concept	Drive/Walk	-	-	-	-	-
	Flora/Fauna Trail	Concept	Drive/Walk	-	-	-	-	-
	Heritage/Discovery Trails	Concept	Drive/Walk	-	-	-	-	-
	Arts/Sculpture Trail	Concept	Drive/Walk	-	-	-	-	-
Future Strategic Regional Link Trails	Murray Coorong – Heysen Trail East-West Link Trails	Concept	Walk/Cycle/Horse	Undetermined	100km	4+ Days	5 hours	3+ Days
	Lavender Federation Trail – Rail Corridor – Murray Coorong Link Trail	Concept	Walk/Cycle/Horse	Undetermined	90km	4+ Days	4 h 30 m	3 Days
On-Road Cycle Loops	Out of Africa	Prescribed	Cycle	-	14km	-	45 mins	-
	Beginner's Loop	Prescribed	Cycle	-	2km	-	6 mins	-
	Intermediate	Prescribed	Cycle	-	11km	-	45 mins	-
	On-Road Cycle Loop 1 (East via Jervois, Tailem Bend and Burdett)	Social/informal	Cycle	-	75km loop	-	3 h 45 m	-
	On-Road Cycle Loop 2 (East via Karoonda Hwy, Boundary Rd & Orland Rd)	Social/informal	Cycle	-	45km loop	-	2 h 15 m	-
	On-Road Cycle Loop 3 (South via Flagstaff Rd & Brinkley Rd)	Social/informal	Cycle	-	50km loop	-	2 h 30 m	-
	On-Road Cycle Loop 4 (South via Flagstaff Rd & Ferries-McDonald Rd)	Social/informal	Cycle	-	70km loop	-	3 h 30 m	-
	On-Road Cycle Loop 5 (North via Mypolonga)	Social/informal	Cycle	-	35km loop	-	1 h 45 m	-

1.2 Prescribed trails on RCMB land

There are currently nine prescribed trails located (entirely or partly) on RCMB land. These trails have been audited as part of the development of the *RCMB Trail Strategy*. Each of these nine trails are walking trails and have been classified according to AS 2156.1-2001 *Walking Tracks – Classification and Signage*, as outlined below.







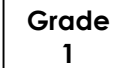
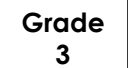
Table 4: RCMB prescribed trails - walking track classifications

Trail	Walking track classification
The Lavender Federation Trail Casuarina Walk Murray Park Sanders Walk Mobilong Swamp Trail Adelaide Pump Station Trail Murrundi Reserve (Wellington) Avoca Dell, Vanderzon & Emu Road Reserves (part of Riverglades Community Wetland)	Class 2 
Swanport Wetlands	Class 3 

1.3 Trail difficulty classifications

There is no uniform method of classifying trails for different user groups. Walking, mountain bike riding and horse riding trails are each classified in accordance with different classification systems. An overview of these systems is displayed below, with further details available in the appendix of the *RCMB Trail Strategy*.

Table 5: Trail classification systems

Trail usage	Classification System Used	Easiest classification	Most difficult classification
Walking	Australian Standards (AS2156.1-2001): Walking tracks. Classification and signage.	Class 1 	Class 5  [Class 6: informal trail]
Mountain Bike Riding	International Mountain Bicycling Association (IMBA): Trail Classification	Very Easy 	Extreme 
Horse Riding	Horse SA: Trail Difficulty Rating System – Horse	Easiest 	Advanced 
Canoeing/Kayaking	International River Grading System	Easy 	Difficult 

2. Marketing and Promotion

2.1 Trail marketing and promotion principles

Table 6: Trail marketing and promotion principles

Principle	Description
Adaptable	Recreational trails within the RCMB will change over the coming years. It is therefore necessary for marketing and promotional material to be able to adapt to allow for new prescribed trails. For example, trailhead signage can be designed to allow for information updates at a minimal cost, brochures can be printed in conservative quantities and websites designed with regular updates in mind.
Professional & reliable	Promotional material is often the primary point of contact with trail users so it needs to be professional and reliable to promote interest in trails. With well-designed and up-to-date information, potential users can become motivated to use the trail; confident that they will find the trailhead/correct route and inspired to appreciate the unique features of the trail/s. It is important that roles and responsibilities regarding updates of trail information sources are clearly distinguished and adopted by the relevant stakeholders.
Consistent & complementary	Consistent and complementary trail marketing will fit with other marketing initiatives, regardless of factors such as various land managers. For most potential trail users, changes in land tenure/management is not influential to their trail experience. The community is not likely to be aware of land management boundaries and so will not likely visit different information sources for trails in the region. For example, information on trails within Kinchina Conservation Park (DEWNR land) should be available alongside information for trails at Rocky Gully Wetlands (council land) and the Lavender Federation Trail (various land managers). Potential trail users will benefit from accessing information on the complete trail network, rather than isolated sections based on the land management boundaries.
Widely distributed	It is important that trail information is available for a range of sources to cater for a diverse range of trail users. For example, some trail users may see trail marketing via social media, others may attend the Visitor Information Centre for ideas of things to do, and some people will find out about trails through on-ground signage and infrastructure.

2.2 RCMB features/key attractions

Trail Strategy Vision:

“The trails network will provide healthy, active and nature-based recreational opportunities for the local community and offer visitors to the region enhanced trail experiences through capitalising on the region’s distinctive river, land, Indigenous and European cultural heritage”

Key attractions within the RCMB include:

- The Murray River, offering great natural and recreational value
- Wetlands, some which are of national and international significance
- Distinct landscapes, such as floodplains, arid and mallee
- European cultural heritage, including railways and river transport heritage
- Indigenous cultural heritage, such as Ngarrindjeri significant sites
- Conservation Parks, such as Kinchina, Monarto, Monarto Woodlands, Ettrick and Ferries-McDonald
- Regional towns, such as Wellington, Jervois, Woods Point, Callington, Monarto and Mypolonga
- Monarto Zoo, the world’s largest open-range zoo

The RCMB trail network also has points of difference relating to its:

- proximity to Adelaide and location on the main transport route to the eastern states
- dry climate, a dry alternative to mountain biking/walking during wet winter months in other regions of South Australia, such as the Adelaide Hills.

2.3 Target market

The RCMB Trail Strategy considers the following key criteria to ensure that there are a range of opportunities available for users of all trail user target markets.

- User type (e.g. walkers, mountain bike riders, horse riders, canoe/kayak)
- Ability (e.g. beginner to experienced trail users)
- Time allowance (e.g. less than an hour to multiple day)
- Transport (e.g. chartered tours, private cars, train, RV, bike)
- Level of planning (e.g. impulsive trail users to those who have researched & planned)

In identifying the target market for marketing and promotion of trails, it is important to recognise that people use trails for various reasons. The following trail user motivators are catered for in the RCMB trail network vision:

- | | |
|---------------------------|------------------------|
| • Nature appreciation | • Adventure |
| • Wildlife/bird watching | • Socialisation |
| • Photography | • Sense of achievement |
| • Historical appreciation | • Transport |
| • Cultural appreciation | • Education |
| • Fitness training, | |

The following table outlines the potential trail user motivators, which will guide marketing directions for each trail in the RCMB Trail Strategy vision.

Table 7: Potential trail user motivators

	Trail Name	Nature appreciation	Wildlife/bird watching	Photography	Historical appreciation	Cultural appreciation	Fitness training	Adventure	Socialisation	Sense of achievement	Transport	Education
Prescribed Trails	Lavender Federation Trail (Murray Bridge – Webb Gap)											
	Sturt Reserve to Rocky Gully Wetland											
	Sturt Reserve to Monarto Zoo											
	Murray Bridge Discovery Trails (Heritage Trails)											
	Sanders Walk											
	Mobilong Swamp Trail											
	Swanport Wetlands Trail											
	Rocky Gully Link											
	Cemetery Trail											
	Getaway Car Loop											
	Jailhouse Rocks Loop											
	Jailbreak Trail											
	Riverglades Wetland Circuit											
	Murray Park Trail											
	Casuarina Walk											
	Murrundi Reserve											
	Out of Africa											
	Beginner's Loop											
	Intermediate											
Underway												
	Murray Coorong Trail (Priority stage: Sturt Reserve to Toora Reserve)											
	Murray Coorong Trail (Cadell to Salt Creek))											
Social/Informal Trails												
	Sturt Reserve to Hume Reserve											
	Sturt Reserve to Long Island Reserve											
	Sturt Reserve to Tumbella Drive Reserve (via Long Island Reserve)											
	Sturt Reserve to Casuarina Walk											
	Murray Bridge Canoe Trail (Beginners Trail & Intermediate Trail)											
	Murray Bridge Canoe Trail Network											
	Rocky Gully Wetlands to Casuarina Walk (via Sturt Reserve)											
	Callington Hill Grassland											
	Rural Avenue Reserve											
	Callington Riverside Walk											
Concept Trails												
	Murray Coorong Canoe/Kayak Trail (Cadell – Goolwa – Salt Creek)											
	Sturt Reserve Shared-use Recreation Loop											
	Sturt Reserve to Kinchina CP Loop Trail											
	Sturt Reserve to Thiele Reserve											
	Sturt Reserve to Avoca Dell Reserve											
	Sturt Reserve to Swanport Wetlands											
	Swanport Wetlands to Monteith											
	Swanport Wetlands to Thiele Reserve											
	Swanport Wetlands to Avoca Dell Reserve											
	Avoca Dell Reserve to Thiele Reserve											
	Loop trail off the Kidman Trail (Rockleigh, Monarto, Callington)											
	Gifford Hill, Murray Bridge, Monarto Loop											
	Gifford Hill Equestrian Precinct Link											
	Wetland Trail											
	Rare/Endangered Habitats Trail											
	Birdwatching Trail											
	Indigenous Heritage/Native Food Trail											
	Flora/Fauna Trail											
	Heritage/Discovery Trails											
	Arts/Sculpture Trail											

2.4 Branding

The following images reflect the current branding of trails in the RCMB region.



Figure 1: Sign at Murray Park



Figure 2: Sign at Rock Gully Wetland



Figure 3: Lavender Federation Trail sign at Sturt Reserve



Figure 4: River Boat Trail sign at Sturt Reserve



Figure 5: RCMB Information Point at Rocky Gully Wetland



Figure 6: Sign at Riverglades Community Wetlands (Privately owned)



Figure 7: Sign at Kinchina Conservation Park (DEWNR owned)



Figure 8: Murray Coorong Trail Sign

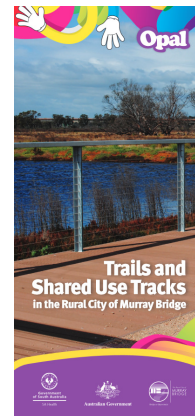


Figure 9: RCMB Obesity Prevention & Lifestyle (OPAL) brochure



Murray Bridge – Cycle It!

Figure 10: Murraylands Regional Tourist Association logo

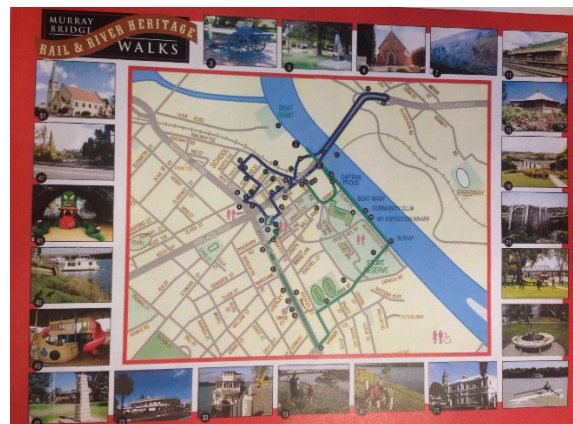


Figure 11: Rail & River Heritage Walks Brochure

2.5 Information distribution

Online content

The establishment of one central online source for all trail-related information within the RCMB will provide an avenue to promote all publicly accessible trails within the region regardless of land ownership. Other trail and tourism websites (including private sectors and community organisations) can provide links to this website and contribute online content where required. To complement the comprehensive online website, an active Facebook and linked Instagram page can promote trails through regularly posting photographs, creating public event pages and providing an online place for trail users to contribute photos and "check in". Relationships between Council and others, such as government agencies, private businesses and local community groups, can enhance the reach of social media by reciprocated sharing of each other's posts/information. An example of an active and wide-reaching Facebook page and associated website is the Victory Heights Recreational Trails page (located in Queensland), with more than 1,100 likes (<https://www.facebook.com/VictoryHeightsMtbTrails/>). Facebook posts and website updates can also be linked to videos, on sites such as YouTube, to promote the experience through videography. An example of where a YouTube video is used for trail promotion is the Resilient Trail in the Clare Valley (<https://www.youtube.com/watch?v=ZXPFF0hwPIE>).

In addition to creation of new online marketing pages, trails should be promoted through existing sites such as Council's sport and Recreation page, South Australian Recreation Trails Inc. (SARTI), Walking SA's online search tool and the website/app AllTrails.

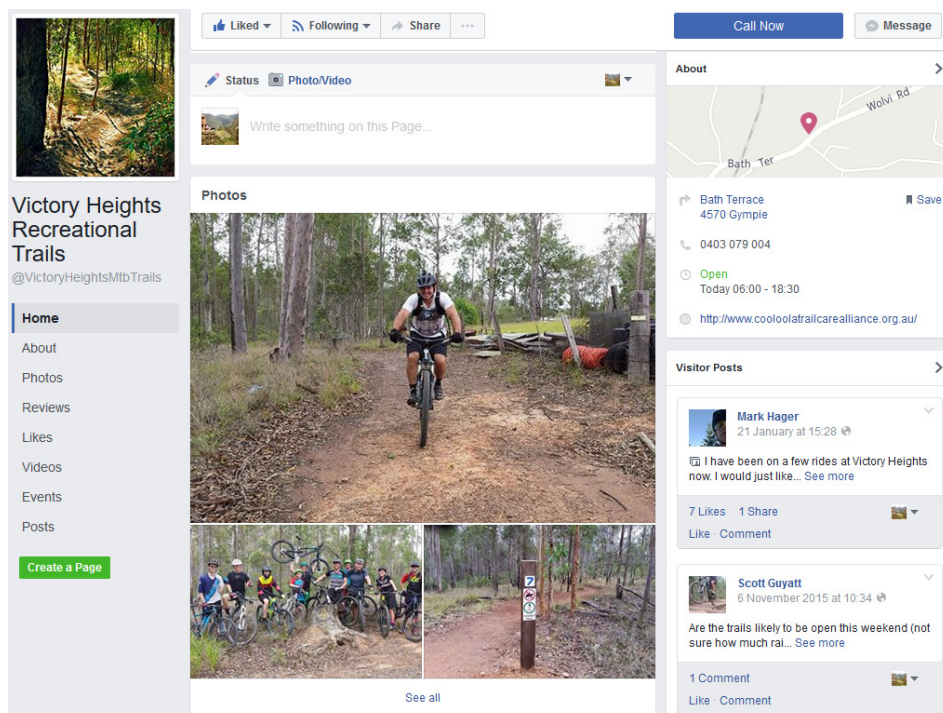


Figure 12: Facebook page: Victory Heights Recreational Trails

Brochures

A comprehensive suite of trail brochures will provide detailed information relating to the trail experiences available. Brochures should be available as printed copies at the Visitor Information Centre, community centres & retail shops and as files downloadable via computers and smartphones. Printed brochures should be professionally printed. It is important not to print too many copies of trail brochures to allow for updates/changes to the network. As trails are updated and/or constructed, new brochures using the same design should be prepared and distributed.

The layout and information presented on trail brochures will vary, but it is suggested that most, if not all, of the following features are included:

- Trail network name, logo and overview
- Individual trail details (e.g. permitted users, distance, estimated completion time)
- Code of Conduct
- Sources of local updates and further information (e.g. websites, QR code)
- Site specific considerations (e.g. environmental/cultural sensitivities)
- Safety guidelines and emergency information
- Trail manager (including contact details) and partners
- Disclaimer
- Clear trail map (including north indicator, scale, legend) showing trails, facilities, accommodation option

The following two figures illustrate how key trail information is presented in the brochures for the Noosa Trail Network (Queensland) and the Blackwood River Canoe Trail (Western Australia).

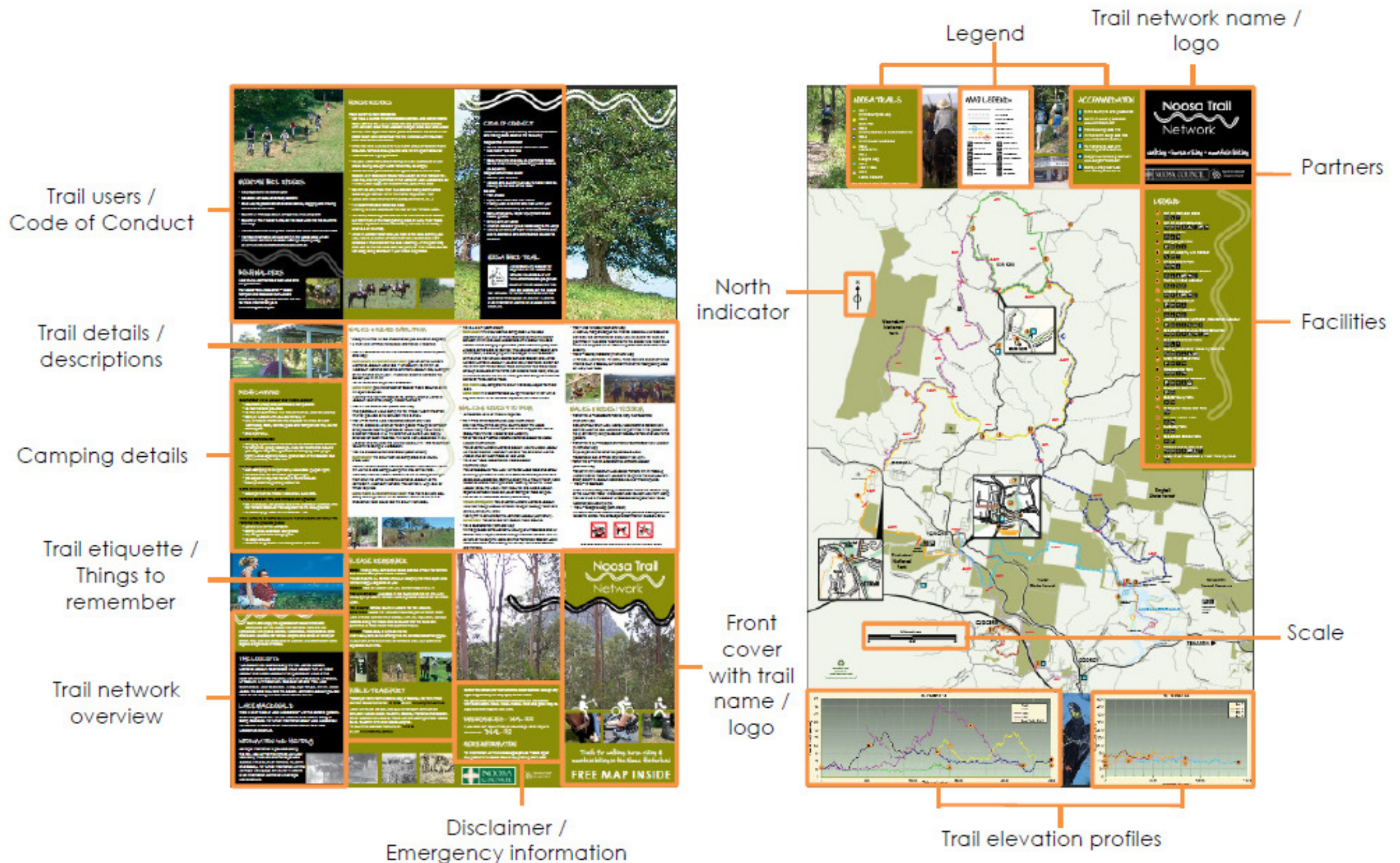


Figure13: Trail network brochure - Noosa Trail Network, Queensland

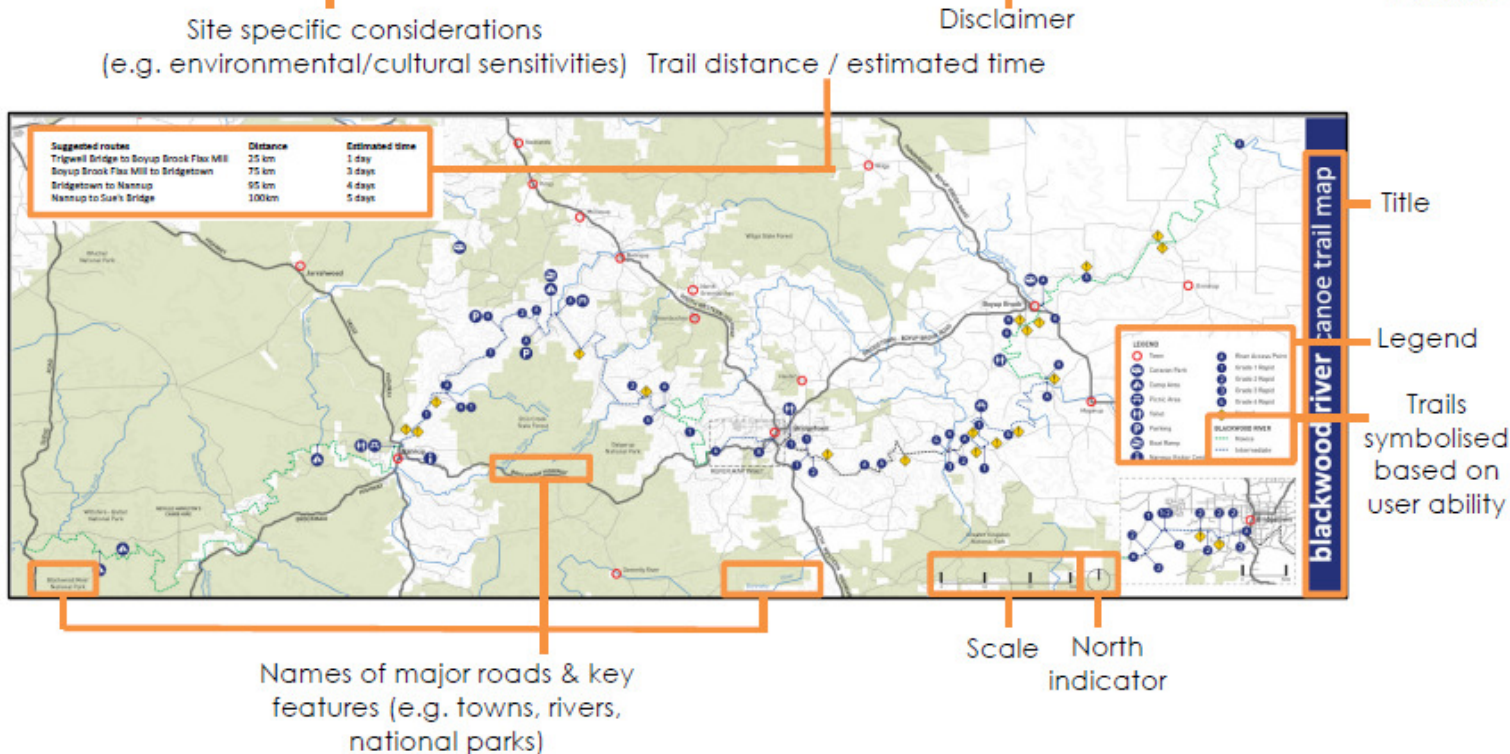
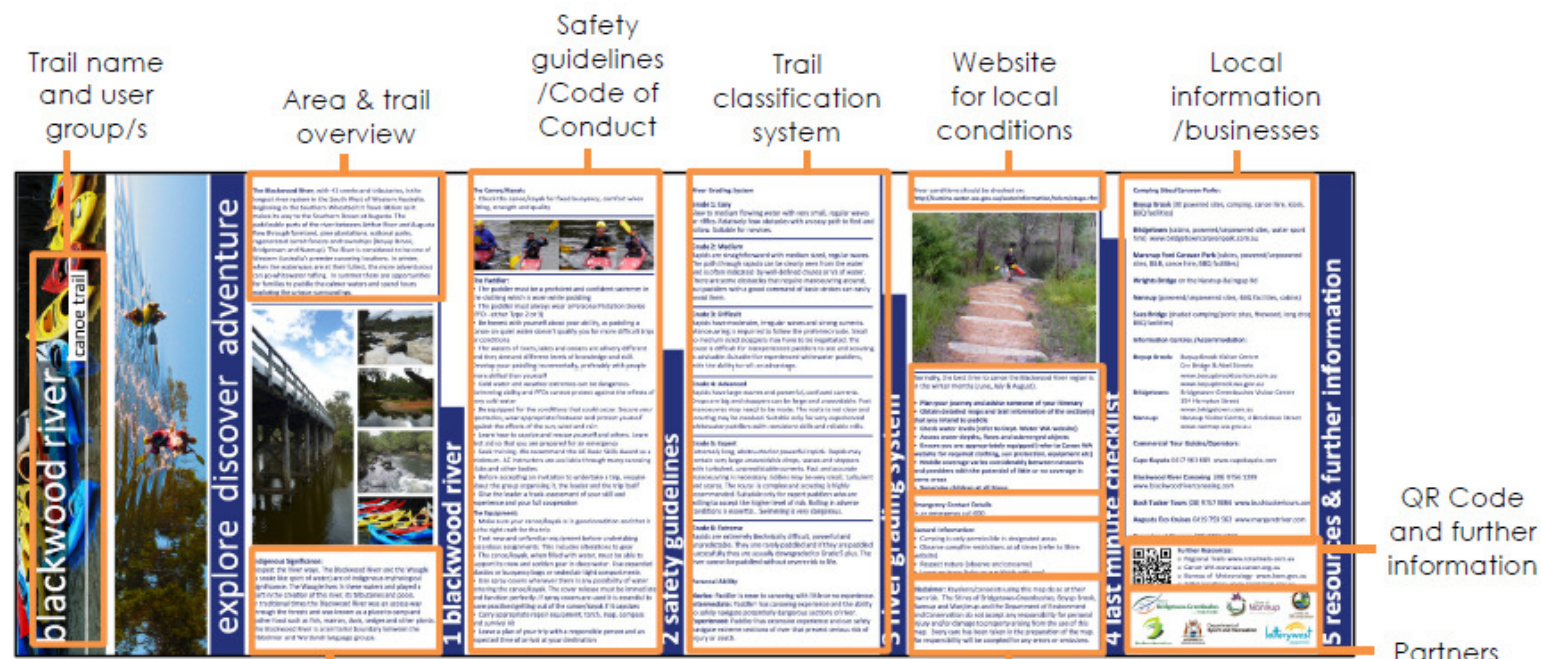


Figure 14: Canoe Trail Brochure - Blackwood River Canoe Trail, Western Australia

On-ground signage

The RCMB Trail Strategy proposes the installation of the following trailhead signage:

- Primary trailhead: Sturt Reserve
- Secondary trailheads: Rocky Gully Wetland, Adelaide Road & Swanport Wetland/Frank Jackman Lookout
- Local trailheads: Maurice Road/Kinchina CP & Avoca Dell
- Individual reserve signage: Murray Park & Casuarina Walk Reserve

These trailhead signs will provide opportunity for trail marketing and promotion. It is important that the trailhead signage provides information about the region's trail network and where further information can be found (e.g. online, at the Visitor Information Centre etc.). The figure below demonstrates information which is likely to be required on a trailhead sign. Further details are outlined in Appendix 3 of the RCMB Trail Strategy.

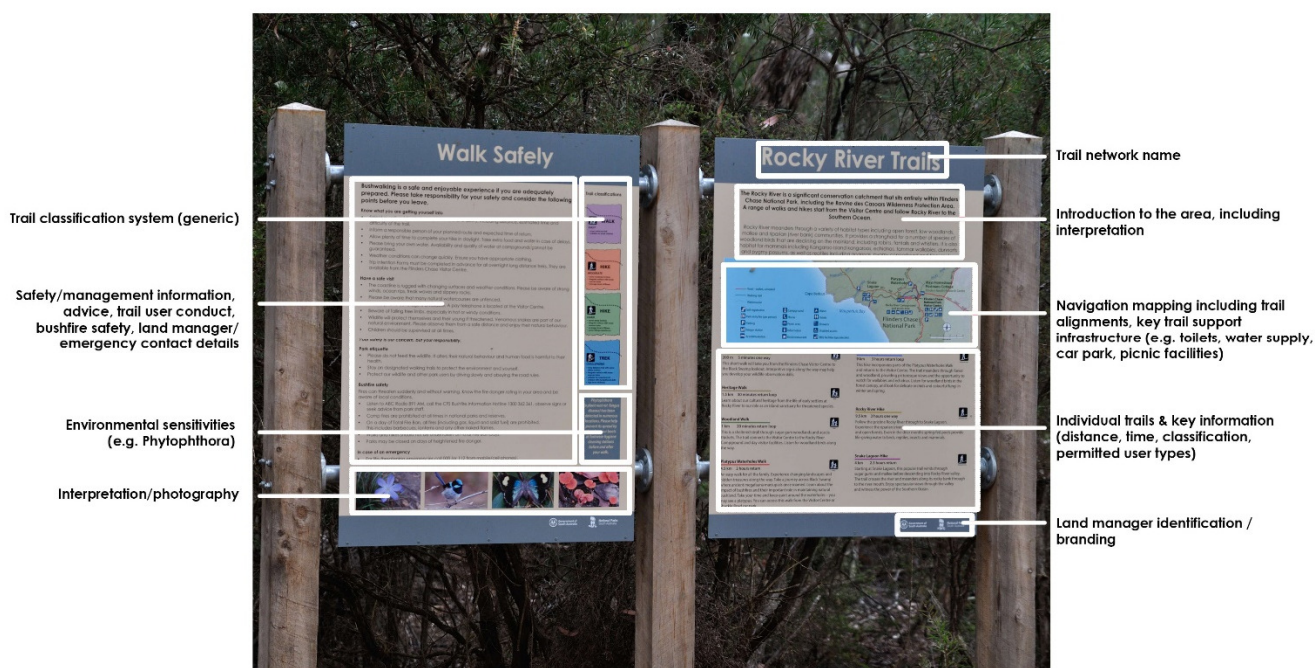


Figure 15: Trailhead signage requirements

Other avenues for marketing and promotion

Trail marketing and promotion may also include the following:

- Featured newspaper/magazine/TV articles. For example, SA Life, South Aussie with Cosi, The Murray Valley Standard.
- User-generated websites. For example, Strava Mapping, MapMyRun.com.
- Word-of-mouth and on-ground signage. For example, involving the community in the creation of new trails will stimulate local interest.
- Tourism packages incorporating local businesses. For example, promoting canoe or walking trails to houseboat tourists

3. Asset management and maintenance

3.1 Trail governance

As trail management and maintenance is often a collaborative effort it is important to identify the partners involved and have clearly defined roles and responsibilities relating to each trail. The potential partners for the RCMB trail network may include:

- Department of Environment, Water and Natural Resources (DEWNR)
- Department of Planning, Transport and Infrastructure (DPTI)
- SA Water
- Canoe SA
- Horse SA
- Recreation SA
- Walking SA
- Bike SA
- Adelaide Hills Council
- Alexandrina District Council
- City of Victor Harbor Council
- Coorong District Council
- Mid Murray Council
- Community groups / Local community
- Natural Resource Management board
- Monarto Trails Working Group
- South Australian Recreational Trails Inc. (SARTI)
- Ngarrindjeri Regional Authority Inc
- Regional Development Australia (RDA)
- Rural City of Murray Bridge Trails Reference Group (RCMB TRG)
- Visitor Information Centre staff

The management model of each prescribed trail needs to identify partners in management and/or maintenance and clearly defined roles and responsibilities. This could be agreed upon through a Memorandum of Understanding (for example, the Murray Coorong Management Committee with representatives from three Councils), a formal partnership agreement or a trail licensing agreement. A trail licensing agreement through Council will assist land owners to manage risk and public liability².

The Murray Coorong Management Committee is an example of a Memorandum of Understanding which has been developed for trail management between three Councils. The roles and responsibilities of the committee include:

- Strategic management of the trail and its ongoing development.
- Development and implementation of relevant planning and policy governing the trails operation.
- Ensuring standardisation of the trail.
- Advocacy and submission to Council and other external organisations for budgeting and external funding for future development, operation and marketing of the trail.
- Ensure the quality of the trail and its facilities are maintained to the service level agreed by Council's.
- Aid in the selection of the consultant to design the various stages.
- Offer advice to the consultants and Council's to implement recommendations of the feasibility study.
- Operate within and be accountable for the approved budget.

The following table provides examples of topics which may be considered in partnership agreements for the management and/or maintenance of recreational trails.

Table 8: Partnership agreement - example information

Trail partnership details	
Name of trail	
Land tenure	
Location of trail	
Permitted trail use	
Name of partner organisation	
Capabilities and capacities	
RCMB	Partner organisation
Community engagement	
Landscape architecture/trail design	
Construction assistance	
Administration officers	
Fund management	
Risk management	
Environmental management	
Asset management	
Marketing	
Visitor Information Centre	
Constraints and limitations	
Limited funds available	
Limited staffing resources for trail maintenance	
Fields of skills shortages	
Environmental sensitivities	
Approvals required	

Table 9: Partnership agreement – example roles and responsibilities

Role/Responsibility	RCMB	Partner
Trail management		
Legal responsibility for trail assets		
Trail user compliance		
Funding applications		
Management of funds		
Community consultation		
Trail maintenance		
Maintenance coordination		
Mowing and vegetation management		
Conservation and invasive species management		
Infrastructure repairs/replacement		
Management/maintenance of tools and machinery		
Rubbish collection		
Maintenance/cleaning of amenities		
Risk management		
Hazard identification	:	
Maintenance of safety/warning signage		
Hazard control measures (e.g. fallen trees, erosion hazards)		
Promotion and marketing		
Information collation		
Map creation		
Brochure design and updates		
Website design and updates		
Social media updates and regular activity		
Promotional material approval		
Brochure distribution		

3.2 Legislation

The following legislation may be of relevance to the planning, design, construction and maintenance of trails in the RCMB.

Table 10: Legislation






Environment Protection & Biodiversity Conservation (EPBC) Act (Commonwealth) 1999	The EPBC Act 1999 protects matters of national environmental significance. Any action that will have a significant effect on protected species or habitats requires assessment and Commonwealth approval. A preliminary indication of whether an approval under this Act is required can be found at www.deh.gov.au/epbc .
Local Government Act 1999	Under the <i>Local Government Act 1999</i> any works on local government land require the permission of the local council. Section 196 of the Local Government Act which requires that all Councils prepare management plans for community owned land. These management plans must state the purpose for which the land is to be held by Council, as well as the Council's objectives, policies and proposals for the management of the land. Also of interest for trail proposals is the requirement under the Local Government Act for Councils to manage made and unmade road reserves. This involves maintenance, addressing public liability issues and the leasing of unmade road reserves.
Recreational Greenways Act 2000	The Recreational Greenways Act 2000 has been established to secure public access over corridors of land that form part of a recreational trail. The Act allows State Government Ministers to enter into an agreement with the landowner. The Greenways are established by proclamation and become an encumbrance on the land title. This provides trails with security of tenure and provides indemnity to the landholder for public injury.
Native Vegetation Act 1991	The <i>Native Vegetation Act 1991</i> and the <i>Native Vegetation Regulations 2003</i> control the clearance of native vegetation in South Australia. Any clearance of native vegetation requires the permission of the Native Vegetation Council (NVC) unless a specific regulation applies.
Native Vegetation Regulations 2003³	Exemption 5(1)(u) applies in the case of native vegetation for walking tracks if: <ul style="list-style-type: none"> o the clearance is for the purpose of establishing or maintaining a walking track that is not more than 1 metre in width and— <ol style="list-style-type: none"> I. the track is used, or is genuinely expected to be used, by pedestrians; and II. there is no other practicable alternative (including, in the case of a new track, to the position of the track) that would involve no clearance or the clearance of less vegetation or the clearance of vegetation that is less significant or (if relevant) the clearance of vegetation that has been degraded to a greater extent than the vegetation proposed to be cleared. This exemption does not apply to native vegetation growing on road reserves. A separate exemption applies to that situation.
National Parks and Wildlife Act 1972	The National Parks and Wildlife Act 1972 prohibits the removal of native vegetation without a permit from reserves, wilderness protection zones, Crown land, public land or forest reserves in South Australia.

The Natural Resources Management Act 2004⁴	<p>The Natural Resources Management Act 2004 provides an integrated structure for managing South Australia's natural assets including soils, water, plants and animals as well as the diversity of landscapes and ecosystems. The Act integrates a number of previously separate administrative arrangements into one system, establishes the Natural Resources Management Council as the statewide peak body for natural resources management and creates a number of Regional Natural Resources Management Boards.</p> <p>The Natural Resources Management Act also prescribes that certain activities affecting water bodies require a permit. The Natural Resources Management Act also requires that land owners must take action to destroy prescribed pest plants including olives, blackberries and gorse. With this in mind, weed control should be factored into the ongoing maintenance and management of trails.</p>
Aboriginal Heritage Act 1988⁵	<p>This Act provides protection for all Aboriginal objects, remains, sites of spiritual, archaeological, anthropological and historical significance whether they are registered or not. The main features of the Act are:</p> <ul style="list-style-type: none"> ○ protection of all sites with Aboriginal tradition, archaeology, anthropology or history ○ provision for traditional custodians to determine whether land or objects are of significance to the Aboriginal people ○ provision for the developer and the public to seek a determination through the Minister for Aboriginal Affairs and Reconciliation as to whether an area or an object is of significance. <p>The Minister responsible for the Aboriginal Heritage Act may allow the disturbance of sites following consultation with the traditional custodians, relevant Aboriginal organisations or any other interested Aboriginal person.</p>

3.3 Maintenance standards

AS 2156.1-2001 *Walking Tracks – Classification and Signage* provides guidance for managers in relation to track condition, management intervention, risk management and inspection intervals. The table below outlines these guidelines for each classification of walking trail.

Table 11: AS 2156.1-2001 - Guidance for managers

Walking Track Classification	Guidance for managers			
	Track condition	Management intervention	Risk management	Risk inspection interval
Class 1 	Generally a broad, hard surfaced track suitable for wheelchair use. Well maintained with minimal intrusions.	High	Tracks and adjacent natural and built elements will be inspected and maintained regularly	30 days or less
Class 2 	Generally a modified hardened surface. Well maintained with minimal intrusions.	Moderate	Built elements will be inspected and maintained regularly. Any built facilities will be managed for public risk.	6 months or less
Class 3 	Generally a modified surface, sections may be hardened. Kept mostly clear of intrusions and obstacles.	Moderate	Built elements will be inspected and maintained regularly. Any built facilities will be managed for public risk.	6 months or less
Class 4 	Generally distinct without any major modification to the ground. Encounters with fallen debris and other obstacles are likely.	Low to moderate	Tracks will be inspected on a regular basis and after major natural events. Any built facilities will be managed for public risk.	6 to 12 months
Class 5 	Limited modification to natural surfaces and track alignment may be indistinct in places. Minimal clearing and debris along the track.	Low	Tracks will be inspected on a regular basis and after major natural events. Any built facilities will be managed for public risk.	6 to 18 months
Class 6	No modification of the natural environment	Negligible	Tracks will not be managed for public risk. Users will be responsible for personal safety and need to exercise appropriate care.	N/A

Further details on this Walking Track Grading System can be found at:

<http://www.depi.vic.gov.au/forestry-and-land-use/visiting-parks-and-forests/visiting-state-forests/activities/australian-walking-track-grading-system>

Ongoing trail and infrastructure maintenance requires ongoing allocations of financial and human resources. The costs associated with maintenance will vary depending on trail characteristics such as slope, weather, soil types, construction standards and usage patterns. Trails can also be subject to natural events such as flooding and bushfires which can destroy trail infrastructure. Future maintenance costs can be alleviated through effective design and construction of trails, and proactive management involving a regular maintenance schedule.

Maintenance of trails can generally be divided into the following two categories:

- Regular inspections and simple repairs (e.g. vegetation management)
This is often ongoing and requires one or two people. This type of maintenance can be supported by well-trained and regular volunteer programs.
- Twice yearly programs involving larger jobs (e.g. significant erosion repairs)
This will often require larger amounts of capital and human resources, which will often be undertaken by Council staff or contractors and can also be supported by volunteers under skilled supervision

The majority of trail maintenance is likely to be related to regrowth vegetation, damage to signage and accumulation of leaf litter and debris. Providing these issues are attended to early they are largely labour intensive rather than capital expensive. Resourcing such an ongoing program is crucial, and funds (or volunteers) will be required on an ongoing basis to enable this essential maintenance work to take place. This matter requires addressed in Council's budget and recurrent funding opportunities⁶. Annual maintenance costs can be kept at a minimum by ensuring that inspection and works programs stay on schedule. A typical maintenance schedule for a class 2 trail might include:

Table 12: SA Trails Master Plan - Trail maintenance tasks and frequencies

Task	Frequency
Checking trail head and other facilities for damage or vandalism	Once a month or more
Checking all signage and trail marking and replacing any missing	Every 2 months or more
Clearing and/or repairing erosion control devices and other trail design features	Every 3 months or more (Once a month if erosion/water issues exist)
Checking and clearing all trail surfaces, especially regrowth	Annually or more (or when vegetation is dry enough)
Pruning trail-side and overhanging vegetation	Annually
Checking major structures, such as bridges, boardwalks and walkways	Annually
Arranging a regular Hazard Inspection Report	Annually
Checking currency and distribution of trail brochures and updating if necessary	Annually

3.4 Trail infrastructure audit

The development of the RCMB Trails Strategy involved a comprehensive on-ground audit of all prescribed trails on Council land and the trail-related infrastructure. This audit reflects trail infrastructure at the time of the audit (October 2016). Below is an inventory list of all infrastructure identified during this audit. This information is also embedded into GIS audit files which may support ongoing trail auditing processes.

Table 13: RCMB trail infrastructure audit

Casuarina Walk	
Trail length	1,300m loop
Trail tread	Crushed rock / Natural soil / Cement
Trail infrastructure	No.
Signage: Management/warning	2
Bridge	4
Viewing platform	1
Seat	2
Murray Park	
Trail length	975m loop
Trail tread	Crushed rock
Trail infrastructure	No.
Signage: Trailhead	1
Signage: Interpretive	21
Signage: Management/warning	4
Public Amenities	1
Historical site	1
Bin	1
Gated access	5
Sanders Walk	
Trail length	1,886m loop
Trail tread	Natural soil / Crushed rock / Cement
Trail infrastructure	No.
Signage: Trailhead	1
Signage: Interpretive	21
Signage: Management/warning	4
Signage: Waymarking	22
Bridge	2
Seat	9
Photo point	3
Bird hide	1
Swanport Wetlands	
Trail length	1,100m loop
Trail tread	Boardwalk / Crushed rock / Natural soil
Trail infrastructure	No.
Signage: Trailhead	1
Signage: Interpretive	1
Signage: Management/warning	1

Signage: Waymarking	4
Shelter	1
Seat	1
Photo point	4
Bird hide	1 (disused)
Viewing platform	1
Pontoon	1
Public amenities	1
Murrundi Reserve	
Trail length	1,100m loop
Trail tread	Crushed rock
Trail infrastructure	No.
Signage: Trailhead	1
Signage: Interpretive	2
Signage: Management/warning	1
Seat	3
Avoca Dell, Vanderzon & Emu Road Reserves (part of Riverglades Community Wetland)	
Trail length (on Council land)	Approx. 1,150m on Council land
Trail tread	Natural soil
Mobilong Swamp Trail	
Trail length	4,407m loop
Trail tread	Natural soil / Bitumen
Adelaide Pump Station Trail	
Trail length	3,513m loop
Trail tread	Natural soil

3.5 Example trail maintenance schedule

Using the guidelines provided within the *Australian Walking Tracks Grading System* and the *South Australian Trails Master Plan*, an example trail maintenance schedule is provided below for Swanport Wetlands. Maximum maintenance check intervals are to be used as a guide only and should be reviewed by maintenance staff. Infrastructure will require additional checks and maintenance after severe weather events, or where trail infrastructure damage is expected/reported.

Table 14: Example trail maintenance schedule - Swanport Wetlands

Trail name: Swanport Wetlands		
Length	1,100m loop	
Walking Track Classification	Boardwalk / Crushed rock / Natural soil	
Track condition	Generally a modified hardened surface. Well maintained with minimal intrusions.	
Management intervention	Moderate	
Risk management	Built elements will be inspected and maintained regularly. Any built facilities will be managed for public risk.	
Permitted use	Walk	
Trail infrastructure	Number audited	Maximum maintenance check interval
Signage: Trailhead	1	1 month
Signage: Interpretive	1	2 months
Signage: Management/warning	1	2 months
Signage: Waymarking	4	2 months
Shelter	1	1 month
Seat	1	Annually
Photo point	4	Annually
Bird hide	1 (disused)	Annually
Viewing platform	1	Annually
Pontoon	1	Annually
Public amenities	1	1 month (as well as regular cleaning)
Additional maintenance task	Maximum maintenance check interval	
Comprehensive risk and hazard inspection	6 months	
Clearing and/or repairing erosion control devices and other trail design features	3 months (1 month if erosion/water issues exist)	
Checking and clearing all trail surfaces, especially regrowth	Annually or more (or when vegetation is dry enough)	
Pruning trail-side and overhanging vegetation	Annually	
Checking major structures, such as bridges, boardwalks and walkways	Annually	
Checking currency and distribution of trail brochures and updating if necessary	Annually	

4. Risk management

4.1 Code of Conduct

Establishing a Code of Conduct for each trail and/or the entire trail network is an appropriate way to manage the impacts of trail use on other trail users, the natural environment and trail infrastructure. The essential message conveyed by all the various codes of conduct seeks to promote environmentally sound and socially responsible trail use. The Code of Conduct should be displayed on trailhead signage and accessible online.

A trail Code of Conduct may include:

- Permitted trail use (e.g. use of motorised vehicles prohibited)
- Environmental/heritage impacts and mitigation measures (e.g. do not feed wildlife, take rubbish away from the reserve, respect culturally significant places)
- Risks of using the trail/s (e.g. bushfire risk, risk of falling rocks)
- Risk mitigation measures/safety advice (e.g. bushfire awareness)
- Emergency procedures & emergency contact details (e.g. fire, ambulance, police)
- Management contact details (e.g. Council customer service number)
- Group user policy (e.g. permit required for organised events/group trail activities)
- Trail user etiquette. Examples include:
 - Be considerate of other trail users
 - Give way code – cyclists give way to walkers and horses, walkers give way to horses (see figure 1).
 - Do not take short cuts or form new trails;
 - Dogs must be on a lead and under control at all times;
 - Dogs must be on a lead and under control at all times;
 - Report damage or problems to the relevant land manager
 - Avoid bike or horse riding on trails during wet weather conditions;



Figure 16: Recreational trails give way code

Source: QLD Government⁷

4.2 Risk Management

Users of recreational trails are exposed to various risks, many of which can be identified and mitigated through a comprehensive risk assessment process using the Risk Assessment Matrix below.

Table 15: Risk matrix

RISK RATING							
LOW			MEDIUM		HIGH		SEVERE
RISK ASSESSMENT MATRIX			CONSEQUENCE				
			1. Insignificant	2. Minor	3. Moderate	4. Major	5. Extreme
			Consequences are not important	Consequences are somewhat important	Consequences are important & significant	Consequences are very important & very significant	Consequences are extremely serious or catastrophic
Description		Likelihood of Occurrence	MATRIX OF CONSEQUENCE AND LIKELIHOOD				
LIKELIHOOD	E. Almost Certain	Event is expected to occur in most circumstances - more than once per yr, or is already happening (>80% chance occurring)	M	H	H	S	S
	D. Likely	The event may occur in most circumstances - once a year (50-80% chance of occurring)	M	M	H	H	S
	C. Possible	The event may occur at some time, say once in 3 years (30-50% chance of occurring)	L	M	M	H	S
	B. Unlikely	The event may occur at some time, say once in 10 years (10-30% chance of occurring)	L	L	M	M	H
	A. Rare	Event may occur only in exceptional circumstances (< 10% chance of occurring)	L	L	L	M	H

Some of the identified risks associated with recreational trails in the RCMB may include:

- Riverbank collapse
- Bushfire
- Flooding
- Bites/stings (e.g. snakes and spiders)
- Trips, slips and falls
- Falling objects
- Hazardous substances
- Trail user conflict (e.g. bikes and pedestrians)
- Traffic (maintenance vehicle, unauthorised trail users)
- Health – Quality of drinking water provided
- Environmental impact risks (Phytophthora risk areas)
- Unsustainable trail surface (e.g. erosion risk)

Trail construction & maintenance staff are also exposed to the following risks:

- Manual handling
- Plant and machinery
- Working at Heights
- Failure to meet Work, Health and Safety requirements

In order to mitigate the risks associated with the recreational trails within the RCMB, a risk assessment and management plan will need to be developed in accordance with AS 4360-2004 *Risk Management*. The risk management plan will identify risks associated with the trails, assess the likely impact and determine mitigation measures. Risks may fall within the following categories:

- asset management,
- human resources,
- financial resources,
- occupational health & safety,
- communication
- contract management.

By understanding the potential risks and finding ways to minimise their impacts, Council will be able to respond confidently should an incident occur. A large component of risk management will be ensuring that the RCMB will adequately and rapidly respond to natural hazards such as bushfire and flooding.

4.3 Riverbank Collapse

As stated on the Department of Planning, Transport and Infrastructure website⁸, Riverbank collapse is more likely to occur during times of low water in the lower River Murray. Riverbanks can be extremely sensitive to erosion and other soil effects. 'Slumping' is where a section of riverbank suddenly gives way, taking with it trees and whatever else is on the bank at the time. Slumping incidents have caused problems in some areas of the Murray in recent years.

Riverbank erosion can be caused or affected by natural actions like wind and wave action, heavy rain or soil cracking in the heat, but boating can also have an effect by raising wake and wash and stirring up sediments.

As acknowledged in the *RCMB Riverfront Strategy* (2016), low water levels in the weir pool during the period 2007-2010 resulted in significant bank slumping and failure at a number of locations in Murray Bridge. This is exacerbated by infill of the floodplain and construction of levees.

4.4 Bushfire Protocols

The state government's *Code of Practice for Fire Management on Public Land in South Australia* establishes a minimum standard and performance measures for fire management on public land in South Australia and acknowledges that higher standards may be implemented by individual agencies to accommodate localised risks or other factors. The Code of Practice states that "firefighter and community safety must be at the forefront of bushfire mitigation and management deliberations".

The fire danger season in the Murraylands Fire District is between 15 November and 15 April⁹. Every day during the fire season the Bureau of Meteorology (BOM) forecasts an outlook of the fire danger index by considering elements of the predicted weather including temperature, relative humidity, wind speed, and dryness of vegetation. State fire agencies, in consultation with the Bureau, then consider a range of other factors relating to that area to set the Fire Danger Rating. Factors include the length of time the fire danger index has been elevated, the extent of the fire already in the landscape, fuel and dryness and the likelihood of weather events such as lightning. The BOM fire danger forecasts are available at <http://www.bom.gov.au/sa/forecasts/firedanger.shtml>

Fire Danger Ratings are also communicated to the wider community through newspapers, radio, TV and on websites, including:

- Country Fire Services website <http://www.cfs.sa.gov.au> and bushfire information hotline (1300 362 361)
- ABC and local commercial radio stations

Fire Survival Measures

To reduce the risk of bushfire for trail users, trails should not be used on days of severe, extreme or catastrophic fire danger. The following guidance has been adapted from information on the Munda Biddi Trail website (www.mundabiddi.org.au), which is an off-road cycle trail in Western Australia. This advice should be considered in the event of a bushfire emergency whilst using a trail in the RCMB.

Escaping a fire and seeking refuge without a vehicle

If caught without a vehicle in a bushfire follow these guidelines.

- Remain calm, never try to outrun a fire.
- Individuals must be encouraged not to break away from a group.
- Don't run, but cycle/walk briskly if there is a clearly indicated way of escape.
- Use any hills or elevated sites to determine where the fire is and the direction it is taking.
- Seek bare or previously burnt ground, e.g. gravel pits, clearings, roads, beaches.
- Move across slopes and out of the path of the fire. Do not run uphill or away from the fire unless you are certain a safe refuge is nearby.
- Select the path that is least obstructed by logs, dense growth or uneven ground.
- Avoid being caught near the top of a hill where the fire will move quickly and intensely up the slope.
- Run through flames only when they are less than about one metre high, and only if you can see clearly what is on the other side of them.
- Beware of the danger from burning branches and trees in forest country.
- Avoid dense vegetation in gullies as these areas are often impenetrable and can be subject to intense fire. If conditions become severe, use every possible means to protect yourself from radiant heat. Use clothing to best advantage as a shield.
- Take refuge in ponds or running streams.
- Do not take refuge in elevated water tanks.

Emergency information, updates and contacts

- Check the Bureau of Meteorology for weather forecasts and warnings
- Check the South Australian Country Fire Service (CFS) website or contact the CFS hotline on 1300 362 361 for current fire ban and bushfire information.
- Check Alert SA for the latest updates from South Australia's emergency services. For fire updates tune to your local emergency broadcast radio station.
- In emergencies, contact Police/Fire/Ambulance by dialling 000.

4.5 Flood Protocols

In the RCMB, the winter months produce the greatest rainfall but floods can occur at any time of the year. Flash flooding, which is the rapid onset of flooding following intense rainfall, is often difficult to forecast and occurs without warning.

The SA Health website states that the main health risks while in flood-impacted areas include:

- drowning
- injuries, including those caused by falls, skin lacerations, and snake and spider bites
- skin infections
- mosquito-borne infections
- gastrointestinal infections.

The SA Emergency Flood Plan template advises people to "never drive, ride or walk in flood water – this is the main cause of death during floods as water may be deeper or faster flowing than you think and contain hidden snag and debris". After a flood event, it is important that all trails and associated infrastructure are assessed to ensure that each trail is safe for public use.

4.6 Hazard inspection timetable

Auditing and inspecting trails is an essential component of ongoing track maintenance to identify hazards, maintenance requirements and priorities. Hazard inspections should be undertaken regularly, particularly after extreme weather and after peak river flows in flood prone areas.

Hazard inspections should include assessments of:

- the condition of the trail against the Australian Standard Walking tracks: Classification and signage (AS2156.1-2001)
- the condition of viewing platforms and other structures
- adequacy of signage, especially at road crossings
- the height of trip hazards (such as tree roots),
- track width,
- erosion of or damage to track
- slippery rock or clay sections
- obstructions on the track
- condition of vegetation along the edge of the track, in particular overhanging limbs or overgrown vegetation

A record of the hazard inspection should show all works required in order to:

- create a prioritised list of required works,
- identify the costs associated with the required works,
- establish a timeline for works, and
- establish responsibilities for works
- address any liability claim which may arise in the future

The *SA Trails Master Plan*¹⁰ recommends that the hazard/risk inspection process should be reviewed on an annual basis, and that inspections are undertaken according to the "risk inspection interval" requirements of the trail's classification level (AS 2156.1-2001). For example, a Class One trails require high duty of care and so require monthly risk inspections.

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