

Bayview Conservation Area Trails Facility Concept and Development Plan

MAK Planning and Design Project no. MAK15003

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1 Introduction

Purpose

The purpose of this project has been to prepare a planning and design document to guide the development of the Bayview Conservation Area Trails Facility within the Bayview Conservation Area.

As noted in the Request for Quotation document:

“As part of the development of the plan, the project will also identify infrastructure requirements and construction elements to ensure that the area meets international trail standards.

The project will make recommendations for staging the development of the reserve and provide realistic indicative costs for inclusion in a capital program.”

Background

Redland City Council has a significant portfolio of bushland and conservation areas. Council's policy has always supported public access to these areas (with a few exceptions) for recreation pursuits.

Planning for the development of the Bayview Conservation Area Trails Facility follows the recently completed Redlands Track Park at Cleveland.

Bayview Conservation Area Trails Facility is a larger area than the Redlands Track Park and offers longer and some more challenging rides or walks. The Redlands Track Park should be considered as a Front Country experience and Bayview Conservation Area Trails Facility as a Back Country experience.

It is also ideally suited, when developed, to mountain bike, rogaining, trail running and orienteering events among others.

This plan establishes the site's master plan that will be a guide to its staged development.

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2 Literature Review

A range of documents were reviewed as part of this literature review. The main issues arising are summarised below and have been considered in developing the trailhead and track designs.

Redland City Council Corporate Plan 2015

As part of the development of the 2015 Corporate Plan Council has reviewed and renewed its corporate vision, mission and values. These “articulate Council’s long-term direction”.

The Bayview Trails Facility contributes to at least two of the Plan’s eight Key Outcome Areas including:

- #1—Healthy Natural Environment
- #7—Strong and Connected Communities

The 2020 Outcomes under the Healthy Natural Environment Key Outcome Area are

1. Redland’s natural assets including flora, fauna, habitats, biodiversity, ecosystems and waterways are managed, maintained and monitored.
2. Threatened species are maintained and protected, including the vulnerable koala species.
3. Community and private landholder stewardship of natural assets increases.
4. Visitors experience our natural assets through high standard facilities, trails, interpretation and low impact commercial ventures.

The first three 2020 Outcomes refer to the management of the biodiversity and conservation values of Bayview Conservation Area. The fourth 2020 Outcome realises that recreation, particularly linear recreation and low impact commercial recreation, is possible in tandem with preserving and enhancing environmental outcomes. As an example it has been found that the presence of people in conservation areas users legally the facilities discourages the illegal use of the facilities such as by people on trail bikes.

Council’s Enhancing the Visitor Experience project embodies these concepts. This wide ranging project has begun the process of examining low cost changes that can open the conservation estate and other natural environments for greater responsible recreation use.

The Strong and Connected Communities Key Outcome Area (#7) recognises the social and economic benefits from events held in the Redlands. It also encourages a greater volunteering culture in the Redlands and recognises the role that volunteers can take in delivering Council outcomes.

Union Cycliste Internationale Cycling Regulations

In designing the Bayview Conservation Area Trails Facility we have been conscious of complying with Part 4—Mountain Biking of the Union Cycliste Internationale (UCI).

UCI is the world governing body for the sport of cycling recognised by the International Olympic Committee (IOC).

In respect of events at the Bayview Conservation Area Trails Facility there are likely to be different types but overwhelmingly they will be cross-country events or variations on that style.

Cross-country courses can be of various lengths and technical ability and organisers are likely to select from different trail options to get the lap length and degree of technical difficulty that they want.

Part 4 of the UCI regulations covers Mountain Biking and within that Chapter II is concerned with cross-country events.

Some of the more pertinent design (as opposed to events operation) points in this section are summarised below and have been used in developing the Trailhead and trail designs:

Section 1

1. Riders must start in a single group.
2. The cross-country Marathon format races must respect the minimum distance of 60km and maximum 160km.
3. The race can be run over a single lap, or multi-lap with a maximum number of laps of three.
4. In the event of a single lap the course may not include any section to be covered twice. Only the start and finish lines may be located at the same place.
5. In the event of a multi-lap race, short-cuts on the lap for the women’s race are not allowed.

Section 2

6. The course for a cross-country race normally includes a variety of terrain such as road sections, forest tracks, fields, and earth or gravel paths, and include significant amounts of climbing and descending. Paved or tarred/asphalt roads cannot exceed 15% of the total course.
7. The course must be wholly rideable even in difficult weather conditions. Parallel sections must be provided on sections of the course likely to deteriorate easily.
8. Extended single-track sections must have periodic passing sections.

Section 4

9. The start zone for a cross-country event (massed start events) must:
 - a) for world championships and world cup events:
 - be at least 8 metres wide for at least 50 metres before the start line
 - be at least 8 metres wide for at least 100 metres after the start line
 - b) for all other events:
 - be at least 6 metres wide for at least 50 metres

before the start line

- be at least 6 metres wide for at least 100 metres after the start line

- For all events the start must be on a flat or uphill section of the course.
- The first narrowing after the start must allow riders to pass through together easily.

10. The finish zone for a cross-country event (massed start event) must:

- be at least 4 metres wide for at least 50 metres before the finish line; for world championships and world cup events this zone is at least 8 metres wide for at least 80 metres
- be at least 4 metres wide for at least 20 metres after the finish line; for world championships and world cup events this zone is at least 8 metres wide for at least 50 metres.
- be on a flat or uphill section of the course
- barriers must be in place on both sides of the course for a minimum of 100 metres before and 50 metres after the start and finish line(s).

Seven Cs Connection Strategy

The Seven Cs project is about:

developing wildlife linkages and recreational corridors across the City harnessing the power of communities, centres, cities, catchments, culture, conservation areas and citizens to connect people, plants and animals across public and private lands.

The network of corridors are designed to benefit animals and plants, and residents and visitors. Residents and visitors will be able to use the recreation corridors for walking, jogging, cycling and horse-riding, though the latter will be restricted to rural areas.

The stated aims of the Seven Cs Project are:

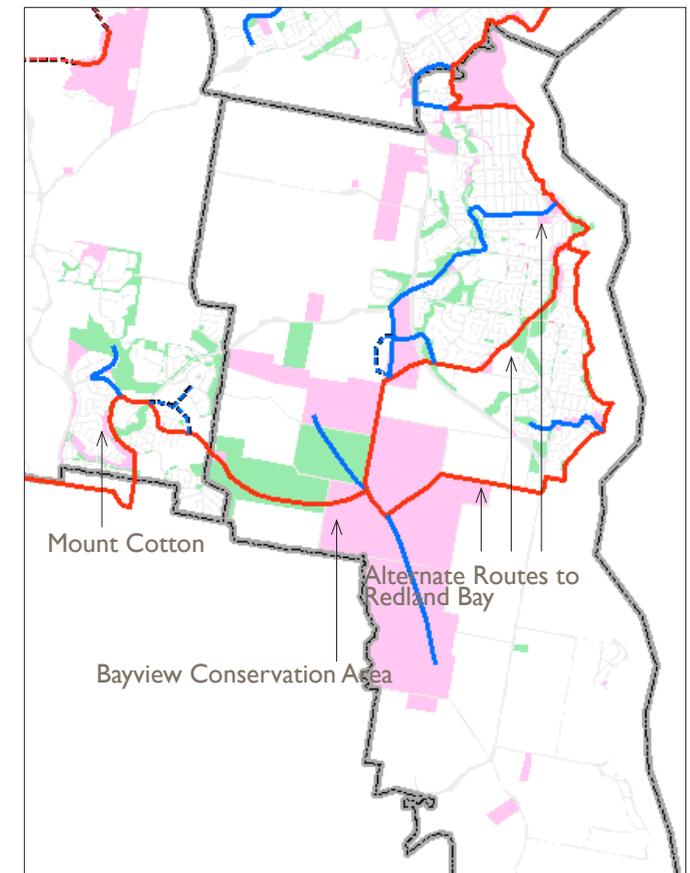
- provide sustainable and accessible outdoor environments
- connect people and places through recreational pathways
- connect fauna with food, water and each other
- create recreational, commercial, cultural, and stewardship opportunities
- provide opportunities for people and communities to lead healthier lives.

The link of most relevance to this plan is the Koala Bushland Coordinated Conservation Area—Redland Bay link which passes through the Bayview Conservation Area.

The report acknowledges that establishing an east-west link in the southern part of the city is a difficult task “given the existing land ownership, the lack of established corridors (except within Redland Bay), and the topography”. The route recommended takes users from the southern edge of the Koala Bushland Coordinated Conservation Area through parts of Logan City along the Eastern Pipeline Corridor into the Bayview Conservation Park and into Redland Bay via two alternative routes (see Figure 1).

Detailed design needs to be undertaken to establish the final preferred route.

Figure 1: Seven Cs Connections through Bayview Conservation Area



Conservation Land Management Strategy 2010

The Conservation Land Management Strategy 2010—A Plan for the Next 10 Years is a Redland City Council document with the intent to provide principles for the management and planning of the City's Conservation Estate.

Bayview Conservation Area is an amalgam of Council owned land and State land in trust to Council. Of the 920ha Bayview Conservation Area 158ha is Bayview National Park (state land) to be managed in accordance with the Nature Conservation Act 1992. The Act has quite strict conservation controls that are recognised by the Redland City Council's Conservation Land Management Strategy 2010. The point to make though is that the state land, as well as the Council's land is to be managed primarily for its conservation outcomes and that other uses are secondary to that.

The Bayview Conservation Area abuts the Serpentine Creek Conservation Area (8ha) and the contiguous Carbrook Wetlands Regional Park (122ha) both owned by the State. The trails facility does not enter either of these sites.

In that light recreation is seen as a legitimate use and the Strategy has the aim to "provide recreational opportunities where possible without compromising conservation values or visitor safety".

Various principles within the Strategy are relevant to planning of the Bayview Conservation Area Trails Facility. Recreation is dealt with on pages 54-56 and the most relevant principles, by activity, are listed below.

General

The overarching philosophy of Council is to provide 'multiple-use' nature based recreation venues that appeal to, encourage and engage the community, and:

- the management of recreation in the city should aim to meet the requirements of the SEQ Regional Plan: "Establish and maintain a network of accessible outdoor recreation areas, including regional parks, trails and waterways, as well as private lands with the voluntary agreement of landowners"
- reserves planning for recreation should be designed to encourage recreation that does not impact on natural communities
- public access and recreational activities for nature based recreation will be based on Local Law No. 4 (Local Government Controlled Areas, Facilities and Roads)

Walking Tracks

Where intra-reserve walking tracks are planned or managed the Australian Standards for walking tracks should be considered (AS 2156.1-2001: Walking Tracks Classification and Signage).

Mountain Bikes

Bicycle riding is an appropriate recreational activity in parks and reserves and a legitimate, nature-based activity and mountain biking will be encouraged in all parks and reserves where it is considered environmentally appropriate. Other principles are:

- when constructing or closing mountain bike trails, consultation must occur between Council, bushcare/trailcare group and other relevant mountain bike groups
- trails constructed for the use of mountain bikes must also be compatible with, and may be used by bushwalkers. Signage should indicate that this is dual use
- mountain bike use should be constrained to trails designated as mountain bike compatible or general cycling compatible trails
- where construction, upgrade or management of specially

designated mountain bike trails is to be undertaken, refer to IMBA (International Mountain Bicycling Association) trail construction and management principles

- formation and maintenance of Bushcare/trailcare groups should be based on engaging locally run groups first
- track closures, maintenance and design must be based on understanding of broader strategic network of tracks within and between the city's conservation reserves
- trails should stay out of streams and wetlands unless crossing by direct route. Mountain bike tracks should not be constructed within 30m of a waterway or area identified as being a sensitive area
- to protect water quality and habitat, only cross streams where absolutely necessary. Where crossings are necessary, use natural rock features or bridges. If it is considered essential for a track to cross a watercourse, it must be sited to cross by the shortest and most environmentally considerate route
- bridges and other track infrastructure for dedicated mountain bike trails (single-track) should be constructed of 'natural' material

Horses

Horse-riding is permitted on selected conservation reserves where this use is considered environmentally and socially appropriate. When considering horse-riding the following factors need to be taken into account:

- the level of use which may be anticipated if horse-riding is officially permitted
- alternative opportunities for horse-riding in the district
- potential problems of access and parking

In managing the activity consider:

- current or projected conflicts between horse-riders and other park users and the potential to resolve these conflicts

- the existence of suitable trails and places for horses to be tethered watered and fed
- suitable rest, picnic and toilet facilities for anticipated numbers of riders
- the ability of management to define the permitted area and enforce any restrictions considered necessary

Horses are to be kept to fire trails. Horses, pedestrians and bikes can use fire trails whereas 'single-track' can only be used by pedestrians and bikes.

Orienteering and Rogaining

Council recognises the use of reserves for off-track cross country navigational activities conducted by orienteering and rogaining groups.

Motorcycling

Motorbike activities are not allowed.

Pest Management Plan 2012—2016

This Council prepared document sets out how Council will respond to the management of pest weeds and animals in its 18 Environmentally Sensitive Areas (of which Bayview Conservation Area is one) and 27 Aquatic Environments.

Managing pests is key to maintaining the City's healthy and natural environment. The Plan recognises that managing pests requires a broad community and government at all levels commitment.

Details on how Council will manage particular plant and animal pests known to occur in Redland City is set out within the document.

3 Site Analysis

Site Description

Location

The Bayview Conservation Area, including the Carbrook Wetlands, is 920ha in area. However, as access into Carbrook Wetlands Conservation Park is not encouraged due to the sensitive environment the Bayview Conservation Area Trails Facility, as detailed in this plan, is the remaining area which encompasses 772ha.

The Bayview Conservation Area Trails Facility is located in the southern section of the local government area, principally in the suburb of Redland Bay but bordering Mount Cotton and is located approximately 13kms south of Cleveland (see Figure 2).

The site is generally bounded by acreage residential and small farms, mining leases in the north-west, Carbrook Wetlands Conservation Park in the south and a sewerage treatment plant in the west. The Kindilan Outdoor Education and Conference Centre and a closed landfill (with an active transfer station) about the northern edge of the park on Days Road.

An area of land in the east, which is currently rural land, is mooted as a possible residential development. This property development, known as *Shoreline*, may be developed in the medium term. This development will likely mean a significant population residing on the eastern boundary.

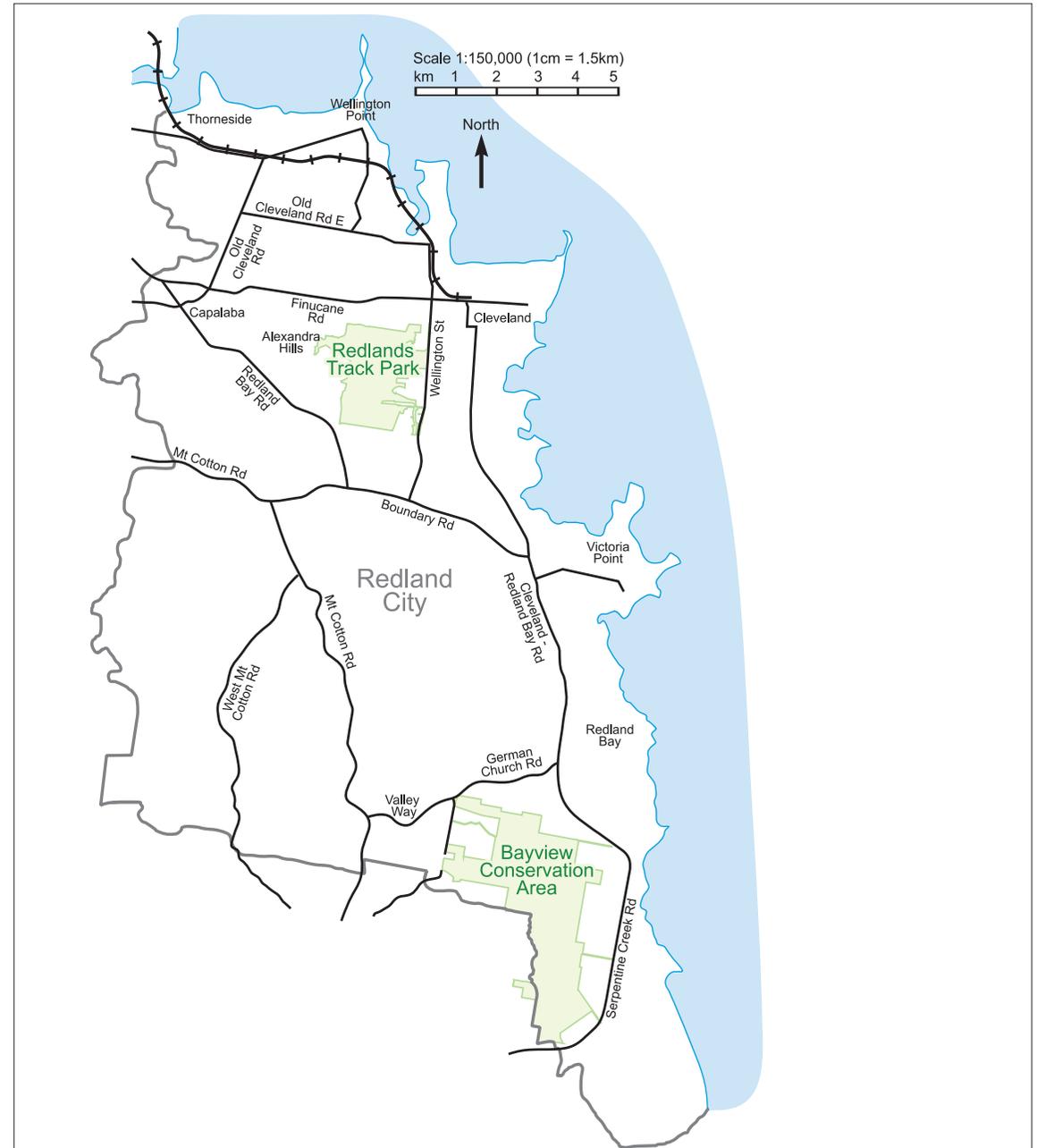
Site Values

The site has high conservation values for fauna and flora. A number of distinct ecosystems can be found across the site that need to be protected.

There is little European history remaining on the site. The Day Use Trailhead Staging Area off German Church Road was once a market garden but little remains from that time. Various areas within the Reserve have been used for timber production over many years and stumps and other evidence from that era are scattered throughout.

On the Stone Hut/ Shark's Tail Track, there remains, not surprisingly, remnants of a stone hut and in another area of the park at least one surveyor's shield, dating from the 1870's, has been found.

Figure 2: Site location



There are no known Indigenous values but when any development is being undertaken then the personnel should be aware to look out for any historical indigenous presence particularly around large rocks or rocky outcrops, near water courses and on or near very old trees.

Usage

Within the Bayview Conservation Area many of the tracks and trails are already established.

Single-track is used by walkers and mountain bike riders and horse riders can use the fire trails along with walkers and mountain bike riders.

Most trails only have rudimentary signs and some trails need re-routing and/ or maintenance (covered further later). At this time there is no map available of the trail system for users showing routes, difficulty, length or time.

Entrances

Entrance points are spread around the site though the entrance point on Days Road is currently the most popular entry point. Entrance points are:

1. Days Road
2. German Church Road (northern end)
3. German Church Road Middle
4. German Church Road South
5. Kidd Street (end)
6. Kidd Street (Opposite #107)
7. Kidd Street (Opposite #68)
8. Kidd Street (Eastern Access)
9. Native Dog Road
10. Serpentine Cemetery (Opposite)

11. Sugar Gum Avenue
12. Teviot Road
13. Unwin Road

Figure 3 shows their locations.

There is one further access point off Kidd Street but it is overgrown and recommended for closure.

Native Flora and Fauna

The Bayview Conservation Area is a natural bushland park comprising open dry eucalypt forest and riparian vegetation along the creeks and waterways.

Bayview Conservation Area has high fauna and flora values. These values transcend all others such as recreation. Recreation is a secondary use of Bayview Conservation Area and can coexist only while there is no compromise of the primary environmental values.

Except for the creek and drainage lines, most of the park is classified as either “endangered dominant” (generally in the northern section of the park) or “endangered sub-dominant” (generally in the southern section of the park).

The site provides a natural habitat for native flora and fauna including species and communities that are rare or threatened.

Additionally most of the park is considered as “High Value Bushland” under the Queensland Government’s State Planning Policy (2/10): Koala Conservation in South East Queensland.

Weeds and Pests

While no specific survey was undertaken of weed infestations in the Bayview Conservation Area casual observance indicated that the park was generally clear of weed infestations. Council’s Bushcare Officers monitor the park and undertake clearing works as required.

The park is a large area and it is possible that dogs and cats (and possibly pigs) can and do escape into the park but Council’s pest management appears to have this under control.

At the time that the area came under Council management it was heavily weed infested and had wild pest animals such as pigs, foxes and cats. Council officers have worked diligently to remove all traces of these weed and pest infestations.

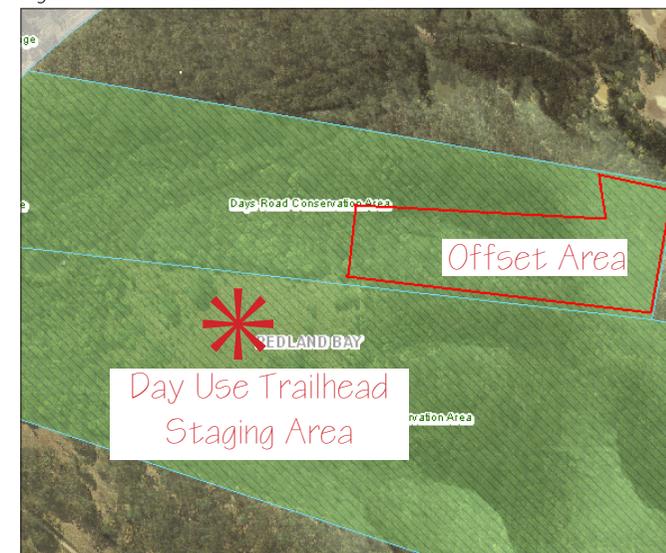
Fire

Fire Management within the Bayview Conservation Area is undertaken by Council, in accordance with Council’s Conservation Land Management Strategy.

Offset Areas

There are two offset areas within the park. Neither area is large and they are currently free of any trails or developments. One area, the larger of the two, is adjacent to the Day Use Trailhead Staging Area on the northern side. It separates the

Figure 4: German Church Road Offset Area



Day Use Trailhead Staging Area from the mining lease (see Figure 4).

The Wolf Peach Trail will need to be designed to skirt the German Church Road Offset Area.

The second site is a small area off Kidd Street away from the trails network.

The terms of the agreements generally prohibit any clearing within the Offset Area. As such no developments have been proposed in either Offset Area.

Water Catchment

Bayview Conservation Area is the water catchment for Native Dog Creek which flows into Carbrook wetlands. The water quality must be maintained to protect these systems.

Infrastructure and Facilities

There is no service infrastructure (electricity, water, sewerage) within the Park.

There is electricity along German Church Road that can be accessed for the Day Use Trailhead Staging Area if required.

Within the park Council has recently installed Trailhead Shelters at the Days Road Entrance and within the park when entering from Native Dog Road (about one kilometre from the gate).

These shelters (see Figure 5) provide protection from the elements and also have a park map (to be installed after this plan is complete) and information, a bike repair station, hitching rails, bench seating, water tank and a tipping horse trough.

There is little else in the way of built facilities within the park apart from regulatory signs, fences, gates and/ or slip rails at the entrance points.

There are no formal wayfinding signs on any track or trail which makes navigation difficult for the inexperienced user. There are "home made" signs on most single-tracks. See Figure 14 (page 31) later for an example.

Figure 5: Days Road Trailhead Shelter



4 CONSULTATION

Redland City Council

A number of staff involved in the management of Bayview Conservation Area or involved in providing recreation opportunities were asked for input. A summary of the key points is:

- The rare and threatened *Phaius australis* orchid is within the Bayview Conservation Area and trails need to avoid these locations.
- A new residential development may occur on the central eastern boundary of the Bayview Conservation Area in the future. Links from this estate into the Bayview Conservation Area Trails Facility need to be considered should it proceed.
- Camping within Bayview Conservation Area is not currently allowed (by regulation). However, should that change then the use of elevated timber platforms can control damage by directing where to camp and providing tie down points for guy ropes which avoid the need to disturb the soil with tent pegs. These sites may be available for booking for short term stays. The Serpentine Creek Trailhead is the most likely point for a camp site with the Bayview Conservation Area.
- There are two offset areas with Bayview Conservation Area. Offset areas are generally not to be disturbed.
- Council have fenced off the quarry adjacent to the proposed Bayview Conservation Area: Main Day-use Area and Trailhead.
- The addition of some interpretation within the Park would be possible and would add interest. Information could be provided on the historic stone hut, gliders, frogs etc. Where trail names have some interesting story to them this could be interpreted on signage at the start of the trail.
- Art installations at intersections and trailheads, drawing from European and Indigenous culture to the region, would provide an interesting and alternative trail

experience

- Consider a walking trail to a lookout point above the Bayview Conservation Area: Main Day-use Area and Trailhead. It is an “attractor” in the Seven Cs Strategy.
- There will be a Trailcare Group. There needs to be some consideration of where their tools are kept and how the group is managed.
- The trailcare group needs to work with the Council employed Bushcare officers to plan and coordinate their work schedules.
- Council’s policies and guidelines concerning the use of volunteers needs to be updated to allow the use of some powered equipment where it is deemed safe.

Other Government

Gold Coast 2018 Commonwealth Games Corporation

The Gold Coast 2018 Commonwealth Games Corporation (GOLDOC) was established in January 2012. Working with Government and Game’s partners, GOLDOC’s role is to plan, organise and deliver the Games in 2018.¹

On contacting this group it was found that they have no role with athlete training until ten days before the event when the competition venue will be open to athletes for training.

Prior to ten days before the event any training related venue requirements are being handled by staff at the Department of Tourism, Major Events, Small Business and the Commonwealth Games.

Department of Tourism, Major Events, Small Business and the Commonwealth Games

The staff at the Department of Tourism, Major Events, Small Business and the Commonwealth Games are responsible for linking any athletes or teams with training venues prior to the Games.

They were pleased to know that the Bayview Conservation Area Trails Facility will proceed and will add it to their website as a potential location (once it has been constructed and Council supplies the necessary information).

With just under three years until the event the Department is not yet fielding much interest from teams for training venues across all the sports. To date there has been no interest shown at all for mountain bike venues though that may change in time.

For many sports the current focus is on the Rio Olympics

¹ taken from <http://www.gc2018.com/about-us>

in 2016 and they will not turn their attention to the Commonwealth Games until after that event.

The Department did note that, unlike the Olympics, Commonwealth Games teams do not have the same budgets and many of the Commonwealth Games countries are third world countries.

The Department does not expect, for mountain biking at least, that many teams, if any, will come to Australia very far in advance of the Games for acclimatising and practice.

Emergency Services

The following information was provided by an officer stationed at the Redland Bay Police Station.

Emergency Services personnel have had to enter the park on numerous occasions in the last few years to retrieve lost or injured persons. In these instances it has not been due to a particular issue with the park or trails, but more user error or poor planning such as leaving for a mountain bike ride not long before sunset or a skills related error or accident.

Police and ambulances need to have vehicle access which they do have as Council has provided an access key which is kept at the Redland Bay Police Station that opens the gates and slip rails.

Several of the Redland Bay police and water police are keen mountain bike riders who know the trail system well so these officers generally get involved in any recovery jobs.

Most of the police vehicles at Redland Bay Police Station and at the water police are four wheel drive so no special surfacing is required for access. The Queensland Ambulance Service officers will gain access using police vehicles if they need to.

Council may also want to consider ways to prevent or reduce motorbike access to the park as off-road bikes regularly enter the park and interact with riders/ walkers/ horses on both the single-track and fire roads. Obviously from a police / emergency services perspective this poses a very significant

safety risk for the permitted users of the Park.

Community Organisations

Brisbane South Mountain Bike Club

Brisbane South Mountain Bike Club held the inaugural Bayview Blast in the Bayview Conservation Park in 2014. This event was successful attracting over 240 riders in its first year.

The event has been included as the last event in the National Series in 2015. The events in the 2015 National XCM Series are shown below with the 2014 participation shown in brackets:

1. Willo Enduro—22 March 2015 – Southern Highlands, NSW (600+)
2. Easter in Alice—Bunny Buster Stage – 4 April 2015 – Alice Springs, NT (200+)
3. Wombat 100—12 April 2015 – Woodend, VIC (600+)
4. Convict 100—2 May 2015 – St Albans, NSW (1,350+)
5. Dwellingup 100—5 Sept 2015 – Dwellingup, WA (1000+)
6. Kowalski Classic—20 Sept 2015 – East Kowen Forest and Sparrow Hill, ACT (800)
7. Redland Bayview Blast—31 Oct – 1 Nov 2015 – Redlands, South East QLD (240)

Comments from this Club are grouped by topic below.

Trailhead Facilities

- Use the UCI regulations in designing the trailhead. To meet UCI regulations for the start area may need to consider starting on German Church Road².
- The course leading away from the trailhead (up the ridge) needs to be non-technical so that riders can get through it quickly after the start.

- For the Bayview Blast the course length will be in the order of 25kms and repeated three times (75kms). Shelters are required for the functions of:
 - Timing
 - Registration
 - First aid
 - Cooking and food service
- Timing and registration can be combined into one shelter if wide enough. Suggest that several island benches are included in the middle for regular use as these will not impede event operations as much as a full length table or seats.
- The food shelter may be mostly open space except for the barbecues and a wind screen (that can also hold a map of the Park).
- Will need a levelled pad for parking a trailer with toilets. Events will be supplemented with additional toilets. Any toilets provided should be unisex, with external hand basins. Probably two toilets and a urinal. Another levelled pad for a coffee van or other uses.

Trails

- Some trails should be one-way as the closing speed on two-way trails can be quite high (particularly if one is downhill). Generally trails should be two-way to maximise the number of riding options (safety should be the driver of any decision to make a trail one-way). Instead of making a trail one-way for its length consider one-way options around a dangerous point but leaving the remainder of the trail as two-way.
- Consider emergency access points.
- Bollards and finger boards at trail intersections could have a steel plate where a magnetic sign could be placed to give direction during an event.
- The trails could have occasional “A” and “B” lines where riders choose between a short technical route and a longer non-technical loop.

² *The low-traffic section leading to the waste water treatment plant*

Other Matters

- Trail runners may also use the course and are likely to need similar facilities to mountain bikers.
- If reticulated water is available at the trailhead then consider a wash-down area for horses. Reticulated water is also good for water-bottle filling.
- Tree branch clearances on the access and egress roads need to allow a semi-trailer with a toilet unit to pass without damage.
- The Bayview Blast is a two-day event so accommodation is required. Many competitors like to camp near the course. There are no options within the Bayview Conservation Area (of the scale required) so the Event Organisers will need to pursue options with private landholders and on other Redland City Council owned sites.
- Eventually the Club may, in the interests of variety and excitement, introduce new race styles such as eliminator events and short course. This is at least a medium term objective as the Club is still growing the existing suite of events.

Mountain Bike Australia

Mountain Bike Australia (MTBA) provided information on trailhead facilities and specifics in relation to hosting National and UCI level events which were used in reference to the Day Use Trailhead Staging Area design.

MTBA mentioned that they are working towards developing Australian Standards around sustainable trail design and maintenance which will extrapolate on the IMBA system.

Queensland Outdoor Recreation Federation

Queensland Outdoor Recreation Federation (QORF) are supportive of the development of Bayview Conservation Area Trails Facility but believe that it will be most successful if it provides for broad diversity—as broad as possible. Some of the ideas proposed included:

- placing the Day Use Trailhead Staging Area towards the middle of the complex linking straight into a variety of trail types
- new trails that are different from existing trails (e.g. may require a different type of bike, technique or skill set)
- Green level trails close to the Day Use Trailhead Staging Area with Blue and other skills levels further away

Comment: Redland City Council is constrained in achieving much of QORF's comments because Bayview is, first and foremost, a conservation area. In developing the facility planning has had to assume that most of the trails currently in place are, more-or-less, the extent of trails that will exist. This plan is constrained in that sense and works within those constraints.

Trail Users' Workshop

A drop-in style workshop was held with 15-20 people attending. While it was drop-in most people came at the start time so most of the group was there for most of the discussion.

Some specific points were made in relation to tracks and these will be reflected in individual discussions of the tracks.

Some general and track comments are summarised below:

Track Related

- keep tracks 'edgy' – maintain the character that is there now
- establish more loops, signpost them and map them
- maps should suggest trail lengths and various rides or types
- there needs to be a small and easy track near the Day Use Trailhead Staging Area for children and beginners
- after a long discussion about the merits of one-way and two-way trails it was agreed that all trails should stay two-way at the moment with the possible exception of the trail leading from the Day Use Trailhead Staging Area. Using design you can encourage use in a certain direction but it should not be mandated. The Maze and Shark's Tail are the two tracks where it is most obvious to consider them as possibly one-way trails

General

- some trails dry faster than others so if possible only certain tracks need to be closed after rain events (or at least some can open before others)
- it was asked whether there would be an area for downhill riders and the response was that there is not the location or topography at this facility for the style of riding

- it was suggested that a few trail names should be changed as they can be interpreted as “rude”³
- for Emergency Services it was suggested that a key be left in a box with a coded lock (several around the site would be needed because of the multiple entry points)
- signage throughout the park and better maintenance will attract more female riders, as will the improved sense of safety from a greater number of riders in the park
- use colour codes or arrows on signs to indicate loops

“Sticky Notes”

Participants were encouraged to write notes and place them on the air-photo so that no ideas were missed. These notes included the following ideas or comments:

- signage on Maze and Sharks Tail trails should recommend riding than as one-way trails
- predictable trails (such as Chicken Run) reduce barriers to beginner’s participation
- minimise trail sign size/ impact at minor junctions
- trails are not a consistent grade for their entire length
- locate a flow-trail in the northern area
- encourage people to wear bright clothes so that they are more likely to be seen coming from the opposite direction
- encourage people to yell out (when they are approaching a blind corner) on Maze
- close Maze and Sharks Tail in wet weather
- the creek crossing on Shark’s Tail needs a pipe to keep the crossing dry
- re-route Grass Tree and extend to Benson Binkley trail
- loop from Benson Binkley back to Grass Trees

- revive Summit Link Trail

Workshop Surveys

At the workshop surveys were available to be completed. These were also emailed to all attendees later to encourage the highest return rate.

General responses included:

Question 1—Trails: Tell us about the existing trails. Do you have any ideas for new trails, re-routes of existing trails, new trails or closing trails (or sections of trails)?

- provide alternative routes when some sections of a trail are too wet for riding
- Sock Puppet needs drainage
- New route from The Summit to fire trail and Doom Hippy
- Attempt to have multiple trails intersect at one point so that many riding options are opened up
- Like the idea of a trail from Kidd Street to the Central Fire road area
- There may be room for two descending trails into the Bayview Conservation Area: Main Day-use Area and Trailhead
- A Pump Track at the Day Use Trailhead Staging Area would be well used and appreciated by riders of all ages and abilities (several people made this point). The Pump Track can also provide a side event, or entertainment, when a race event is being held⁴
- Dirt jumps in the Day Use Trailhead Staging Area
- Bayview has some of the few areas with potential for freeride or gravity technical one-way trails. It would be fantastic to see a small amount of this in the trail mix.

⁴ It is agreed that a Pump Track would be good at the Day Use Trailhead Staging Area area and would be well used. However, there is insufficient space given the need to stage major events from this location.

Question 2—Access: The current thinking is to have the main staging area off German Church Road near the roundabout with Valley Way (Mount Cotton). Another major entry point will be off Days Road and a shelter has just gone in there. A shelter has been placed within the park off Native Dog Road. All other current entry points will remain and generally just have map signs added and a bit of cosmetic work. Do you have any comments on these proposals or other matters concerning access?

- Shelters are a great initiative
- Better access via German Church Road has been a long time coming—looking forward to the new trails there
- Try to keep motorbikes out using appropriate devices
- Connect the Bayview Conservation Area Trails Facility into the wider cycle network
- many comments on the quality of signage at the Redlands Track Park and advice to do the same here

Question 3—Signage: It is intended that there will eventually be signs at all trail cross points. At each designated entry point there will be trail maps for the park. A QR code on signs will also allow users to download a map to their telephone. All signs will be numbered to help emergency services personnel locate people. Do you have any more thoughts on signage⁵?

- Keep existing names, including ones deemed offensive (as changing them loses history)
- Like the signage at the Redlands Track Park
- Consider temporary CCTV to catch repeat motorbike offenders
- Signage with riding direction “suggestions” may be a good idea in some places
- standardisation of names is good for visiting riders and Emergency Services
- Comprehensive Track Maps at the entrance points are a

⁵ A personal request was made that the trail from The Summit to Doom Hippy be named after David Jacobi’s late wife—Fel’s Fall Line (she died of cancer in 2011 and the couple had been riding it together for 15 years).

³ These names have been changed and are reflected in the mapping in this plan

good idea

- Indicate loop lengths on maps

Question 4—Trail Care: A trailcare group is being formed for the Bayview Conservation Area Trails Facility which should be operating soon. Would you be interested in receiving information on any trail care initiatives?

Most people offered support to a trailcare group and will be kept informed as it develops.

Commercial Business

Bicycle Retail Stores

Several bicycle stores in Redland City were approached in relation to the Bayview Conservation Area Trails Facility.

The ideas and plans were explained and any ideas or comments were sought.

All stores supported Council developing the facility and believed that it would be well used once complete.

Only a few specific comments were made and these included:

- ideally, at some time in the future, the Park should be connected through to Daisy Hill allowing a long ride

between and through the two venues (and possibly others yet to be developed)

- stop motorbikes entering the Park—dangerous when they are on the same trails
- in the Redlands Track Park people are building their own trails which needs to be stopped. It may be less likely to occur in Bayview but regular surveillance will be required to stop it happening.

Food and Beverage Retail Outlets

A number of food and beverage retail outlets were approached in Mount Cotton and Redland Bay and were briefed on the project.

As businesses they were supportive and if any extra trade was to flow their way then that would be a benefit for their businesses and the local economy.

Most of these types of business open early (from 6am) which should accommodate riders after their ride, or even before the ride in many cases.

The businesses will monitor any peculiarities of the market and will adjust opening hours, food and drink lines and similar if required and can be supported by the trade.

Participants at the Riders' Forum



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5 Trail Descriptions and Audit

The Bayview Conservation Area has a well-established trails system developed over many years by local riders. In developing the Bayview Conservation Area Trails Facility it is not a case of building an extensive system of new trails but rather working with what exists—maintaining them with some improvements.

Single-track Descriptions

1. Chicken Run

Starting opposite the shelter, Chicken Run is popular being the first single-track near the Days Road entrance. Almost 1km long, the trail is suitable for all ages and abilities as the gradient is easy and there are only two log roll-overs to negotiate. The eastern end is low-lying and has a short bridge. The trail then gently climbs to open eucalypt forest. Return to Days Road on Puck Road for a pleasant, short loop.

4. Calendar Boys

Calendar Boys is sited in the low foothills and is an easy trail with a loamy surface. There are gentle rises and falls, and a few technical features, just two log roll-overs.

7. Sock Puppet West

Sock Puppet West combined with Sock Puppet East is 3.6km in length. The western trail has several technical challenges along an easy, flowing trail. Check your handlebar width between two tight trees, negotiate tricky tree roots and log roll-overs, and ride across a narrow log bridge. Along this attractive trail a forest with large Scribbly Gums gives way to groves of Casuarina and, in the low wetlands, stands of Paperbarks.

2. Vegemite

Vegemite has more difficult terrain to negotiate. The climbs and descents are steep in places and the surface is often has many loose rocks. Mountain bikers seeking a challenge will enjoy climbing to the highest point in the west, but descending is easier and has more downhill sections. Views from the hilltop extend to Surfers Paradise in the south and Moreton Bay in the east. Halfway, Vegemite intersects with Flutter which provides a link to Doom Hippy.

5. Blow

Blow has a gentle gradient with easy climbing turns and technical features, such as low logs and small tree roots. Blow could be connected to Flutter, Doom Hippy and Calendar Boys, or used as a link to You're Kidding.

8. Sock Puppet East

With long sections of gentle climbs and descents, Sock Puppet East is a low gradient trail with few technical challenges except for a difficult rock garden with rock drop about 400m from the southern end. An attractive stand of Grass Trees can be found at this southern entry point.

3. Doom Hippy

Best ridden from north to south, Doom Hippy has several sweeping berms that would be challenging to ride or walk up. The trail mostly follows the contour and is very narrow in places, with occasional exposed roots, making it a lot of fun. Combine Doom Hippy, Calendar Boys, Blow and Flutter into a circuit of 2.5km. These trails are similar in style and would also be good for trail running as well as bushwalking and mountain biking.

6. Flutter

Flutter is a short linking trail which is mostly easy with occasional narrow pinches and rough surface.

9. You're Kidding

You're Kidding, 3.2km long, is the most attractive trail in Bayview Conservation Area. After meandering through thick Casuarina forests and crossing low-lying wetland, the trail opens out to a huge area of verdant Grass Trees bathed in full sunlight. The narrow, sandy trail weaves between the Grass Trees and has some fallen logs and a rock garden to add interest. Look for an unusual feature of two large fallen trees joined by a ramp.

10. Bird Cage

Bird Cage is so easy the youngest child on wheels could ride it. The 2km trail has a smooth, loamy surface with little rise or fall and only one log pile across the trail to watch out for. Notice the large wire cage near the northern end, for which the trail is named. You're Kidding, Bird Cage and The Maze combined are 7.2km long and are the easiest trails in Bayview.

11. The Maze

Almost entirely through Casuarina forest, The Maze looks like a tunnel carved through tall, thick Casuarina trees. Cleared to a width of 2m, the trail itself is narrow and sandy. As sand is highly erodible, watch for erosion ruts and holes on descending sections, which can lead to boggy ground at the lowest point. Falling most of the way from north to south, The Maze is usually ridden in this direction.

12. Shark Tail

Shark Tail is usually ridden from south to north as a return trail after The Maze. While both ends of Shark Tail are easy at the start, the trail has many challenges in the middle. The sandy soil has eroded to form deep ruts and holes. Exposed roots cross the trail creating step ups and drops especially in the descents to the crossing of Serpentine Creek. This challenging trail is enjoyed by more advanced riders. Walkers will need to be aware of approaching mountain bike riders, particularly in places where the trail is very narrow. The dense sea of ferns along Serpentine Creek is a highlight of this trail.

The link between Shark Tail and The Maze is an old trail, originally ridden west to east to form a circuit. Watch out for erosion ruts and exposed roots on descending sections.

13. Benson and Binkley

Benson and Binkley is an interesting contoured trail which surfs up and down the side slope, at times steeply, for 1.5km. This more difficult trail is very narrow with embedded rocks, many log roll-overs and a short bridge to negotiate. Largely in a Dry Eucalypt forest, Casuarina and ferns are also present.

14. Grass Trees

Grass Trees is a short but challenging link to Benson and Binkley. The climbing turns, leading to the magnificent stand of Grass Trees at the western end, can only be ridden by the strongest legs due to the steep, tight-radius turns. Many mountain bikers will walk this section, however the lower half is very enjoyable.

15. Sorceress

Sorceress is designed as a more advanced trail than Wolf Peach. It rises and falls, surfing the terrain with climbing turns and descending berms. Accessed from the Bayview Conservation Area: Main Day-use Area and Trailhead, Sorceress links to the hill at the top of Vegemite.

16. Wolf Peach

Designed as an easy, flowing trail, Wolf Peach has few technical obstacles. From the trailhead, the trail gently climbs to the highest point, descends with switchbacks and then flows along the valley floor to reach Puck Road.

Fire Road Descriptions

The fire roads between Days Road and Teviot Road are very popular with horse riders. Named Green Snake, Slippery Dip, Ganja Boy and Black She-oak, these well-maintained trails are wide enough for two or three horses to be ridden abreast. With no steep sections this route also offers easy mountain biking and walking. Of note is the dense forest of tall Black She-oaks along Ganja Boy and the beautiful riparian vegetation where the trail crosses Serpentine Creek.

A. Mudlark

Mudlark steeply descends to cross Serpentine Creek then continues along gently undulating terrain passing Grass Trees and Wallum Heath to eventually reach Native Dog Road. This well-maintained, wide trail is very attractive for walking, cycling and horse riding.

B. Native Dog Road

Native Dog Road is virtually a flat, wide gravel road. However, the freshwater lagoon towards the south-east end has remarkable Swamp Paperbarks fringed with wetland reeds. A beautiful sight, well worth seeing.

C. Snake Road

Snake Road has three hills to the north-west, two of which are very steep which make this route tough for mountain bikers, walkers and horse riders. The southern section, running east to west, has a gentler gradient.

D. Straddie Pipe Pump

Straddie Pipe Pump is an undulating, wide trail which provides a moderately easy route to Kidd Street. Be aware there is a very steep climb at the western end and a boggy area near Kidd Street.

E. Puck Road

Puck Road is a very pleasant fire road, but leads to a steep climb and descent on the north-west end of Snake Road. The easiest route is to continue on Wolf Peach, making an out-and-back ride or walk between Days Road and the Bayview Conservation Area: Main Day-use Area and Trailhead.

F. Filling Rattler

Filling Rattler has not been graded into a wide fire road, but remains narrow, eroded and “rooty” in places. While this is challenging for mountain bike riders and walkers, horse riders may need to be cautious when riding here.



Trails Audit

As part of the project, MAK Planning and Design's partner, Trailworx, undertook a trails audit of all trails and tracks and provided a detailed maintenance and improvement report. The individual track reports have been included in Appendix 1 as they are quite long. A summary only is provided here.

There are 17 main trails for walking and mountain bike riding in Bayview Conservation Area Trails Facility totalling 20 kms. Each trail has been allocated an IMBA rating and these can be found in Table 1. The IMBA ratings for these trails allocates 14.4 kms to Green ("easy") and 5.6kms to Blue ("more difficult"). The trail system is quite extensive for beginners and those looking for an easy ride/walk while offering some trails for more advanced riders/ or a more challenging walk.

In addition there are 22.5kms of fire trails that can be used by horse riders as well as walkers and mountain bike riders.

Recommendations in the audit, apart from significant new trails, include minor extensions and reroutes with some sections being closed. The amounts are 2.5kms of single-track to be added and 2.2kms to be removed—a net gain of 300m.

All recommendations have been costed in the trails audit. The cost for each trail can be found in Table 2 with more detail in Appendix 1. **The total of all repairs is estimated at \$74,100.** This estimate has been derived using a balance of contractors and volunteer trail carers. The estimate would be higher if it was all put to contract. Generally though, it has been assumed that contractors will undertake any work requiring the use of machines or power tools, leaving tasks to volunteers that can be completed using hand tools.

Table 1: IMBA ratings for existing trails

Trail	IMBA Rating
Chicken Run	Green
Vegemite	Blue
Doom Hippy	Blue
Calendar Boys	Green
Blow	Green
Flutter	Green
Link to Chicken Run	Green
Sock Puppet west	Green
Sock Puppet east	Green
You're Kidding	Green
Bird Cage	Green
The Maze	Green
Shark Tail	Blue
Link between Shark Tail and The Maze	Blue
iO	Blue
Benson and Binkley	Blue
Grass Trees	Blue

Trail View—Serpentine Creek in Bayview Conservation Area Trails Facility



Table 2: Summary of trail maintenance and improvements with estimated costs

Trail	Length	Average Gradient	Summary	Works	Cost
Chicken Run	915m	2%	Green grading difficulty, low gradient trail with few technical features. Maintain and enhance as an easy trail.	Requires x7 grade reversals or drains and x4 minor re-routes. New link extending to Flutter.	\$9,200
Vegemite	730m	5.5%	Blue grading difficulty, with more difficult descents/climbs with very loose rocky sections. Maintain and enhance as a technical descent and climb.	Requires grade reversals and minor re-routes. 2 days work by machine. Enhance Vegemite as a Blue difficulty gravity trail.	\$4,200
Doom Hippy	495m	8%	Blue grading difficulty, preferred direction down due to some difficult climbing turns in uphill direction.	Requires x7 grade reversals and x2 minor re-routes.	\$3,200
Single-track link	225m	4.4%	Attractive single-track link parallel to Hopbush fire road.	x1 minor re-route with grade reversal.	\$1,200
Calendar Boys	875m	5%	Green trail, low gradient, without drainage points.	Minor works required. x5 grade reversals, x1 creek armour and tree removal.	\$2,800
Blow	580m	7%	Green trail which requires some repair to maintain Green rating.	x4 grade reversals, re-design x1 corner, rebuild x2 log roll-overs and rock armour x1 tree root.	\$2,000
Flutter	485m	6%	More undulating than other Green trails but still within Green rating.	x4 grade reversals, remove small tree. New link extending to Doom Hippy.	\$4,400
Link to Chicken Run	245m	8%	Poor link to other single-track. Suspect low usage. Low lying, flows like a creek.	Recommend closure and remediation to mask entry points. Replace with contoured link (Green) from end of Chicken Run to Flutter which connects to other single-track.	\$400
Sock Puppet west	2,300m	5%	Low gradient trail starting with natural and man-made dips and rises. Some moderately long falling and rising sections without drainage. Largely Green rating with some Blue (more difficult) technical features. Many large trees and branches have fallen in this area.	Rebuild x7 log roll-overs and install drain above. Install about x14 minor grade reversals or water diversion.	\$4,000
Sock Puppet east	1,300m	4%	Green rating with one technically difficult rock drop on corner and some logs which are not roll-able. Many large trees and branches have fallen in this area.	Rebuild x3 log roll-overs. X2 minor re-routes with x2 grade reversals. Generally requires much more water diversion along whole trail.	\$2,300
You're Kidding	3,200m	3%	Green rating with easy gradient the entire way. Very narrow trail weaving between Grass Trees. Traverses remarkable Casuarina forests and Grass Tree groves.	x4 log roll-overs. X2 boggy sections. X2 minor re-routes with grade reversals. Many small drains required.	\$5,000
Bird Cage	1,960m	2%	Very easy Green rating trail. Requires drainage points to avoid erosion in the long term.	Remove two hazardous trees. Drainage points required to prevent erosion in the future. Re-route final section to connect with changed start to The Maze.	\$2,300

Trail	Length	Average Gradient	Summary	Works	Cost
The Maze	2,000m	2.50%	Very easy Green trail, narrow both the corridor through the Casuarina forest is cleared to 2+ metres. Falling sections eroded, even at low gradient, due to very sandy, erodible soil. Boggy sections.	Three boggy sections requiring rubble and road base. Re-design and re-route one corner. Minor repairs to holes in tread. Change alignment at start in conjunction with change to link to Shark Tail.	\$6,000
Shark Tail	2,000m	3%	Shark Tail poses some issues. An old trail with falling gradient without water diversion it is now severely eroded with exposed roots and some deep holes. Rated as Blue to Black in this state. Issue 1: Advanced riders enjoy the challenge of the terrain and don't want change. Issue 2: How do less experienced riders return north after riding The Maze.	Retain eroded state but prevent further deterioration by adding water diversions. Repair obvious hazardous holes and drops. Remediate the trail to a Blue rating. Reroute the creek crossing to the shortest point. However, if the creek crossing is retained, both approaches require re-alignment. Crossing should be hardened or simple timber bridge constructed.	\$4,000
Partial new single-track	395m	2.50%	Poorly designed descending tracks with no drainage, heading for wet, boggy terrain above Serpentine Creek.	Close as soon as possible. Design and construct a wide, contoured link to Crinkle Bush fire road at higher elevation, in better soils.	\$4,200
Link between Shark Tail and The Maze	615m	3%	Very old trail on sandy soil with long falling sections with no drainage. Never been maintained and has moderate to severe erosion, especially approaching the creek crossing.	Many more water diversions required and repair to ruts and holes. Option 1: re-route both descents to creek crossing and install water diversions. Option 2: re-align to avoid creek crossing & link to Mudlark instead of The Maze.	\$3,000 \$2,500
iO	470m	3%	Poorly sited trail going through riparian zone and not connected to single-track network.	Close and remediate entry points at least. May be resisted by some riders.	\$900
Benson and Binkley	1,500m	4%	The only trail in Bayview with grade reversals, therefore not subject to erosion. Blue rating, very narrow with embedded rocks. Some poor design at the western end.	Re-build x5 log roll-overs. X2 minor re-routes. Suggest extending to northern fire road as per map.	\$1,400 \$4,000
Grass Trees	405m	9%	Unmaintained trail with tight climbing/descending corners which have severely eroded. Essential link which is not rideable, uphill, by most riders.	Re-design and re-route top five corners. Extend by creating a contoured connection to Benson and Binkley.	\$2500 New \$4000
New single-track	330m	9%	Green rating link to western single-track. Feeds into Sock Puppet nearby.	Minor water diversion required.	\$600

New Trails

Within the audit there are some recommendations for short sections of new trails. These are all in response to obtaining a better trail alignment so as to avoid environmentally sensitive areas (e.g. wet and boggy areas or creeks), areas subject to erosion, areas not in character with the trail rating (e.g. a short section of blue trail within a green trail) or similar. Generally these recommendations are offset by closing a section of trail of a similar length.

Four new trails are recommended for consideration:

1. Sorceress¹, and Wolf Peach, two new trails from the Bayview Conservation Area: Main Day-use Area and Trailhead linking this area into the trail network. The combined length of new trail is 3,700m. The two trails use a short section of fire trail to complete the loop back to the Bayview Conservation Area: Main Day-use Area and Trailhead.
2. A short (300m) children's track inside Wolf Peach and Sorceress accessed from the Bayview Conservation Area: Main Day-use Area and Trailhead. This track will appeal to children who can remain near to their parents in the Bayview Conservation Area: Main Day-use Area and Trailhead.
3. Concept 1—is 3,800m as mapped but likely to be longer when it is built (it is suggested, for costing purposes that Council use 4,500m, being approximately 20% longer). The concept provides a link to the west; encouraging riders to incorporate Grass Trees and Benson and Binkley in their ride and creates a larger single-track loop with The Maze and Shark Tail. Overall, enhances the MTB riding experience, especially for fit riders who will ride all the trails in Bayview in one visit. Will also likely to be used in longer length events. When the trail is checked in the field align as necessary to avoid sensitive species.

4. Concept 2—is 1,800m as mapped but likely to be longer when it is built (it is suggested, for costing purposes that Council use 2,160m, being approximately 20% longer). This trail will dissect a large area in the centre of Bayview where currently there are no trails. It will link from Birdcage across to the junction of Slippery Dip, Snake Road and Black She-Oak Fire Roads. The trail will offer a shorter loop on a number of rides as well as being required to split a large block for fire management purposes.

In designing new trail add an obstacle very close to the start of the trail that is of the same technical level of the trail e.g. a blue level obstacle on a blue level trail. Having the obstacle near the start of the trail will show users, when they start out, the degree of difficulty that they can expect to encounter if they continue along that trail.

Costing

For this plan new trails are costed at \$20/m. This is an average cost derived from the industry.

Potentially the new trails may cost in the order of \$206,000 made up of:

1. Sorceress and Wolf Peach Trail—3,700m at \$20/m = \$74,000
2. Children's track—300m at \$20/m = \$6,000
3. Concept 1—4,500m at \$20/m = \$90,000
4. Concept 2—1,800m at \$20/m = \$36,000

As noted earlier it is likely that both Concept tracks will be longer when they are eventually flagged in the field and the calculations above have added 20% to the mapped length.

There will also be additional costs for signage on the Concept Tracks.

Wolf Peach

Why use Wolf Peach for a trail name? The Bayview Conservation Area: Main Day-use Area and Trailhead was once used to grow tomatoes.

The story of "Wolf Peach" stems from European folklore. When the tomato was first introduced, it was widely considered poisonous. Aristocrats dined on pewter; the acid in tomatoes reacted with the metal, causing lead poisoning. Peasants ate from plates made of wood and were unaffected, so tomatoes became the poor man's food. The legend grew, as legends do, to include stories of witches using tomatoes, a member of the deadly nightshade family, to conjure werewolves. The wild tomato's Latin genus name, *Lycopersicon*, translates to "Wolf Peach."

¹ This trail is named after a derelict boat, "Sorceress", that was found in the trailhead area when it was cleared.

Entrance Points

Entrance points were listed earlier in this plan and can be found at Figure 3 (Page 9).

The main entrance point to date has been Days Road but, after this plan is implemented, will now become the Bayview Conservation Area: Main Day-use Area and Trailhead. Both these areas will have shelters with maps, water and bike repair stations.

All other entrance points will be more casual and be largely left as they are (Native Dog Road entrance being the exception if demand warrants).

Entrance Point Upgrades

The following entrance points will have two post map stands located in an appropriate place, usually just inside the Park beside the trail²:

1. German Church Road Middle
2. German Church Road South
3. Kidd Street (end)
4. Kidd Street (Opposite #67)
5. Kidd Street (Opposite #107)
6. Kidd Street (Eastern Access)
7. Native Dog Road
8. Serpentine Cemetery (Opposite)
9. Sugar Gum Avenue
10. Teviot Road
11. Unwin Road

² There is an entrance at Kidd Street (Corner) however it is not well used, the trail is overgrown and it is recommended that the entrance no longer be promoted given the other opportunities nearby.

Figure 6: Vegetation beside Native Dog Road entrance that needs to be cleared to allow car parking



Some form of upgrade is recommended at Days Road, Native Dog Road and the Bayview Conservation Area: Main Day-use Area and Trailhead.

If the Shoreline residential development proceeds, then a connection into the path system will be required. The most obvious point will be into the Mudlark Fire Road at the southern end of the development. At this point the fire trail is adjacent to the development so connection costs are minimal. Also it quickly connects with Birdcage and The Maze to offer further mountain bike and walking opportunities. As part of Shoreline's Development Conditions it may be appropriate to ask for car parking (some being suitable for horse trailers), signage, fencing and track repairs or upgrades.

Bayview Conservation Area: Main Day-use Area and Trailhead

The Bayview Conservation Area: Main Day-use Area and Trailhead will be the main entrance point into Bayview Conservation Area. As this development is quite extensive it is discussed separately in Section 7. This entrance, along with Days Road, are the only entrances suitable for horse riders.

Days Road Entrance

Redland City Council has recently installed a trailhead shelter inside the Days Road entrance (see Figure 7). The shelter offers a rest point as well as water, maps and a bike repair station. The Days Road Entrance will be the second major entrance for all users.

The issue at Days Road is car parking. Car parking is along Days Road and it can be inadequate for the number of cars. This situation may ease with the opening of the Bayview Conservation Area: Main Day-use Area and Trailhead but on the other hand, with promotion, the Bayview Conservation Area Trails Facility is likely to attract new users.

It is suggested that Council "wait and see" what the demand is for entering from Days Road and whether the current car parking arrangement can cope with the load. If it cannot then it will be necessary to clear roadside vegetation to the north of the existing car park area to accommodate more cars.

Figure 7: Three views of the Days Road Trailhead shelter. The shelter was not quite complete at the time of the photo and a map wall was still to be added.



Native Dog Road

The entrance from Native Dog Road (see Figure 6) has the potential to be an important access point to the southern section of the park. However, any upgrade is dependent upon more use from residential development or user demand.

It is unclear how many people currently use the entrance as car parking and access and egress is difficult (and dangerous). People using this access point are probably parking off Rocky Passage Road and riding to the entrance.

If demand grows to use this entrance it is recommended that an area of bushland, within the road reserve, be cleared to allow car parking. Some additional clearing will also be necessary to improve sight lines for vehicles leaving the entrance point (and to improve visibility for approaching vehicles). While the Beenleigh-Redland Bay Road has an 80km limit it is acknowledged that it is difficult to see the intersection with Native Dog Road until cars are quite close. The advice of a traffic engineer should probably be sought before works are undertaken to improve safety in the design.

Any vegetation clearing is to be kept to a minimum. If any of the vegetation is protected in any way than an alternative location will need to be found.

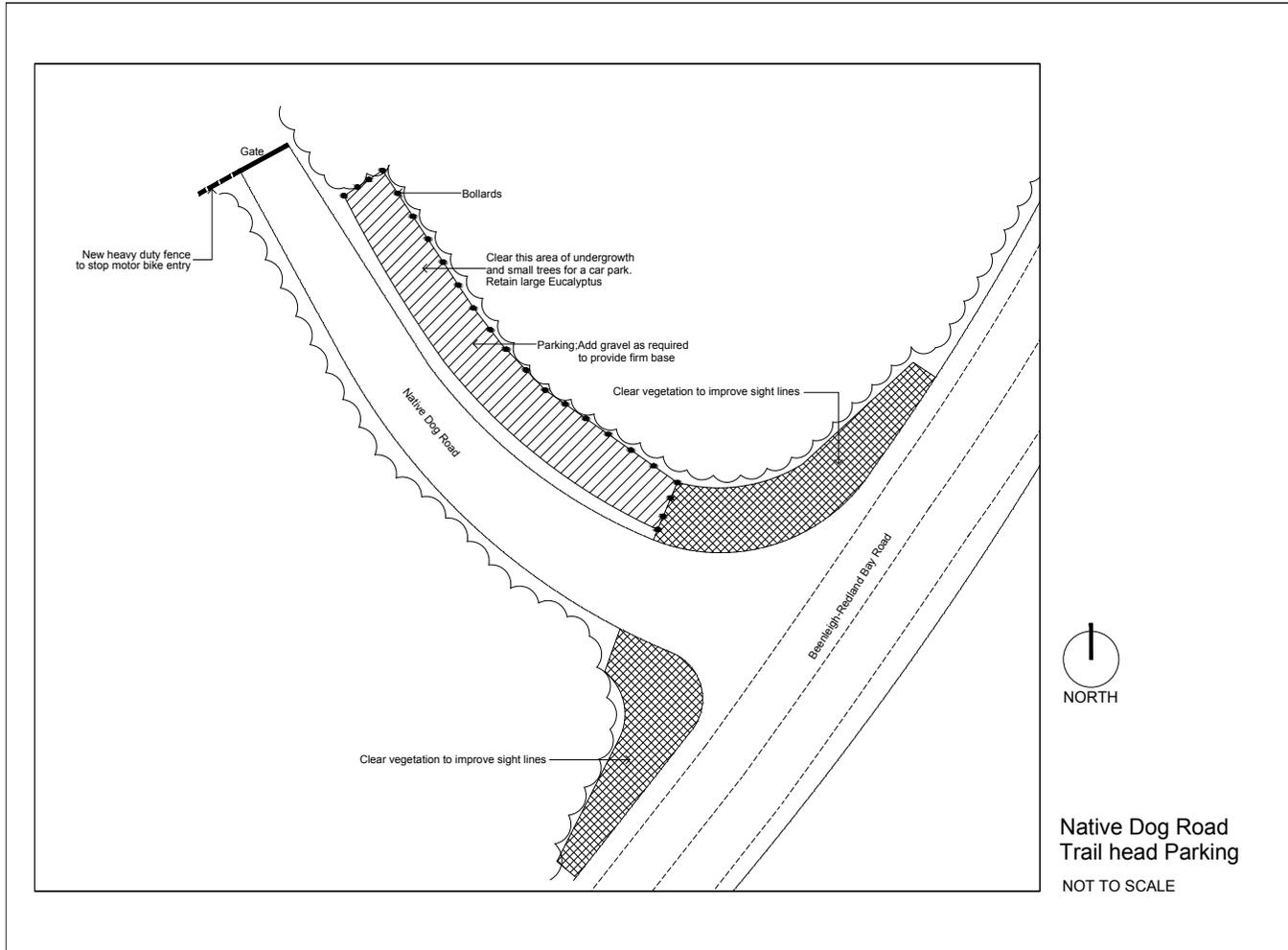
A concept design for this basic work has been prepared (see Figure 8). Working with Council staff it is estimated that the cost of this improvement will be \$8,250.00 (ex GST).

Costing of Entrance Upgrades

Costs for the Bayview Conservation Area: Main Day-use Area and Trailhead are detailed in Section 7. The following costs are applied to all other entrance points except Kidd Street (Corner) which is recommended for closure:

1. A two-post map stand at each entrance (11 stands at \$1,450) = \$15,950.00
2. Car park upgrade at Native Dog Road—\$8,250
3. Allowance for Days Road Car Park if required—\$4,000.

Figure 8: Concept for enlarging the car park at Native Dog Road entrance



Camping

Many users of the Bayview Conservation Area Trails Facility, particularly race participants, will be looking for camping options in or near the facility. For visiting riders the Park offers enough length of trails to keep riders happy for more than a day.

At event time people may wish to arrive the evening before, and, if it is a multi-day event then camping, near the facility will be the preferred option for many participants.

Regulations control camping within Redland's conservation areas. Regulations do not currently allow camping within the Bayview Conservation Area.

Commercial options at places such as caravan parks are available now and are best suited to small groups or individuals. The Kindilan Outdoor Education and Conference Centre on the corner of Days Road and German Church Road, subject to bookings, may suit group camping. In the medium term.

Two other options may become available.

1. There is private land opposite Council's Sewerage Treatment Plant on German Church Road, a short distance from the Bayview Conservation Area: Main Day-use Area and Trailhead. As residential development proceeds around this land it is likely, at some point, to be dedicated to Council. While the land has not been fully explored (it is private and access is not allowed) it appears that it could be cleared and levelled, possibly with some drainage works, so that it could be used for event-based camping. For event-based camping the event organisers would be responsible for bringing in all facilities and vacating the site at the end of the event.
2. For smaller events, where few cars are expected, the Bayview Conservation Area: Main Day-use Area and Trailhead could be configured to allow camping on some of the site. Toilets are planned in the area as well as a barbecue and shelter. Otherwise campers would need to

provide for themselves. A change in Council policy is likely to be required for this option to take effect.

Short stay camping has been suggested near the Serpentine Creek Trailhead. Camping would be low impact camping. Control would be exercised through designated camping sites with wooden platforms.

Regulations currently prevent any camping within Bayview Conservation Area so this idea has not been progressed.



6 Bayview Conservation Area: Main Day-use Area and Trailhead

As has been mentioned previously the German Church Road northern entrance has been selected as the site for the main Day-use and Trailhead (to be known as the Bayview Conservation Area: Main Day-use Area and Trailhead).

The area that has been selected is approximately 200m inside the Bayview Conservation Area boundary. It is a cleared area free of trees and any vegetation with conservation values. It was, some time ago, used as a market garden hence the reason that it has been cleared.

Despite its use in the past there are no services on the site and no retained assets of any value. What little vegetation was on the site has been cleared by Council staff ready for its development.

It should be noted that the development of the Bayview Conservation Area: Main Day-use Area and Trailhead is dependent upon the completion of Wolf Peach and Sorceress trails. Without these trails the Bayview Conservation Area: Main Day-use Area and Trailhead is not connected into the trails network.

Concept Plan

A concept plan has been prepared to guide development of this area (see Figure 10). Various perspectives have been developed to better illustrate the proposals and these can be found at Figure 9 and Figures 11 to 13.

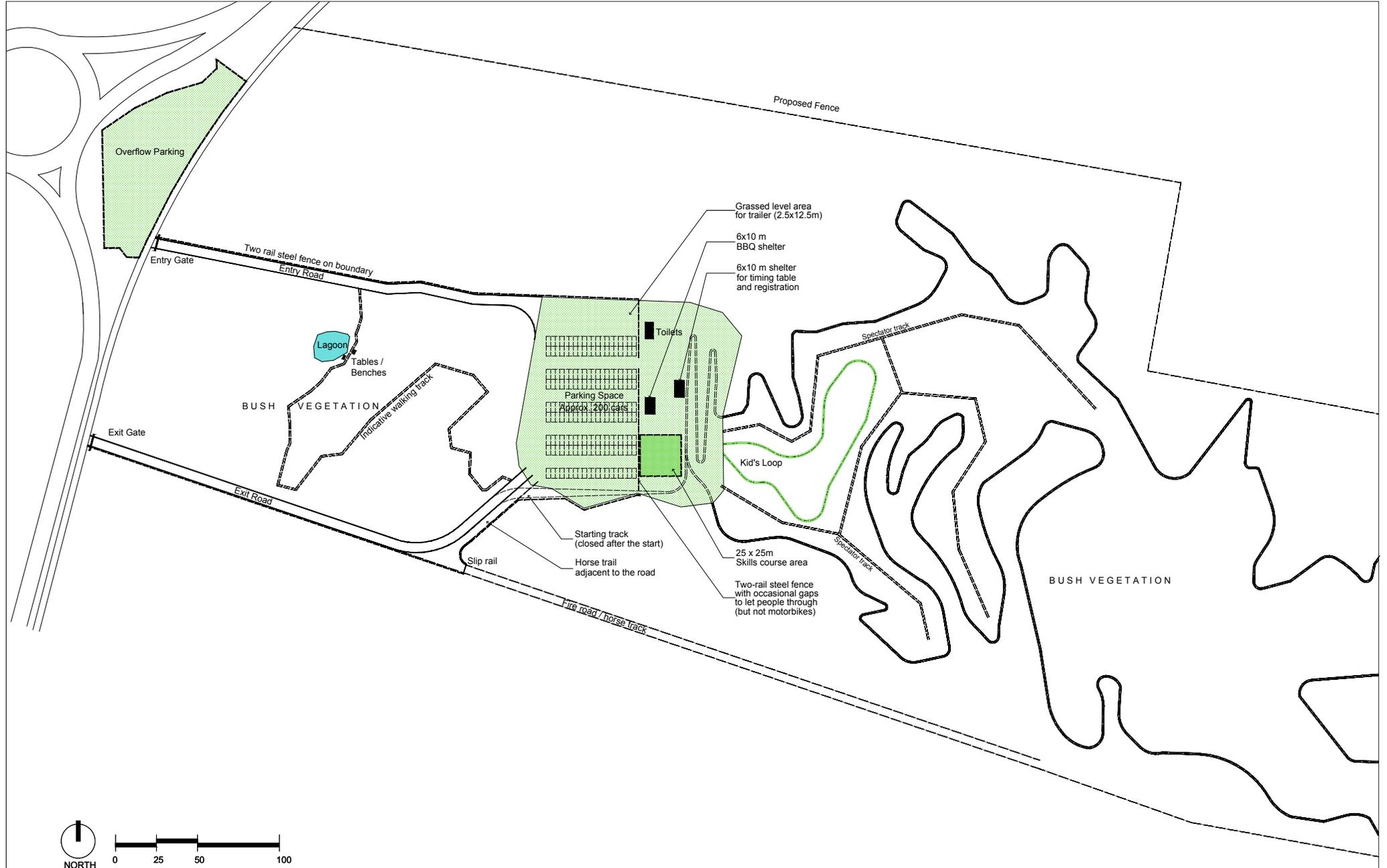
Consultation on the early designs was held with various rider groups and individuals. Key features of the design include:

1. A one-way entry and exit road system.
2. Car parking (bitumen) for approximately 200 cars. This capacity will only be required on event days. Cars with trailers can pull through the car parks as there is no infrastructure to restrict movement.
3. Overflow car parking will be available on the spacious road verge adjacent to the entrance.
4. Fully fenced (two rail steel fence) starting at the German Church Road entrance along the northern road boundary, across the eastern edge of the car park and following the exit road until it meets the private fence (a slip rail will be installed at this end). There will be gaps in the fence at the car park to allow people, but not motorbikes, through to the trails and facilities (note: cycles will need to be lifted over a bar or around a post while horse will need to step over the slip rail on the fire road).
5. A double disabled self composting toilet block with access ramp.
6. Two 10m x 6m shelters with water tanks. One shelter is to be relatively open with four 1.5m square benches down the centre while the other will have picnic table units.
7. Two new trails named "Wolf Peach" leading up the hill and away from the Bayview Conservation Area: Main Day-use Area and Trailhead and another called Sorceress being the trail leading back to the Bayview Conservation Area: Main Day-use Area and Trailhead. These trails will be key parts of any race circuit.
8. Inside these two trails will be a short "kid's trail" for children to use while their carers are in the Bayview Conservation

Figure 9: View of the Bayview Conservation Area: Main Day-use Area and Trailhead from the southwest



Figure 10: Bayview Conservation Area: Main Day-use Area and Trailhead Concept Plan



Area: Main Day-use Area and Trailhead.

9. A pedestrian trail that provides access to the top of the ridge and access near the competition track during events.
10. A trail connection from the car park across the gully to the fire trail on the southern boundary where horse will enter onto the fire trail network.
11. A short walking trail connecting from the lagoon to the car park as well as picnic facilities beside the lagoon
12. A levelled area for parking a trailer with portable toilets (and possible showers) to supplement existing facilities during events.
13. A skills area (ramps, logs, berms etc) of 25m x 25m for warm up during events and skills development at other times.

Note on Events

The upper (eastern) shelter is 10m x 6m and has been kept reasonably clear of obstacles. Only four 1.5m square benches down the centre are proposed.

Being free of obstacles will allow room for a timing table on the track side and a registration desk on the opposite side.

During events tape can be stretched to indicate the car parking alignment. It is not proposed that the car park is to be bitumen or that any permanent car parking arrangements such as bollards are put in place.

Events will most likely start on the southern (quiet) end of German Church Road (it is a dead end at this point and only a few private acreage estates and Council's Wastewater Treatment plant are along this stretch). After the race starts it will enter the Bayview Conservation Area Trails Facility via the exit road (which is temporarily closed) and then onto the track network where it will remain until the conclusion of the race.

The reason for this is to meet UCI standards for race starts. The standards require certain track widths over the initial stages of the race to spread competitors out safely. There is not the space to achieve this within the Bayview Conservation Area: Main Day-use Area and Trailhead while accommodating all the other functions that are required.

Figure 11: View into the Bayview Conservation Area: Main Day-use Area and Trailhead from south-east



Figure 12: View into the Bayview Conservation Area: Main Day-use Area and Trailhead from north-east

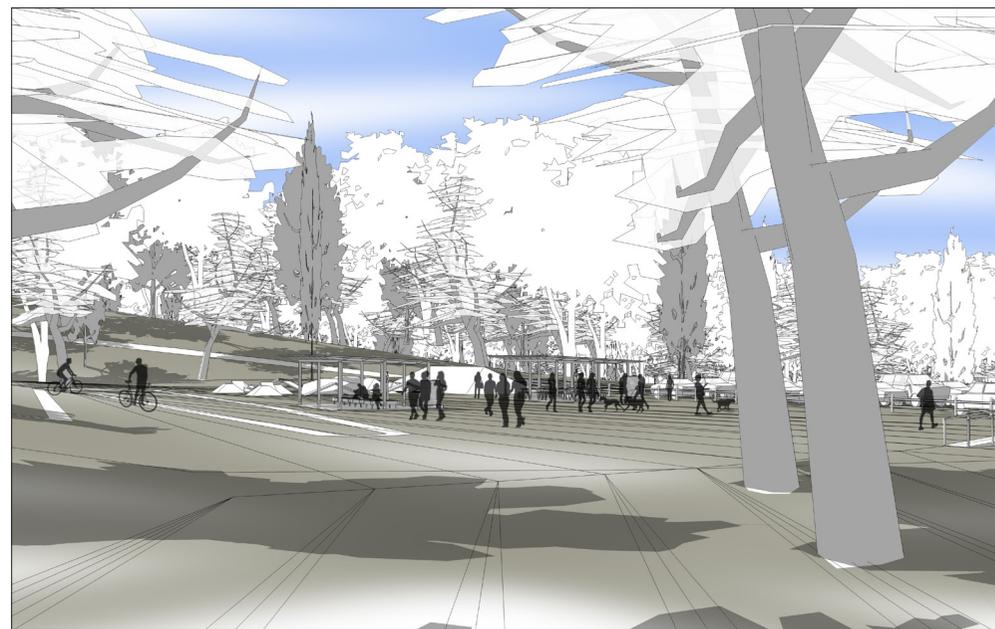


Figure 13: View into Bayview Conservation Area: Main Day-use Area and Trailhead from north-west



Capital Costs

Estimated capital costs are shown in Table 3¹. All prices are ex-GST.

It is estimated that the total cost is in the order of \$618,724.49. It is possible to stage the development. It is essential that the entry and exit roads and the fence around the roads and car parks which will control illegal uses are constructed initially. Car parks could be a gravel construction initially with sealing to happen later.

After that the toilet and at least one shelter (the eastern shelter that is also used for events) should be constructed. Finally, the remainder of the Bayview Conservation Area: Main Day-use Area and Trailhead should be progressively developed.

Stage 1 costs, being the fencing, sealed car park and road upgrades (including bitumen sealing) will cost in the order of \$384,386.49.

Table 3: Capital costs for developing the Bayview Conservation Area: Main Day-use Area and Trailhead

No.	Item	Quantity	Unit	Unit Cost	\$
1.0	SITE WORKS				
1.1	Clear and reseal entry and exit access roads	3,258.12	sq. m.	34.00	110,776.10
1.2	Concrete culvert "bridge" over creek (indicative cost only - subject to design)	1.00	unit	20,000.00	20,000.00
1.3	Grade, compact and seal parking area with bitumen	4,730.00	sq. m.	34.00	160,820.00
1.4	Clear horse trail adjacent to exit road, line with gravel	608.52	sq. m.	34.00	20,700.00
1.5	Lagoon walking trail	407.86	lm	13.00	5,921.00
1.6	Spectator track	971.67	lm	13.00	12,631.71
1.7	Level area for event trailer parking	1.00	lump sum	1,000.00	1,000.00
2.0	FENCES, GATES, and SITE FURNITURE				
2.1	New two-rail steel fence on boundary and to edge of car park	467.67	lm	104.00	48,637.68
2.2	Car park gates	2.00	set	1,300.00	2,600.00
2.3	Slip rail to fire road/horse trail	1.00	set	1,300.00	1,300.00
2.4	Tables and benches near lagoon	2.00	set	6,500.00	13,000.00
2.5	Tables and benches - barbecue shelter	4.00	set	6,500.00	26,000.00
2.6	1.6 x 1.6-metre benches - timing shelter	4.00	set	2,080.00	8,320.00
2.7	New signage (approx)	8.00	unit	585.00	4,680.00
3.0	STRUCTURES				
3.1	"Double" composting toilet block - installed cost	1.00	unit	82,745.00	82,745.00
3.2	6m x 10m shelter	2.00	unit	33,546.50	67,093.00
3.3	Skills course area 25 x 25-metre dimensions	1.00	unit	26,000.00	26,000.00
3.4	Tank, tank stand, guttering and plumbing	2.00	unit	3,250.00	6,500.00
	TOTAL				\$618,724.49

¹ Costs have been derived from supplier quotations, recent Council experience or industry rates. Allowances have been made for design, contingency and project management costs

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7 Signage

Signage Plan

The signage within Bayview Conservation Area Trails Facility at present is “rustic” at best (see Figure 14).

A signage plan has been developed using a mix of bollard style signs and finger boards along the lines of those recently installed at Redlands Track Park (see Figures 15 and 16).

While the finger boards will be almost identical to those at the Redlands Track Park (being either 2m or 3m wide) it is recommended that the bollards be square rather than rectangular so that all four sides can be used for plates. A 200mm x 200mm x 1200mm bollard is suggested.

Table 4 identifies the 22 sites where finger board signs will be required. There are 47 locations where bollards are recommended and these are detailed in Table 5. Figure 17 maps these locations.

Figure 14: Rustic signage typical of that currently provided



Figure 15: Finger board signage in the Redlands Track Park



Figure 16: Bollard signage in the Redlands Track Park



Table 4: Text for finger boards

Site (Refer Map)	Sign Text		
	To next trail or road	Trail Name	To next trail or road
1a	← Kidd Street Xm	Straddie Pipe Pump	Blow, Flutter Xm →
2a	← Sock Puppet East, You're Kidding Xm	Green Snake	Days Road Xm →
3a	← You're Kidding Xm		Green Snake Xm →
4a	← Serpentine Creek Road Xm	Kidd Street	Days Road Xm →
5a	← Slippery Dip		Ganja Boy →
6a	← Teviot Road Xm	Black She-oak	Days Road Xm →
7a	← Ganja Boy		Mudlark →
8a	← Native Dog Xm	Mudlark	Birdcage, The Maze Xm →
9a	← Serpentine Creek Road Xm	Native Dog	Shark Tail, shelter Xm →
10a	← Native Dog, shelter Xm	Shark Tail	Mudlark Xm →
11a	← Shark Tail Xm	Crinkle Bush	Native Dog, shelter Xm →
12a	← Doom Hippy Xm	Snake Road	Sock Puppet East Xm →
13a	← Grass Trees Xm		Sock Puppet West Xm →
14a	← Snake Road Xm		Benson & Binkley Xm →
15a	← Grass Trees Xm		Benson & Binkley Xm →
16a	← Sugar Gum Avenue Xm		Benson & Binkley Xm →
17a	← German Church Road Xm		Snake Road Xm →
18a	← Flutter Xm	Snake Road	Sock Puppet West Xm →
19a	← Blow Xm	Calendar Boys	Doom Hippy Xm →
20a	← Snake Road	Puck Road	Vegemite, Sorceress Xm →
21a	← Days Road Xm	Puck Road	Sorceress Xm →
22a	← Wolf Peach Xm	Puck Road	Days Road Xm →

In addition to the way-finding signage there may be a need for some other signs warning of risks along the trails. These may warn of blind corners, steep drops, unstable surfaces and similar.

The need for these will need to be assessed during the development of the risk management strategy discussed later.

To aid the user experience a series of loop trails will be developed (e.g. 5kms, 10kms) and these will be signed with a simple arrow (e.g. a pink arrow for the 5km loop) and users then follow the appropriate coloured arrows.

All signage should be numbered with Emergency Services codes to allow efficient retrieval of users in distress.

Cost of Signage

Indicative sign costs have been obtained from a local supplier. Final prices may vary slightly. The various costs are:

- 2m wide fingerboards—\$442 each
- 3m wide fingerboards—\$588 each
- Bollards: 200 x 200 x 1200mm—\$838 each
- Bollard Plates: 180mm x 180mm—\$643 per 100

Fingerboard sign lengths are not known at this point so an leverage price of \$540 per sign has been used. Note: GST is ignored in this pricing summary.

Calculations

Item	# of Units	Unit Cost	Total (\$)
Finger Boards	22	\$540.00	\$11,880.00
Bollards	47	\$838.00	\$39,386.00
Plates	400	\$6.43	\$2,572.00
Hazard and Loop	unknown	allowance	\$7,000.00
Installation	69	\$60.00	\$4,140.00
TOTAL			\$64,987.00

Table 5: Bollard locations

Site # (refer map)	Bollard Location	Text	Distance	(RWH) Ride, Walk, Horse
1	On trail	Green Snake		RWH
2	On trail	Puck Road		RWH
3	On trail	Chicken Run	900	RW
4	On trail	Chicken Run	900	RW
5	Spare 1 ¹	Chicken Run	unknown	RW
6	On trail	Vegemite	750	RW
7	On trail	Vegemite	750	RW
8	On trail ²	Flutter	500	RW
9	On trail	Flutter	500	RW
10	On trail	Doom Hippy	500	RW
11	On trail	Doom Hippy	500	RW
12	On trail	Calendar Boys	875	RW
13	On trail	Calendar Boys	875	RW
14	On trail	Blow	580	RW
15	On trail	Blow	580	RW
16	On trail	Sock Puppet West	2.3km	RW
17	On trail	Sock Puppet West	2.3km	RW
18	On trail	Sock Puppet East	1.3km	RW
19	On trail	Sock Puppet East	1.3km	RW
20	On trail ³	Filling Rattler		RWH
21	On trail	You're Kidding	3.2km	RW
22	On trail ⁴	You're Kidding		RW

Site # (refer map)	Bollard Location	Text	Distance	(RWH) Ride, Walk, Horse
23	On trail	You're Kidding	3.2km	RW
24	On trail	Birdcage	2km	RW
25	On trail ⁵	Birdcage	2km	RW
26	On trail ⁵	The Maze	2km	RW
27	On trail ⁶	(Maze-Shark Tail Link) Name?	600	RW
28	On trail	The Maze	2km	RW
29	On trail	Shark Tail	2km	RW
30	On trail	Native Dog		RW
31	Spare 2 ⁷	Crinkle Bush	unknown	RWH
32	On trail ⁸	(Maze-Tail Link) Name?	600	RW
33	On trail	Shark Tail	2km	RW
34	On trail	Snake		RWH
35	On trail ⁹	Grass Trees Link	330	RW
36	On trail ⁹	Grass Trees Link	330	RW
37	On trail ¹⁰	Grass Trees	400	RW
38	On trail ¹⁰	Grass Trees	400	RW
39	Spare 4	Grass Trees	unknown	RW
40	On trail ¹¹	Benson & Binkley	1.5km	RW
41	On trail ¹¹	Benson & Binkley	1.5km	RW
42	Spare 5 ¹²	Benson & Binkley		RW
43	On trail	Sorceress	2km ??	RW
44	On trail	Sorceress	2km ??	RW

Site # (refer map)	Bollard Location	Text	Distance	(RWH) Ride, Walk, Horse
45	On trail	Kid's Loop		RW
46	On trail	Wolf Peach	2km ??	RW
47	On trail	Wolf Peach	2km ??	RW

Notes:

#	Comment
1	For proposed extension of Chicken Run
2	If extended to Straddie Pipe Pump, move sign
3	May change to Green if graded.
4	At halfway point. No distance required.
5	If re-routed, then move sign.
6	If re-routed, move sign. May change to Green. Re-name?
7	Unmade trail to Crinkle Bush. Make multi-use? Wider than single-track?
8	If re-routed may change to Green. Re-name?
9	Possibly a new name
10	Length will change if extended to Benson & Binkley
11	Length will change if extended
12	Proposed extension

8 Management

Trail Maintenance

Once the trails are maintained in accordance with the Trails Audit, then it would be prudent to approve an annual budget to keep them fit-for-purpose. It is important that a budget is allocated to trail maintenance. Trail maintenance not only protects the asset and ensures a quality recreation experience it also mitigates any risk exposure. To be seen to have a regular maintenance program is a key part of risk management.

Maintenance will generally be undertaken through a mix of Council employees (particularly fire trail maintenance), volunteers and contractors.

It is assumed that fire trail maintenance budgets are already allocated and will continue to be as part of the management of Bayview Conservation Area. Maintenance of the single-track is not currently allocated but will need to be as the destination is promoted as Bayview Conservation Area Trails Facility.

Maintenance of the trails will involve regular inspections and simple repairs with programs undertaking larger jobs to ensure the safety of the trail user and address any significant signage repairs or weed/vegetation control.

Table 6 gives a suggested schedule for general maintenance activities to achieve acceptable maintenance levels.

Most trail providers do not allocate a specific budget to trail maintenance so it is difficult to compare with other jurisdictions. However, Brisbane City Council provides \$15,000p.a. to a contractor for a year of monthly one day visits to a limited number of trails and only light maintenance is undertaken (no machines are used and there are no major works involved).

For Bayview Conservation Area Trails Facility it is suggested that a budget of approximately \$20,000 should be allocated and this would allow for a team of three to visit the Park twice a year for a week with machinery. This period should allow them to get across all the single-track and fix regular

maintenance items. Any major maintenance items (e.g. a new bridge crossing) may need to be negotiated outside this contract.

If the Trailcare group becomes particularly active it may be possible to pare this budget.

To keep costs down liaise with Council's Works Branch to reuse old road materials such as road scalplings and broken or damaged stormwater pipes.

Table 6: General maintenance activities

Activity	Site	Frequency
Undertake full inspection of the trail	Entire trail	Every second month
Check signage and clean, replace or repair as required esp. trail crossing signage and directional markers	All locations	Every second month—at each trail inspection
Check trail surface and arrange repair as required	Entire trail	Every second month. Check for erosion at each inspection. Arrange repairs immediately if serious, or schedule maintenance for six monthly work sessions if not
Maintenance of trail surface	Entire trail	Every six months
Sweep or rake debris from trail surfaces, especially at road and trail crossing points	Various locations	Every six months
Maintenance of culverts and other drainage measures	Entire trail	Every six months
Cut back regrowth, intruding and overhanging vegetation	Entire trail	Every six months, unless obviously requiring attention at regular inspections
Check structural stability of interpretive signage, and interpretive shelters	Various locations	Every six months
Undertake Hazard Inspection and prepare Hazard Inspection Report	Entire trail	Annually
Check structural integrity of bridges	Entire trail	Every three years
Major repairs and replacements	Entire trail	Every five years

Council will benefit from knowing the approximate number of trail users. This knowledge will support maintenance and capital bids during budget deliberations. It will also be useful in determining the economic and social benefits derived from providing the trails facility.

Trail counters are battery operated devices that are usually attached to the back of trees to capture users as they break an infrared beam as they pass. They are robust and weather-proof and have been used for many years. They

sell for approximately \$500USD. It is suggested that two are purchased and used across Council's reserves to better capture user numbers in the conservation estate.

Trailhead Maintenance

The Bayview Conservation Area: Main Day-use Area and Trailhead, Days Road and the Shelter on Native Dog Road will need to be maintained.

The Bayview Conservation Area: Main Day-use Area and Trailhead will benefit from ten mows per year. An allowance of \$10,000 has been made for this. The required number of mows per year may actually be fewer given that kangaroos are likely to be attracted to this area and they will keep the grass short. Also, users are not expecting park-like conditions so grass that is a little longer is perfectly acceptable. The grass needs to be monitored for a period to optimise the mowing schedule.

Minor maintenance may be needed on shelters and other capital items. The toilet will also need an annual service. Allow \$6,000 p.a. and monitor it over time for adequacy.

User Feedback

It is important that users have a means to inform Council of any issues in the Track Park. Issues will probably most often relate to trail and facility maintenance but might also include incidents with illegal users, close calls on blind corners and similar matters.

Several channels will be required and these need to be promoted at Trailheads and entry points. Channels should include:

- Council's telephone number
- Council's email address
- Council's web site
- Facebook

Trail counters should also be installed on several trails. Trail counters will build a picture, over time, of how many people are using the park, when and if that usage is varying.

The trail counters will provide information to assist in capital and maintenance budget formation and in evaluating economic tourism benefits (when combined with other data).

Trail Care

There are many enthusiastic volunteers among the mtb, walking and trail running community who are keen to assist Council in maintaining the Bayview Conservation Area Trails Facility. Some people have already left their name with Council to be involved.

Redland City Council has used trailcare volunteers for many years. Volunteers are usually involved with light maintenance using hand tools with heavier machinery based maintenance being undertaken by Council staff or external contractors.

Recently suppliers have begun using flat-packs to package their products. Using "flat-pack" improvements where possible will allow volunteers to construct the item (could be a small bridge for instance) relatively easily.

Further ideas for using volunteers or involving the community can include "adopt a trail" or sponsorship of a trail initiative. Volunteers can also take on a role as trail ambassadors—see the discussion of IMBA's Mountain Bike Patrol on page 42.

Risk Management

It is important that Council considers risk management as part of its provision of Track Parks.

It is suggested that rather than develop a unique risk management plan for Bayview Conservation Area Trails Facility that a risk management plan is developed for the class of facilities known as track parks. A broad risk management plan would then encompass Redlands Track Park and any future Track Park that is developed.

Risk management is a systematised approach to incorporating safety into the trail-based recreation experience. As a minimum a risk management plan must manage the risks on the trails and the trailheads and minimise any legal actions.

To achieve this the Bayview Conservation Area Trails Facility will need to:

1. Design and build trails appropriately
2. Manage and maintain them consistently and responsibly
3. Acquire the protection of a sound insurance policy or other risk transference strategies

It is assumed that point three is covered with Council's existing insurances so the following information relates mainly to the first two points.

Developing a Risk Management Plan

By developing a risk management plan Council is demonstrating its commitment to safety in its Track Parks. Council is seen as a responsible manager which may deter any frivolous claims from being made.

The good news is that Council is already (or would as normal business) be doing most of the things that are required in a risk management plan. Following is a list that should be reviewed in developing a Track Park Risk Management Plan.

1. Risk Management Team

Recruit a team who will be responsible for making sure the risk management program is developed, implemented, and documented. Designate a team leader to oversee that this happens.

2. Philosophy Statement

Demonstrate Council's commitment to risk management by writing an official statement that declares its position on safety and risk. This could be considered the 'mission statement' for Track Parks in the Redlands.

3. Trail Design and Construction Policy

It is important that Council develops or adopts guidelines or a policy on trail design and construction. Australian Standards exist for walking tracks; IMBA or UCI standards are usually adopted for mountain bike trails and horse trail standards are issued by the Australian Trail Horse Riders Association. Adopting a Standard issued by a relevant authority provides significant protection to Council.

4. Trail Difficulty Rating System

The standards mentioned above all incorporate trail difficulty rating systems. Post clear signs that indicate the relative technical difficulty of each trail. This will encourage visitors to

use trails that match their skill level and can minimise injuries.

5. Signage System

Signs play a vital role in managing risk. Consider using warning signs to mark unexpected hazards. Signs can also be used to indicate trail difficulty, remind visitors of trail rules, encourage responsible riding, and many other things.

Signs at all entrance points and trailheads should indicate that modifying the track is not allowed. Some text along the lines of "Do not build/reconstruct any trail" as well as reinforcing the environmental values of Bayview Conservation Area should be prominent.

6. Visitor Rules and Regulations

Assemble all the existing trail-user regulations and policies and review them for relevance. Add or modify safety regulations if needed. Display them at trailheads and entrances.

7. Emergency Management Plan

An action plan for emergencies is vital. Bushfires are the most likely form of emergency to strike a Track Park.

An emergency management plan will need to consider how the Park is cleared in emergencies and when it should be closed (e.g. when there is a high fire danger or after very wet weather).

It will also need to consider individual person emergencies such as being unable to walk after an incident and needing assistance to get to safety.

8. Trail Inspection and Maintenance Policy

It is necessary to develop a trail inspection and maintenance policy and then stick to it. A documented and enacted system will demonstrate clearly Council's commitment to a safe trails experience.

9. Maintain Trail System Consistent with Policy

When the trail policies have been established it is important to have a plan to implement them. This does not mean that all matters need to be addressed straight away but it is important to have a long term plan that shows how they will be addressed or implemented over time.

10. Record Keeping System

Keep a record of all actions taken to improve safety in the Park, particularly a maintenance inspection and actions log.

11. Accident Reporting and Analysis System

All reported incidents need to be recorded and tracked. By tracking accidents that occur in the Park Council will be in a position to improve its risk management systems and prove its continuing commitment to safety. Identifying and addressing hazards, improving emergency services, and providing a higher level of care can result from accident tracking.

12. Trail Patrol

Develop a volunteer trail patrol to regularly ride and report upon all the trails. From trail inspection and hazard identification to accident reporting and on-the-fly maintenance, a volunteer patrol is a good way to accomplish many risk management duties. As an example of this concept in action see the Information Box on IMBA's National Mountain Bike Patrol.

13. Periodic Review

Keep the risk management plan updated. Inevitably, the trail system will evolve, users will adopt new equipment and the trail-work priorities will shift. Keep up with the changes through a periodic review of the risk management plan.

IMBA's National Mountain Bike Patrol

IMBA's National Mountain Bike Patrol (NMBP) consists of dedicated volunteers partnering with land managers, landowners and emergency personnel to assist, educate and inform all trail users in order to enhance their recreational experience. The NMBP program (in the USA) consists of more than 50 volunteer bike patrol groups and 600+ trained patrollers. NMBP volunteers:

- Assist in medical and mechanical emergencies
- Educate trail users of proper etiquette
- Inform land managers, land owners and trail users of trail conditions through monitoring efforts
- Work with land managers to maintain and/or gain trail access for mountain bikers
- Offer volunteer services at outdoor races and events
- Collaborate with local clubs on trail work days, clinics, group rides and *Take a Kid Mountain Biking Day* events

Since 1994, the NMBP has provided hundreds of thousands of hours of volunteer service to countless land management agencies and trail users. Patrols operate as a volunteer group for the local land management agency and may or may not be affiliated with an area mountain bike club. Patrollers promote responsible mountain biking through IMBA's philosophy of environmentally sound and socially responsible riding, embodied in the universally recognised IMBA Rules of the Trail.

Single patrollers, operating without a patrol group, are not permitted to join the NMBP. The program is comprised of groups that work in partnership with land agencies, and each patrol group must have a signed patrol agreement in place with their local land managers or race promoters.

9 Financials

Various financial information has been outlined in the Plan in the appropriate sections. It has been consolidated here so that readers do not have to sift through the whole plan to gather the data.

New Trails (p24)

Five significant new trails are proposed though two are concepts and need more work before they are constructed. Developing all trails may cost in the order of \$206,000 made up of:

1. Sorceress and Wolf Peach Trail—3,700m at \$20/m = \$74,000
2. Children's track—300m at \$20/m = \$6,000
3. Concept 1—4,500ms at \$20/m = \$90,000
4. Concept 2—1,800m at \$20/m = \$36,000

Maintenance of Existing Trails (p21)

A comprehensive audit of the existing single-track was undertaken.

As well as maintenance of existing tracks there were recommendations that included 2.5kms of single-track to be added and 2.2kms to be removed—a net gain of 300m.

The total of all repairs, re-routes and track closures is estimated at \$74,100.

Bayview Conservation Area: Main Day-use Area and Trailhead (p33)

The cost of fully developing the Bayview Conservation Area: Main Day-use Area and Trailhead is estimated at \$618,724.49. The development can be staged with road access, car parking and fencing the only essential items to be developed immediately. Stage 1 would cost approximately \$384,386.49. Even this could be reduced even more if bitumen sealing is not used on the roads and car parks initially.

Other Trailheads (p26)

Native Dog Road

To build a car park and improve sight lines when exiting a budget of \$8,250.00 is suggested.

Days Road

An allowance of \$4,000 is suggested to extend car parking at Days Road but it may not be required. With additional trailheads the demand may be spread and the existing car parking may be sufficient.

Signage (p36)

Within the signage portfolio there are directional finger boards and bollards, hazard signs and route (loop) markers.

It has been calculated that the total signs package will be in the order of \$64,987.00.

Entrances (p26)

A two-post map stand at each entrance (11 stands at \$1,450) = \$15,950.00.

Trailhead Maintenance (p40)

Allow \$10,000p.a. for mowing and \$6,000p.a. for shelters, annual toilet service and other capital items.

Trails Maintenance (p39)

Allow \$20,000p.a. and monitor it over the first few years. The budget could be lower if there is a high volunteer input to trail maintenance.

Design and Project Management

An allowance has been made for design and project management in the costs outlined above (where necessary). All prices are ex-GST.

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10 Appendix 1—Trail Audit Detail

Detailed Trail Audit Sheets for the following trails:

- Benson and Binkley
- Birdcage
- Blow
- Calendar Boys
- Crinkle Bush New Link
- Flutter
- Grass Trees
- iO
- Link to Chicken Run
- Shark Tail to Maze
- Shark Tail
- Sock Puppet East
- Sock Puppet West New Track
- Sock Puppet West
- The Maze
- Unmaintained Fire Road
- You're Kidding

Summary			Works	Cost		
The only trail in Bayview with grade reversals, hence unlikely to erode. Blue rating, very narrow with embedded rocks. Some poor design at the western end.			Re-build x5 log roll-overs. X2 minor re-routes. Suggest extending to northern fire road as per map.	\$1400 Extension \$4000		
WayPt	Description	Photo No.	Remedy / Action	Photo	Trail contractor or volunteers	
52	Start of Benson and Binkley at intersection with eroded fire road	648	Suggest extending Benson & Binkley to northern fire road as per map to enhance the loop back to Snake fire road.			
53	200mm log with chain rung cuts	649	Create rollable, Blue rating log roll-over		Volunteers after contractor drops off x3 log sections.	
54	Binkley and Benson sign screwed to tree	650	Remove sign. Install directional signage			
55	200mm log and rock roll-over	651	Create rollable, Blue rating log and rock roll-over		Volunteers after contractor drops off x3 log sections.	
56	200mm log and rock roll-over	652	Re-build as Blue roll-over and use as water diversion		Volunteers after contractor drops off x3 log sections.	
57	x2 rotten logs, close together	653	Re-build as Blue roll-over and use as water diversion		Volunteers after contractor drops off x3 log sections.	
58	Benson and Binkley sign screwed to tree. Bridge 600mm wide, well constructed.	654	Remove sign.			

59	400mm log with chain ring cuts. Several stumps in tread.	655	Create rollable, Blue rating log roll-over. Remove stumps here and elsewhere.		Volunteers after contractor drops off x3 log sections. Medium priority.
60	Intersection with old fire road. Benson and Binkley goes straight across.	656			
61	Intersection with maintained fire road. Benson and Binkley goes straight across.	657			
62	Bottom of steeping descending section. About 30 to 45% maximum.	658	Suggest re-route by extending the trail further up the gully to lessen gradient. That is, contour around gully with grade reversals.		Volunteers or contractor. Medium priority.
63	Descent to 90 degree bottom turn. Braking and skidding to corner. Water erosion.	659	Minor re-route with grade reversal.		Volunteers or contractor. Medium priority.
64	Long descent to tight corner	660	Minor re-route with grade reversal.		Volunteers. Low priority.
65	End / start of trail. Intersection with old, unmaintained fire road. The fire road has narrowed in places and used mostly as access to Benson and Binkley or Grass Trees. Benson and Binkley has erosion at start due to runoff from fire road.	661	Consider grading old fire road, adding drainage and maintaining as narrow trail for access to singletrack. Divert water running off fire road into Benson and Binkley. Suggest creating new singletrack link to Grass Trees.		Council, contractor. Medium priority.

Summary			Works	Cost	
Very easy Green rating trail. Requires drainage points to avoid erosion in the long term. Suggest re-routing final section to Mudlark to connect with changed start of The Maze.			Remove two hazardous trees. Drainage points required to prevent erosion in the future. Re-route final section to connect with changed start to The Maze. See map - create a five-ways.	\$800 \$ 1500	
Way Pt	Description	Photo No.	Remedy / Action	Photo	Trail contractor or volunteers
6	End of You're Kidding and start of Birdcage at gate on Kidd Street	603	Place signage on Kidd Street gate at start/end of two trails: You're Kidding and Birdcage		
7	Between waypoint 6 and 7 is a parallel track which is poorly sited, falling over entire length. Less interesting.		Recommend closing this track in favour of other parallel trail which is more interesting, getting more use by MTB riders.		
8	Start of old track, evidence of use by horses. Rotten log.	606	Consider if this track is necessary. Most used trail starts at the gate. Suggest closure to rationalise trail network.		
9	Intersection of old track and Birdcage at a large steel 'cage'. Old track is marked by waypoint 7, 8 and 9.	607, 608	Site of steel 'cage'.	 	
10	Section between waypoint 9 and 10 falls, without drainage. Site of toilet beside the trail.	609	Install drainage points		Volunteers . Low priority.
11	Old moto loop with some jumps and berms.	610	Incorporate 'moto' loop in Birdcage to add interest.		Volunteers . Low priority.
12	Birdcage sign screwed to tree	611	Remove sign. Install appropriate directional signage.		

12	Leaning tree	612	Remove hazard as soon as possible.		Contractor or Council. High priority.
13	Log roll-over with chain ring cuts	613	Make rollable in both directions, at a Green rating		Volunteers after contractor drops off x3 log sections.
14	Leaning tree	614	Remove hazard as soon as possible.		Contractor or Council. High priority.
16, 17	Bottom of 150m of falling gradient with no drainage.		Install drainage points		Volunteers or contractor. Low priority.
18	End of Birdcage, intersection with Mudlark fire road.	615	Install signage. Suggest re-routing final section of Birdcage if and when the start to The Maze is re-aligned.		

Trail: **Blow**
 IMBA TDRS: Green -> Blue

Bayview Conservation Park
 MTB Trail Audit June 2015

Distance: **580m**
 Average gradient: **7%**

Summary			Works	Cost	
Green trail which requires some repair to maintain Green rating.			x4 grade reversals, re-design x1 corner, rebuild x2 log roll-overs and rock armour x1 tree root.	\$2000	
WayPt	Description	Photo No.	Remedy / Action	Photo	Trail contractor or volunteers
46	Section descending at low gradient		Install x1 grade reversal		Contractor or volunteers. Low priority.
47	Section descending at low gradient. Leaning dead tree.		Install x2 grade reversals and remove leaning tree.		Contractor or volunteers. Low priority. Leaning tree - high priority.
48	Trail name sign screwed to tree.	542	Remove sign and install directional trail signage.		
49	Poorly designed descent to bermed corner with log drop.	543	Re-design approach to corner and rebuild (Green) log drop.		Contractor
50	Exposed root on section requiring grade reversal.	544	Install x1 grade reversal at root.		Volunteers
51	Two trees too close together. Evidence of many scraps from handlebars.	545	Remove smaller tree on uphill side. Minor repair to bermed corner nearby.		Contractor with chainsaw
52	Exposed tree root	546	Rock armour tree root		Volunteers

Trail: Blow
IMBA TDRS: Green -> Blue

Bayview Conservation Park
MTB Trail Audit June 2015

Distance: 580m
Average gradient: 7%

53	150mm log roll-over	547	Rebuild sturdy structure to Green rating.		Volunteers after contractor drops off x3 log sections
54	Top of Blow, intersection with Scribbly Gum fire road.				

Summary			Works	Cost		
Green trail, low gradient, without drainage points.			Minor works required. x5 grade reversals, x1 creek armour and tree removal.	\$2800		
WayPt	Description	Photo No.	Remedy / Action	Photo	Trail contractor or volunteers	
32	Start of Calendar Boys. Sign screwed to tree near start.	535	Remove sign and install directional trail signage.			
35	50m descending section without drainage		Install x1 grade reversal		Volunteers. Low priority.	
36	Creek crossing with 15m of descending trail coming from both sides.	536	Install x1 grade reversal on each side		Volunteers or contractor. Low priority.	
37	Rotten log roll-over	537	Rebuild sturdy structure		Volunteers. Medium priority.	
38	Fallen tree causing alternative route through low lying land.	538	Remove tree and reinstate original trail.		Volunteers or contractor or Council with chainsaw.. Medium priority.	
39	Very short link to Hopbush fire road.					
40	Blue rating log drop, about 400mm drop.	539	Blue Technical Trail Feature on a Green trail. Re-build as roll-able in both directions and provide a rock/soil/log ramp as a Green option.		Volunteers. Contractor to drop off x3 log sections.	

Trail: Calendar Boys
IMBA TDRS: Green

Bayview Conservation Park
MTB Trail Audit June 2015

Distance: 875m
Average gradient: 5%

41	Long falling section at low gradient. No grade reversals.	540	Re-route to install grade reversals, in keeping with Green rating.		Volunteers or contractor. Low priority.
42	Creek crossing		Rock armour 1m x 50cm		Volunteers or contractor. Low priority. Contractor to drop off rock.
44	End of Calendar Boys at Hopbush fire road.	541			

Partial singletrack link to Crinkle Bush.
Not properly constructed.

Bayview Conservation Park
MTB Trail Audit June 2015

Distance: 395m
Average gradient: 2.5%

Summary			Works	Cost	
Poorly designed descending track with no drainage, heading for wet, boggy terrain above Serpentine Creek.			Close as soon as possible. Designing and constructing a wide, contoured link to Crinkle Bush fire road at higher elevation, in better soils.	\$700 closure New constructed link: \$3500	
WayPt	Description	Photo No.	Remedy / Action	Photo	Trail contractor or volunteers
35	Start of partial new singletrack at intersection with Shark Tail	633	Apparent aim of track is to connect with Crinkle Bush fire road parallel to Serpentine Creek.		
36	Track constantly descending from waypoint 35-36. Boggy at low point of trail, above Serpentine Creek. Moto tyre marks.	634	Poor trail design: Falling gradient, no drainage, descending to tight corners. Descending to wet, boggy terrain above Serpentine Creek. Close as soon as possible and design and construct sustainable link to Crinkle Bush.		Volunteers or contractor

Summary			Works	Cost	
More undulating than other Green trails but still within Green rating. Suggest extending and linking to Straddie Pipe Pump fire road, near Doom Hippy.			x4 grade reversals, remove small tree. New link extending to Doom Hippy.	\$1400 Extension \$ 3000	
WayPt	Description	Photo No.	Remedy / Action	Photo	Trail contractor or volunteers
54	Start / end of Flutter at Straddie Pipe Pump fire road.				
55	Descending section without drainage. Photo of log halfway.	548	Install x2 grade reversals.		Contractor or volunteers
56	Poorly designed descent to corner.		Install x1 grade reversal with minor re-route.		Contractor
57	Two trees too close together. Evidence of many scraps from handlebars.	550	Remove the skinny tree.		Contractor with chainsaw
58	Intersection with old fire road.				
59	Erosion from runoff from fire road above.	551	Install x1 large grade reversal near the end of Fluffer to direct run-off from fire road. Re-instate outslope of trail.		Contractor or volunteers
60	Start / end of Flutter at fire road.		Suggest extending to Stradie Pipe Pump fire road, near Doom Hippy.		

Summary			Works	Cost	
Unmaintained trail with tight climbing/descending corners which have severely eroded. Essential link which is unride-able uphill by most riders.			Re-design and re-route top five corners. Extend by creating a contoured connection to Benson and Binkley. See map.	\$2500	Extension \$4000
WayPt	Description	Photo No.	Remedy / Action	Photo	Trail contractor or volunteers
68	Start / end of Grass Trees at intersection with fire road.	664	Suggest extending Grass Trees around to Benson & Binkley as a contoured trail.		
	Grass Trees sign screwed to dead tree near start	665			
69	Descent to first, tight corner. 400mm hole in tread.	666	Re-design and re-route all five turns here.		Contractor. High priority.
71	Second corner, deep rut, pedal catch.	667	Re-design and re-route all five turns here.		Contractor. High priority.
	Eroded descending 4th corner	668	Re-design and re-route all five turns here.		Contractor. High priority.
72	Bottom of 50m descending trail without drainage. Dry creek crossing.	669	Install drainage above crossing.		Contractor. Medium priority.
73	Start / end of Grass Trees at intersection with fire road. Old, unmaintained, steep fire road in vicinity.	670			

Trail: iO
 IMBA TDRS: Blue due to erosion and tight corner.

Bayview Conservation Park
 MTB Trail Audit June 2015

Distance: 470m
 Average gradient: 3%

Summary			Works	Cost	
Poorly sited trail going through riparian zone and not connected to singletrack network.			Suggest close and remediate entry points at least. May be resisted by some riders.	\$900 closure	
WayPt	Description	Photo No.	Remedy / Action	Photo	Trail contractor or volunteers
47	Start of iO at intersection with Mudlark fire road. Severe erosion at start due to water running off the fire road on to the trail.	644	Moto tyre marks but no MTB tyre marks. Suggest close and remediate entry point.		Volunteers or contractor.
48	100m severe erosion between waypoints 47 and 48. iO trail name screwed to stump.	645	Suggest close and remediate entry point.		Volunteers or contractor.
49	Creek / lagoon crossing. Moto tyre marks.	646	Close trail, little use, poorly sited in riparian zone, descending sections have no water diversion.		
50, 51	End / start of iO at intersection with Black She-oak fire road.	647	Suggest close and remediate entry point.		Volunteers or contractor.

Summary			Works	Cost		
Poor link to other singletrack. Suspect low usage. Poorly designed, low lying, flows like a creek.			Recommend closure and remediation to mask entry points. Replace with contoured link (Green) from end of Chicken Run to Flutter which connects to other singletrack.	\$400 closure		
WayPt	Description	Photo No.	Remedy / Action	Photo	Trail contractor or volunteers	
61	Start / end of link on Straddie Pipe Pump fire road.	552	Recommend closure and remediation to mask entry points. Create Green extension of Chicken Run to Flutter to replace this link.		Volunteers	
62	Start / end of link on Chicken Run		Recommend closure and remediation to mask trail entry points.		Volunteers	

Summary			Works	Cost		
Very old trail on sandy soil with long falling sections with no drainage. Never been maintained and has moderate to severe erosion, especially approaching the creek crossing.			Many more water diversions required and repair to ruts and holes. Option 1: re-route both descents to creek crossing and install water diversions. Option 2: re-align to avoid creek crossing and link to Mudlark instead of The Maze. See map - create a five-ways.	\$3000 Option 2: \$3500		
WayPt	Description	Photo No.	Remedy / Action	Photo	Trail contractor or volunteers	
40	Start of link to The Maze at intersection with Shark Tail	639				
41	Bottom of descending section with no drainage. Deep erosion and soil loss.		Repair erosion and install adequate water diversion.		Volunteers or contractor. Medium priority.	
42	The Maze sign screwed to tree. Section between waypoints 41 and 42 highly eroded with exposed roots	640	Remove sign and install directional signage.			
43	400mm erosion hole at creek crossing with 100m of erosion above this point.	641	Repair erosion and install adequate water diversion. Re-route to install grade reversals.		Volunteers or contractor. Medium priority.	
44	200 metres of major erosion and exposed roots between waypoints 43 and 44.	642	Repair erosion and install adequate water diversion. Re-route to install grade reversals.		Contractor. Medium priority.	
45	Close to intersection with The Maze. Top of very long descending section that is eroded, ending at the creek crossing.		Repair erosion and install adequate water diversion. Re-route to install grade reversals. Suggest completely re-designing to avoid creek.		Contractor. Medium priority.	

Summary			Works	Cost	
<p>Shark Tail poses some issues. An old trail with falling gradient without water diversion it is now severely eroded with exposed roots and some deep holes. Rated as Blue to Black in this state.</p> <p>Issue 1: Advanced riders enjoy the challenge of the terrain and don't want change.</p> <p>Issue 2: How do less experienced rider return north after riding The Maze.</p>			<p>Retain eroded state but prevent further deterioration by adding water diversions. Repair obvious hazardous holes and drops.</p> <p>Remediate the trail to a Blue rating. Retain creek crossing where it is.</p> <p>If creek crossing retained, both approaches require re-alignment. Crossing should be hardened or simple timber bridge constructed.</p>	\$ 4000	
WayPt	Description	Photo No.	Remedy / Action	Photo	Trail contractor or volunteers
29	Bottom of Shark Tail and site of shelter, bike repair station and tank water.	627			
30	Deep sandy section, chewed up by moto.	628	Repair and add several water diversions above		Volunteers. Logs may be required for water diversion. Medium priority.
31	Deep erosion holes and soil loss	629	Sandy soil is highly erodible. Average gradient should be less than 5%. Frequent grade reversals required or water diversions.		Volunteers. Logs may be required for water diversion. Medium priority.
32	Shark Tail sign screwed to tree	630	Remove sign and install directional signage		
33	150mm log. Two large fallen Eucalypts are beside the trail.	631	Make Green, rollable log feature. Fallen timber available on site.		Volunteers, after log sections dropped by contractor. Medium priority.
34	Section between waypoint 33 to 34 highly eroded with exposed roots. Falling gradient with no drainage.	632	Repair erosion rut and install frequent drainage. Suggest using timber corduroy and log roll-overs as water diversion.		Contractor. Medium priority.

35	Intersection, partial new singletrack to the west. Ends in bog/lagoon.	633	See report on this partial track. Recommend closure as soon as possible. Replace with wide, contoured trail to Crinkle Bush.		
37	Section between waypoints 35 and 37 highly eroded with exposed roots and deep holes. Steep descent on both approaches to crossing of	635	Suggest complete re-design of where trail crosses the creek. Option 1: Contour the trail to the east and cross creek at shortest distance with lowest side slope. Option 2: repair current site and make minor re-routes to install drainage.		Contractor and volunteers. Medium to high priority.
38	Section between waypoints 37 and 38 highly eroded with exposed roots and deep holes.	636	Suggest re-design of long section of severely eroded trail. Difficult to repair. If kept, install water diversion to prevent further erosion. Rate as difficult (Blue - Black) trail. Suggest using timber corduroy and log roll-overs as water diversion.		Contractor or volunteers. Medium to high priority.
39	500mm hole is trail. Section between waypoints 38 and 39 highly eroded with exposed roots and deep holes.	637, 638	Suggest re-design of long section of severely eroded trail. Difficult to repair. If kept, install water diversion to prevent further erosion. Rate as difficult (Blue - Black) trail.	 	Contractor or volunteers. Medium to high priority.
40	Intersection of link to The Maze	639	See report on link between Shark Tail and The Maze		
46	Top or start of Shark Trail, intersection with Mudlark fire road.	643	Low gradient top section of trail requires minor repair of erosion and installation of water diversion.		Volunteers.

Summary			Works	Cost	
Green rating with one technically difficult rock drop on corner and some logs which are not roll-able. Many large trees and branches have fallen in this area.			Rebuild x3 log roll-overs. X2 minor re-routes with x2 grade reversals. Generally requires much more water diversion along whole trail.	\$2300	
WayPt	Description	Photo No.	Remedy / Action	Photo	Trail contractor or volunteers
	Start of Sock Puppet East at intersection with Acid Frog	577			
81	Bottom of long section falling at low gradient, without drainage. Sock Puppet East sign nailed to tree.	578	Remove sign and install trail signage.		
82	Top of long section falling at low gradient, without drainage.	579	Install small drops and rises and water diversion.		Volunteers
83	Two tight radius turns with rock drops - poorly designed. No drainage above.	580	Re-design as one turn with grade reversal. Maintain rock garden technical feature, maybe with more difficult A-line.		Contractor
84	300mm log roll-over with chain ring cuts	581	Rebuild as sturdy and roll-able (Green).		Volunteers after contractor drops off x3 log sections
85	x2 log roll-overs and x3 stumps	582	Remove stumps here and elsewhere. Make logs roll-able.		Volunteers
86	Bermed corner at bottom of descent - poorly designed.	583	Re-route corner and install grade reversal.		Volunteers or contractor

Trail: Sock Puppet East
IMBA TDRS: Green

Bayview Conservation Park
MTB Trail Audit June 2015

Distance: 1.3km
Average gradient: 4%

87	Log roll-over with chain ring cuts	584	Rebuild as sturdy and roll-able (Green).		Volunteers after contractor drops off x3 log sections
88	End of Sock Puppet East and intersection with Green Snake fire road.	585			

Summary			Works	Cost		
Green rating link to western singletrack. Feeds into Sock Puppet West nearby.			Minor water diversion required.	\$600		
WayPt	Description	Photo No.	Remedy / Action	Photo	Trail contractor or volunteers	
74	Intersection of concrete causeway and new singletrack	673				
75	Between waypoint 74 and 75 not enough drainage. Good condition at the moment. Intersection with old fire road.	674	Install water diversion to prevent future erosion.		Volunteers. Low priority.	
76	Start / end of singletrack at fire road.	675				

Summary			Works	Cost	
Low gradient trail starting with natural and man-made dips and rises. Some moderately long falling and rising sections without drainage. Largely Green rating with some Blue (more difficult) technical features. Many large trees and branches have fallen in this area.			Rebuild x7 log roll-overs and install drain above. Install about x14 minor grade reversals or water diversion.	\$4000	
WayPt	Description	Photo No.	Remedy / Action	Photo	Trail contractor or volunteers
63	Start / end of Sock Puppet	557	Starts after crossing Serpentine Creek at culvert.		
64	Sock Puppet West sign screwed to tree	558	Remove sign and install directional signage.		
65	Technical Trail Feature (TTF) tight squeeze between two trees	559	Keep as feature		
66	Stump in tread	560	Remove stump hazard here and elsewhere.		Volunteers
66	300mm log drop	561	Rebuild log roll-over to Green rating with Blue option. That is, option to drop and option to roll.		Volunteers after contractor drops off x3 log sections. Medium priority.
66	Dead tree 'ramp' feature	562	Re-build as technical skill beside main trail using this material		Contractor with chainsaw. Low priority.

66	Bottom of 40m section without drains		Install x1 grade reversal		Volunteers or contractor. Low priority.
67	Very technical combination of tree root followed by tree stump.	563	Modify to be safely rideable with A- and B-line options. Hazard.		Contractor or volunteers. High priority.
68	Creek crossing through Melaleuca swamp; stump in tread	564	Armour with rock or corduroy? Cap with road base? Remove stump.		Contractor to import material.
69	Bridge' 350mm wide	565	Sturdy enough at the moment, but will rot. Medium priority to build timber span.		Contractor. Medium priority.
70	Start of two descending switchbacks without drainage.	566	Install x2 grade reversals		Contractor or volunteers. low priority.
71	400mm rotten log roll-over	567	Rebuild to Green rating and ensure is roll-able in both directions.		Volunteers after contractor drops off x3 log sections. Medium priority.
72	Bottom of 100m low gradient falling section without drainage	568	Minor re-routes and install x5 grade reversals or water diversions.		Contractor or volunteers. low priority.
73	x2 small logs with erosion below	569	Install log roll-over with drains as water diversion.		Contractor or volunteers. low priority.

74	200mm log drop. No drainage above.	570	Install large drain above and armour 'thump zone' below		Contractor or volunteers. low priority.
75	400mm log roll-over (Blue). Bottom of long section without drainage.	571	Install drain above and armour 'thump zone'. Create Green B-line over logs. Install x1 minor re-route and x1 grade reversal above.		Contractor or volunteers. Medium priority.
76	Intersection with small link to fire road. Link channels water on to trail.	572	Important link to/from Grass Trees area of trails.		
77	Technical log feature (Black) to side of main trail. Log ramp to top of 500+mm high fallen log.	573, 574	Rebuild sturdy log roll-over.		Contractor with chainsaw.
78, 79	Bottom of very long section falling at low gradient, without drainage.	575	Install water bars and drains x5 over 100-200m		Contractor or volunteers. low priority.
80	End of Sock Puppet West, intersection with Snake fire road which crosses Serpentine Creek. Trail prone to retaining water for	576	Cap last 10m with road base.		Contractor or volunteers if road base dropped nearby. Low priority.

Summary			Works	Cost		
Very easy Green trail, narrow but the corridor through the Casuarina forest is cleared to 2+ metres. Suffers from falling section which result in erosion, even at low gradient, due to very sandy, erodible soil. Boggy sections. Suggest re-aligning the start in conjunction with link to Shark Tail.			Three boggy sections requiring rubble and road base. Re-design and re-route one corner. Minor repairs to holes in tread. Change alignment at start in conjunction with change to link to Shark Tail. See map - create a five-ways.	\$ 2500 \$ 3500 change alignment		
WayPt	Description	Photo No.	Remedy / Action	Photo	Trail contractor or volunteers	
18	End of Birdcage and start of The Maze		Suggest making this the start of The Maze which is obviously ridden after Birdcage. Suggest re-aligning the northern start along with the link to Shark Tail to avoid steep, eroded crossing of creek gully.			
19	Sign screwed to tree - Koolyarknobby's.	616	Suggest removal (for poor taste and grammar) and naming this section The Maze.			
20	Intersection with link to Shark Tail	617	The section of trail from waypoint 18 to 20 is almost flat, weaving through Grass Trees and vegetation.			
20	Example of orange dots painted on trees as an aid to way-finding.	618	Harmless. Indicates the need for formal signage to aid navigation.			
21	400mm deep erosion hole in sandy soil.	619	Deep hole and some exposed roots indicating highly erodible sandy soil. Install adequate drainage above and repair due to hazard.		Volunteers. High priority.	
22	15 metres here and 2 metres after of severe erosion.	620	Install adequate drainage above and repair due to hazard. Possible remedies include bringing in rubble or rock, or timber corduroy. Install more Green log roll-overs as water bars.		Contractor. Medium priority.	

23	Bottom of steeper descending section. 10 metres of muddy bog as this is the lowest point of the trail and surrounding terrain.	621	Install adequate drainage above and repair due to hazard. Possible remedies include bringing in rubble or rock, or timber corduroy. Install more Green log roll-overs as water bars.		Contractor. Medium priority.
24	Fallen log, hazard beside the trail	622	Move or cut back.		Contractor. Medium priority.
25	Muddy bog as this is the lowest point in the trail and surrounding terrain.	623	Install adequate drainage above and repair due to hazard. Possible remedies include bringing in rubble or rock, or timber corduroy. Install more Green log roll-overs as water bars.		Contractor. Medium priority.
26	Old track to lagoon. Poorly designed corner with exposed roots directs riders to the lagoon.	624	Close and remediate old track. Re-design corner by re-routing trail. Add drainage and repair exposed roots.		Contractor. Medium to high priority.
27	200mm log drop	625	Re-build as rollable, Green feature.		Volunteers after contractor drops off log sections. Medium priority.
28	End of The Maze and intersection with Shark Tail.	626	Install directional signage		

Unmaintained fire road, with loop at bottom.

Bayview Conservation Park
MTB Trail Audit June 2015

Distance:
Average gradient:

Summary			Works	Cost	
Old fire road only used for access to Grass Trees and Benson and Binkley. Not maintained, falling gradient, some erosion. Bottom loop not used by MTB riders.			Suggest grading fire road, adding drainage and retaining as a narrow trail. Consider closing and remediating bottom loop, if not required as fire break.		
WayPt	Description	Photo No.	Remedy / Action	Photo	Trail contractor or volunteers
65	Unmaintained fire road has narrowed. At intersection with Benson and Binkley, the fire road continues to boundary and loops back as a narrow track.	661	Suggest grading fire road, adding drainage and retaining as a narrow trail.		Council
66	Loop descends to boundary and climbs back. Falling gradient without drainage.	662	Consider closing and remediating bottom loop, if not required as fire break.		Council
67	Tree down and alternative trail has been created. Car body.	663	Decide which trail to stay and remediate the other. Remove car body.		Council

Summary			Works	Cost	
Green rating with easy gradient the entire way. Very narrow trail weaving between Garss Trees. Traverses remarkable Casuarina forests and Grass Tree groves.			x4 log roll-overs. x2 boggy sections. x2 minor re-routes with grade reversals. Many small drains required.	\$5000	
WayPt	Description	Photo No.	Remedy / Action	Photo	Trail contractor or volunteers
88	Start / end of You're Kidding. Log pile utilised to create log roll-over beside trail entry.	586			
89	Log roll-over with chain ring cuts.	587	Rebuild as roll-able		Volunteers after contractor drops off x3 log sections, Medium priority.
	You're Kidding sign screwed to tree. Boggy ground.	588	Remove sign and install directional trail signage. Armour with rock or corduroy. Or cap with road base.		
90	Hazard - large sharp fallen tree.	589	Move away from trail		Contractor or Council with chainsaw. High priority.
91	Long section of falling, low gradient trail between waypoint 90 to 91. Boggy ground with some Casuarina trunks laid down as corduroy.	590	Armour with rock or corduroy or road base.		Contractor to supply and / or install remedy. Medium priority.
92	Long section of falling, low gradient trail between waypoint 91-92		Install many small dips and rises to divert water		Volunteers or contractor. Low priority.

92	Near waypoint 92: 300mm log drop	591	Make roll-able in both directions		Contractor to drop off x3 log sections. Volunteers to fix. Medium priority.
93	Long section of falling, low gradient trail between waypoint 92 -93		Install many small dips and rises to divert water		Volunteers or contractor. Low priority.
93	x2 tight turns and descent to corner poor design	592	Re-design with reroute and x1 grade reversal		Volunteers or contractor. Medium priority.
94	Falling, short link to fire road. The fire road has a very boggy section near here.	593	Entry on Kidd Street. Install signage?		
95	You're Kidding continues	594	Requires directional signage		
97	Potentially boggy 'creek' crossing. OK today.	595	Requires more drainage above, from both approaches.		Volunteers or contractor. Low priority.
98	Technical Trail Feature - roll-over between two large fallen logs. Centre ramp is soft.	596	Create roll-able soil and log ramps up, across and down.		Contractor to drop off log sections. Volunteers to fix. Medium priority.
99	Newly fallen tree across trail. Temporary log roll-over.	597	Build a sturdy log roll-over. Consider moving to better location on trail. Make rideable (Green) in both directions.		Contractor to drop off log sections. Volunteers to fix. Medium priority.

100	Descent to tight corner - poor design.	598	Re-design with reroute and x1 grade reversal		Volunteers or contractor. Medium priority.
2	Log roll-over with chain ring cuts.	599	Make roll-able in both directions, with Green option.		Contractor to drop off log sections. Volunteers to fix. Medium priority.
3	Rock garden	600	Retain Technical Trail Feature.		
4	Hole in trail. Trail indistinct due to needles lying on the ground.	601	Hazard needs repair as soon as possible		Volunteers or contractor. High priority.
5	Squeeze point between tree and Grass Tree	602	Retain Technical Trail Feature.		
6	End of You're Kidding. Start of Birdcage	603	Seems a sensible point to end You're Kidding and start Birdcage at the gate on Kidd Street. Install signage.		