

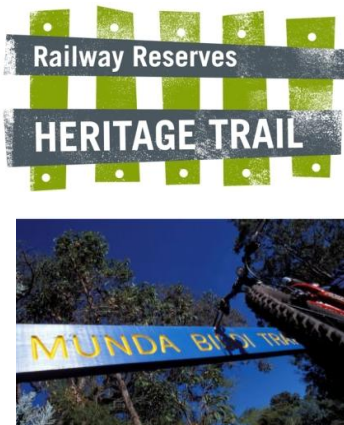
Final Report



Sport, Recreation and Open Space Specialists



Perth Hills Trails Master Plan May 2013



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community's
health and fitness”*

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1. Study Framework

1.1 Project Purpose and Outputs

The Perth Hills Trails Master Plan covers all trails located within the boundaries of the Shire of Kalamunda (SoK) and Shire of Mundaring (SoM), defined in this instance as the Perth Hills. The purpose of this project is to prepare a master plan for the Perth Hills Trails that allows each relevant organisation to effectively, cooperatively and appropriately plan for the future. As identified in the brief, the Master Plan is a local Trails Master Plan for Shire of Kalamunda and Shire of Mundaring including an action plan and strategies for implementation over the next 15-20 years.

The Perth Hills Master Plan and Action Plan are prepared in line with the project scope (1.3). The Master Plan will also support the Perth Hills Trails Reference Group in ensuring the Perth Hills has a network of accessible, well used and maintained trails, showcasing the local heritage and environment.


This Master Plan will provide a framework for future development of the Perth Hills Region. It will be a strategic yet practical plan that determines the location, scale and types of developments that could occur in the Perth Hills. The master planning process involves reviewing the existing physical conditions, analysing site issues and developing an agreed strategic plan for the area.

1.2 Project Background

The Perth Hills area offers a broad range of trail types and standards. The Department of Environment and Conservation (DEC), Shire of Kalamunda (SoK) and Shire of Mundaring (SoM) are all responsible for managing land that facilitates recreational activities, including the management of trails. These trails regularly cross management boundaries and are often dual purpose as recreational trails for locals and visitors as well as management (particularly fire) access tracks. Existing and potential trail users include individual and group walkers, runners, horse riders, road cyclists, mountain bikers, four wheel drivers and trail bike riders.

DEC, SoK and SoM, along with Natural Trust of Australia WA (NTWA), all contribute to planning and maintenance at different levels with no one standard for all trails. Some trails fall below acceptable recreational, aesthetic, management and visitor safety standards. This is generally because they are inappropriately routed and have not been constructed with a view to longevity and quality of recreational experience or the land managers are simply not aware of the existing trails. It has been recognised that there is a need to co-ordinate trail planning across the Perth Hills region to ensure that the issues mentioned above are addressed and that the trails meet the needs of all trail users.

In 2009, the SoK, on behalf of the SoM, DEC and the Water Corporation provided an extensive project brief for the development of a Local Trails Master Plan for SoK and SoM including an action plan and strategies for implementation. However, due to the lack of GPS data that eventuated once the project progressed and limited funds available, the brief was redefined to provide a Strategic Trails overview, identifying key trail development opportunities and an action plan for future phases.



As a result of the recommendations from the Strategic Trails Overview and the 2006 Railway Reserves Heritage Management Plan, the Perth Hills Trails Reference Group has been established to improve communications between organisations identified as having a direct interest in trails in the Perth Hills. A role of the Group is to oversee the development and implementation of the Perth Hills Trails Master Plan, resurrecting the previous brief and revising the Strategic Trails Overview.

The study considers all walking, horse riding, mountain biking, four wheel drive and trail bike trails within Perth Hills. Several reports that have already been conducted on trails within the Perth Hills, including Railway Reserves Heritage Trail, Munda Biddi, Kep Track, The Bibbulmun Track were recognised, however detailed reviews of track conditions were deemed not necessary by the client. Trails managed by other agencies, for example National Trust, are considered and included in this plan.

There are also a large number of trails that have been constructed by various user groups without the approval of the land manager. These trails often have no official status and therefore have not been included in trail lists. These trails have been considered within the study as they may benefit the broader trail network.

1.3 Project Scope

The Master Plan addresses the following key deliverables:

- Identifies walking, horse riding, mountain biking, four wheel drive and trail bike trails in the Perth Hills with particular attention to:
 - Trail need (requirement for the particular trail) and potential users;
 - Trail standard (condition) and infrastructure;
 - Emerging themes;
 - Identification of agency/agencies and/or trail managers responsible for each trail or section of trail;
 - Identification of access to trail, services or facilities (support infrastructure) and links to other trails; and
 - Identifies the current marketing material and interpretation available for each trail and whether it is up to date.
- Reviews existing documentation and previous trail reviews;
- Consultation with the community and other relevant stakeholder groups as identified to identify trail use, strengths and weaknesses of the current trails network and future trail needs;
- Determines which trails should be retained;
- Identifies modifications or maintenance needed to keep selected trails;
- Identifies links required to connect trails including consideration of road links / and dual use paths;

- Identifies existing links to major trails in adjoining Local Government Authorities and any potential gaps;
- Identifies services or facilities (support infrastructure) needed to support selected trails;
- Suggests interpretation, signage and marketing and promotion opportunities including the role of the Munda Biddi shelter at Sculpture Park in Mundaring, the Zig Zag Cultural Centre in Kalamunda and consistency of information;
- Identifies and proposes a continuous trail loop within the Shire of Kalamunda encompassing and linking together existing trails;
- Links in to the WA State Trails Strategy, Experience Perth Tourism Development Priorities, Swan-Collie Off Road Vehicle Land Use Planning Study and Mundaring Weir Precinct Redevelopment;
- Identify management actions that will allow land managers to adequately manage the trails network;
- Includes relevant information on best practices relating to trails in other countries;
- Provides a local trail master plan addressing each of the points outlined above and including an aerial map of all current and future trails; and
- Provide a recommended action plan and strategies for implementation of the local trails master plan.

1.4 Methodology Table and Proposed Timeline

Table 1: Project Methodology Outline

<i>Stage</i>	<i>Key Outputs</i>
Start-up and Project Planning	<ul style="list-style-type: none"> • Agreed Methodology and Project Plan • Minutes from Start-up Meeting • Consultation and Communication Plan
Data collection and Research	<ul style="list-style-type: none"> • Literature Review Summary • Understanding emerging trends and themes • Benchmarking Analysis • Collation of all existing data in a consistent format • Map of existing trail network • Catalogue of existing marketing and promotional material
Trail Audit and Assessment	<ul style="list-style-type: none"> • Assessment of existing trail networks
Demand Analysis	<ul style="list-style-type: none"> • Online Survey Development and Promotion • Survey Findings Report • Finalise Database • Input data into the TPAM model
Draft Master Plan	<ul style="list-style-type: none"> • Draft Master Plan Draft • Future Trails Map/s representing key recommendations
Draft Strategic Action Plan	<ul style="list-style-type: none"> • Draft Strategic Action Plan
Design Guidelines and Concepts	<ul style="list-style-type: none"> • Design guidelines and preliminary site development concept plans for trailheads and other focal points
Finalise Master Plan and Action Plan	<ul style="list-style-type: none"> • Finalised Master Plan and Action Plan

2. Strategic Context

2.1 Overview of the Perth Hills Region

The Perth Hills region comprises the SoK and SoM and features the towns of Kalamunda and Mundaring along with a series of smaller townships. The region is known for its natural beauty including native jarrah and marri forests, national parks, seasonal wildflowers, creeks, waterfalls, food, wine, monthly markets and specialty stores. A major attraction for the area is the trail network throughout that caters for walkers, cyclists, horse riders, trail bike riders and four wheel drivers.

The SoM is a Local Government Area on the eastern fringe of metropolitan Perth and has a population of 36,529 (2011 Census). The Shire covers an area of 645 square kilometres, with one third of its total area being State Forest. The Mundaring Weir with the water pipeline to the Eastern Goldfields region is also located in the area. A number of popular events are held in the Shire including the Truffle Festival and Darlington Arts Festival. The 'Trek the Trail' is the premier SoM walking and cycling event that takes place every September along a section of Railway Reserves Heritage Trail. The Shire is also home to Lake Leschenaultia, the Karakamia Wildlife Sanctuary and the Perth Hills Centre. Sculpture Park within the town of Mundaring features the Northern Terminus of the Munda Biddi off road cycling trail and includes parking areas and support facilities (toilets, shelter, picnicking facilities etc.). A number of other trails also commence at Sculpture Park.

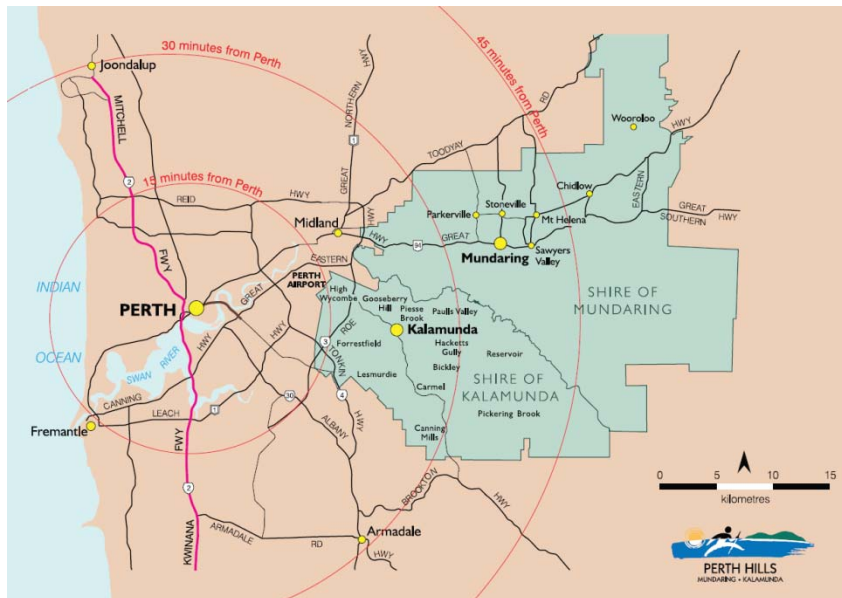
Figure 1: Munda Biddi Trail Head Signage at Sculpture Park



The SoK is a Local Government Area in the eastern suburbs of Perth, located about 25 kilometres east of Perth's central business district. The Shire covers an area of 324.2 square kilometres, much of which is state forest rising into the Darling Scarp to the east. It has a population of 53,567 (2011 Census) making it the most populous shire (as opposed to cities or towns) in Western Australia. The Zig Zag Cultural Centre is a major community asset within the Shire of Kalamunda and is located adjacent to the Bibbulmun Track trail head (the Northern Terminus). The visitor centre here has a Bibbulmun Track register to sign before heading off or upon return and also there is a bell to ring once you have completed the journey. There are also shower and toilet facilities available. The Shire's annual 'Walk the Zig Zag' event is held in early October and offers a vehicle-free opportunity to admire the views and local wildflowers from along the Kalamunda Zig Zag.

Prominent trails in the Perth Hills include the iconic Bibbulmun Track walking trail and the Munda Biddi Trail designed for off road cyclists. The multi-use Railway Reserves Heritage Trail is also a major trail which connects with the Kep Track and prominent mountain biking trails and areas such as the Goat Farm Mountain Bike Park and Forsyth's Mill Mountain Bike Park. Figure 2 illustrates the Master Plan Study Region and its relationship to the wider Perth metropolitan area.

Figure 2: Master Plan Study Region and Relationship to Metropolitan Perth



Other popular and well used trails include the Camel Farm Walk Trail, Dell to South Ledge Circuit (walk), Forsyth's Mill Mountain Bike Trail, John Forrest National Park Bridle Trail, Kalamunda Circuit, Kalamunda Heritage Trail, Kep Track, Little Ovens Single Track, Railway Reserves Heritage Trail, The Goat Farm Mountain Bike Park and the Powerline Track (trail bikes and four wheel drives). Mountain bikers tend to commence their activities from the Kalamunda township or the "Camel Farm" which is very well used particularly on weekends.

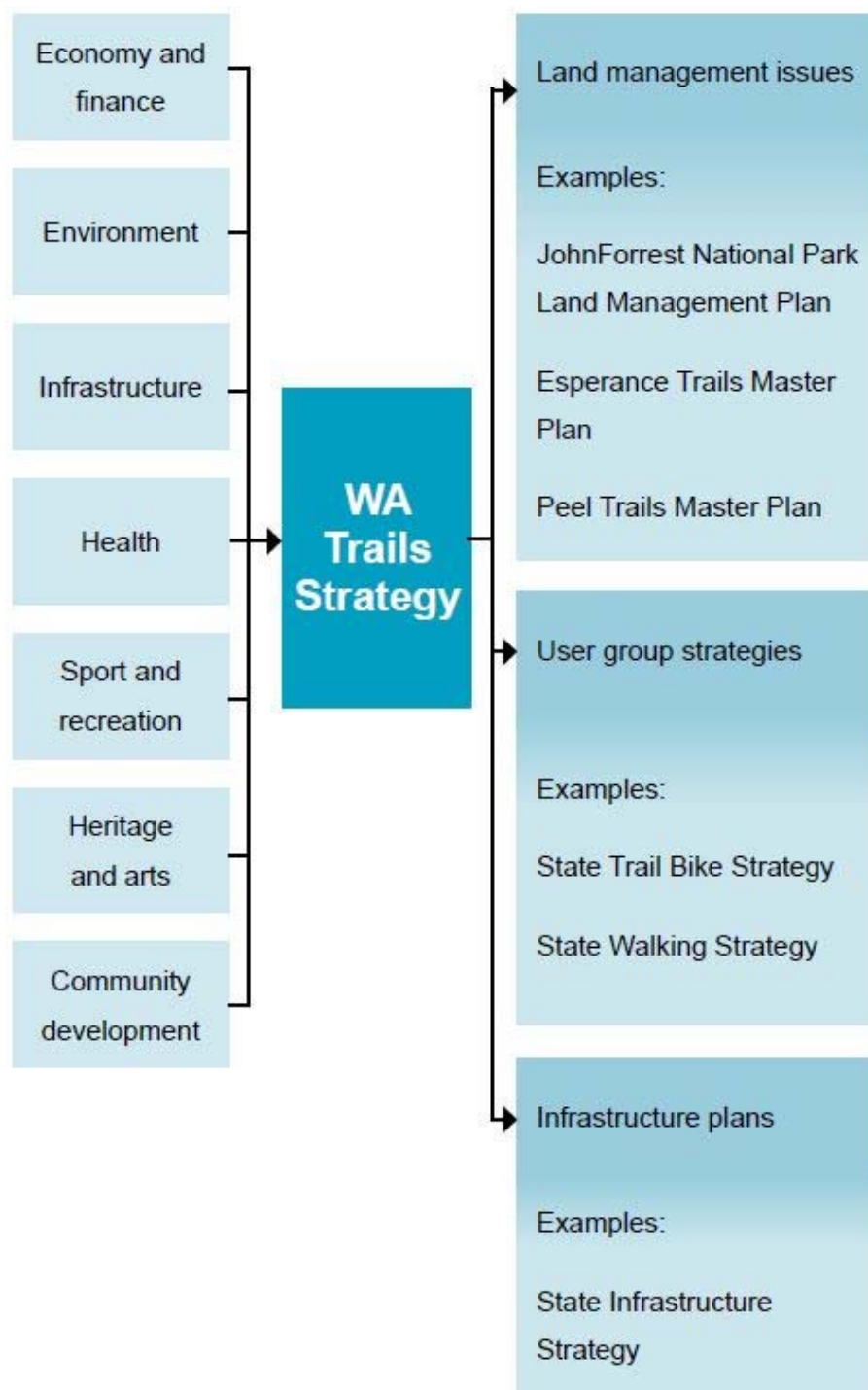
There are a wide range of bushwalks in the Perth Hills including the multi-use Railway Reserves Heritage Trail, the Eagle View Walk Trail and the iconic Bibbulmun Track, one of the world's great long distance walks stretching nearly 1,000 kilometres from Kalamunda to Albany. The Munda Biddi Trail is a world class mountain biking experience and extends for 1000 kilometres from Mundaring to Albany in the south-west. This trail is now the longest, continuous, off-road cycle trail of its kind in the world. Cyclists can explore the Perth Hills by road and mountain bike along a diverse network of designated on and off-road routes.

2.2 Trail Planning Framework

2.2.1 State Level

Within the Western Australian Trails Strategy 2009-2015 a planning framework was established which outlines the connections between the state level plan and regional and local level plans. The Perth Hills Trails Master Plan has been designed to align with the WA Trails Strategy. Figure 3 graphically depicts the WA Trails Strategy framework.

Figure 3: Western Australian Trail Planning Framework



2.2.2 Relevant Plans and Documents

The following planning documents were either provided for review by the Project Committee or sourced by the consulting team due to their relevance to the study. They included the following:

- Western Australian Trails Strategy 2009 – 2015. Department of Sport and Recreation, Government of Western Australia; 2008
- Strategic Trails Overview. Shire of Kalamunda & Shire of Mundaring; 2009
- Future Direction of Trails Development in Western Australia. Department of Sport and Recreation Government of Western Australia; 2003
- Walk WA: A Walking Strategy for Western Australia 2007 – 2020. Department of Sport and Recreation, Government of Western Australia; 2007
- Western Australian Equestrian Tracks and Trails Study. Enviro-Agriculture Environmental Consultant; June 2006
- WA State Trail Bike Strategy 'Back on Track'. Trail Bike Management Australia and Motorcycling WA; 2008
- Swan-Collie Off Road Vehicle Regional Land Use Planning Study. Department of Environment and Conservation; 2010
- Regional Cycle Network Masterplan for Eastern Metropolitan Regional Council. ARRB Group; 2011
- Draft report - 'Kalamunda Trails Review and Masterplan'. CALM; 2005
- Railway Reserves Heritage Trail to Lake Leschenaultia Trail Development Plan. Shire of Mundaring; May 2011
- Railway Reserves Heritage Trail Marketing and Communication Plan. Shire of Mundaring; 2009
- Railway Reserves Heritage Trail Management Plan. Shire of Mundaring; August 2006
- Kep Track Safety Audit. Correspondence between Anna Brake, National Trust Australia (WA) and Brett Watters, Shire of Mundaring; February 2009
- Interpretation Strategy For Mundaring and Hills Historical Society Inc. Brian Shepherd; June 2009

Where relevant a summary of the vision and or purpose and the key alignment to the Perth Hills Master Plan is provided in Table 2 below.

Table 2: Summary of Vision/Purpose and Key Alignment to the Perth Hills Trails MP of Relevant Plans.

Strategy/Plan/Policy Name	Vision/Purpose	Key Alignment to Master Plan
Western Australian Trails Strategy 2009 – 2015. Department of Sport and Recreation, Government of Western Australia; 2008	The trails network and those involved with it, aspire to be increasingly relevant and valuable to the state, national and international community in the future. The trails community invites others to share in the experience and assist with the construction, maintenance and improvement of these exciting community resources. By 2015, the trails sector seeks to be acknowledged as providing the leading experience which creates recreational, health and wellbeing, environmental and cultural enrichment of the Western Australian community.	The key strategies include: 1. Build community capacity to develop, construct, maintain and promote trails. 2. Encourage better links with segments of the community. 4. Encourage appropriate user access. 7. Explore different funding models for trails maintenance. 10. Promote the nature and value of Western Australian trails. 11. Develop and implement educational programs.
Strategic Trails Overview. Shire of Kalamunda & Shire of Mundaring; 2009	The Strategic Trails Overview develops a framework for the planning and implementation of trails within the Perth Hills region. It aims to ensure existing and future trails are planned, managed, resourced, promoted and maintained in a sustainable manner by the four key stakeholders.	Three trail development zones were identified, Zone A: Lesmurdie/Pickering Brook; Zone B: John Forrest; and Zone C: Lake Leschenaultia. In addition a key rationalisation and management zone was identified between Kalamunda and Mundaring town centres.
Future Direction of Trails Development in Western Australia. Department of Sport and Recreation Government of Western Australia; 2003	The document details the 'Path Forward', which is a guiding framework providing strategic direction for the future development of trails in Western Australia for the next 5 years. Five key areas identified were Sustainability, Participation & Utilisation, Integrated Planning & Development, Risk Management & Liability and Community Advocacy.	Issues and trends identified included: <ul style="list-style-type: none"> • Increase in non-organised activities • Trail based activity participation • Addressing decreasing levels of physical activity • Risk management and public liability • Sustainability • Technology and innovation • Increasing demand for trails (importance of establishing planning and design principles)

Strategy/Plan/Policy Name	Vision/Purpose	Key Alignment to Master Plan
Western Australian Equestrian Tracks and Trails Study. Enviro-Agriculture Environmental Consultant; June 2006	The main objectives of this study was to provide a preliminary report into current accessibility of tracks and trails for horse riders and identify barriers to participation, such as infrastructure requirements, governance and risk management issues.	<p>Priorities include tracks and trails for horse riders in Management Plans and Strategic documents.</p> <p>Local and State Government Authorities to undertake an audit of tracks and trails in their areas and plan to develop maps and information on the location of these tracks and trails.</p> <p>Local and State Government Authorities to liaise with local horse riding groups and where necessary encourage the forming of 'friends of' groups to assist in the maintenance and management of tracks and trails. 'Ownership' of these tracks and trails will assist in future management for the benefit of all.</p>
Walk WA: A Walking Strategy for Western Australia 2007 – 2020. Department of Sport and Recreation, Government of Western Australia; 2007.	By 2020, Western Australia will be a vibrant, safe, accessible place with a supportive walking environment where all Western Australians enjoy walking for health, recreation or transport.	<p>Assist Local Government to develop and promote recreational walk trails in natural environments and public open space through provision of best practice guidelines.</p> <p>Outcome 1 Work towards creating supportive walking environments.</p> <p>Strategy 3 Assist Local Government to develop and promote recreational walk trails in natural environments and public open space through provision of best practice guidelines.</p>

Strategy/Plan/Policy Name	Vision/Purpose	Key Alignment to Master Plan
<p>WA State Trail Bike Strategy 'Back on Track'. Trail Bike Management Australia and Motorcycling WA; 2008.</p>	<p>It proposes a framework for planning and managing recreational trail bike riding on public and private lands and for coordinating cooperation between the relevant State Government agencies, local communities, local government and recreational trail bike riders.</p>	<p>98 recommendations have been formulated around six Key Focus Areas. The three of most relevance to this Plan are:</p> <ul style="list-style-type: none"> • Insurance, Liability and Risk Management - In order for facilities to be provided by land managers, the issues of insurance, liability and risk management must be addressed. • Trails Planning - Designated trails and venues must be planned, developed and maintained to attract trail bike riders and to ensure minimal environment and community impact. • Managing for Sustainability - In order to develop sustainability, the issues of governance, land and trail management, noise regulation and evaluation need to be addressed.
<p>Regional Cycle Network Masterplan for Eastern Metropolitan Regional Council. ARRB Group; 2011</p>	<p>The overarching strategy and vision of the masterplan is the development of a regional cycle network in Perth's Eastern Region that is safe and convenient, has a high degree of connectivity to enable users to directly access key destinations and meets both current and future needs.</p>	<p>Ten high level cycling strategies for Perth's Eastern Region are identified in the study: Three are particularly relevant:</p> <ul style="list-style-type: none"> • KS6 – Provision of cycle facilities within the railway reserve. • KS7 – Provision of cycle routes along major highways. • KS10 – Improving connectivity to regional centres.

Strategy/Plan/Policy Name	Vision/Purpose	Key Alignment to Master Plan
Railway Reserves Heritage Trail Management Plan. Shire of Mundaring; August 2006	The purpose of the Management Plan is to review the status of implementation of previously identified developments/operations and report and identify any outstanding works and indicative costings, recommend further development/operations of the Trail and incorporate industry best practice.	<p>The goals of the Trail Management Plan are to:</p> <ul style="list-style-type: none"> • Ensure that trail users continue to experience safe and enjoyable trail conditions; • Guard against the deterioration of trail infrastructure, thereby maintaining the investment made by the Shire of Mundaring, the National Trust, the Department of Environment and Conservation and Lotterywest on behalf of the community; • Minimise the trail manager's exposure to potential public liability claims arising from incidents that may occur along the trail; and • Set in place a management process to cover most foreseeable risks.
Railway Reserves Heritage Trail Marketing and Communication Plan. Shire of Mundaring; 2009	To develop a marketing and promotion program to raise awareness and usage of the Railway Reserves Heritage Trail.	The Marketing and Communication Plan is divided into six distinct strategy areas. The stakeholder relations strategy includes the formation of a Reference Group, consultation with local user and special interest groups and disseminating information on the Railway Reserves Heritage Trail.
Railway Reserves Heritage Trail to Lake Leschenaultia Trail Development Plan. Shire of Mundaring; May 2011	The Shire of Mundaring proposes to develop a cycle trail connection between the Railway Reserves Heritage Trail (near Mt Helena) and Lake Leschenaultia to enable cyclists from Mundaring to access the lake environs on day trips.	The key recommendation was to resolve to endorse the Railway Reserves Heritage Trail to Lake Leschenaultia Trail Development Plan and seek to implement the recommendations.

2.3 Policy Context

Operational Policy 13: Recreation within Public Drinking Water Source Areas on Crown Land; 2012

A series of policies have major implications for the study region in particular the recently revised Policy 13 document titled Operational Policy 13: Recreation within public drinking water source areas on Crown land 2012 developed by the Department of Water WA (Policy 13 revised September 2012). This policy places a series of hard constraints on the majority of the study area in relation to the future provision and management of trails that fall within the Public Drinking Water Source Areas (PDWSA).

The intent of Policy 13, 2012 is to manage recreation to protect public health by maintaining the quality of water in PDWSAs to help ensure a safe, reliable, lower cost public drinking water supply.

The objectives of the policy are to:

- protect public health;
- maximise water quality;
- manage recreation in PDWSAs;
- facilitate increased recreation opportunities outside PDWSAs;
- provide for low cost public drinking water supply and treatment processes; and
- establish the primacy of water quality protection in PDWSAs.

The Department of Water recognises that many of the state's water catchments accommodate recreational activities and that such activities provide the opportunity for people to obtain social, physical and mental health benefits.

To protect water quality and public health, and to provide for the ongoing availability of a reliable, safe, lower cost public drinking water supply, passive land based recreation activities in public drinking water source areas (PDWSAs) are:

- supported in the outer catchments of surface water source areas, subject to recreation compatibility Tables (refer full policy for details), noting:
 - the amount/level of approved passive land based *recreation that currently occurs* in PDWSA outer catchments, is supported to continue; and
 - new or enhanced recreation will be located outside proclaimed PDWSAs.
- supported in the wellhead protection zones and outer catchments of groundwater source areas, subject to recreation compatibility Table 4; and
- Recreation is not supported in the reservoir protection zones (Reservoir Protection Zones (RPZs) comprise a 2km exclusion zone surrounding the high water mark of public drinking water supply reservoirs of surface water based PDWSAs).

The Department of Water has developed Policy 13, 2012 on the basis that:

- The recreation types and levels currently approved in PDWSA outer catchments are supported to continue;
- Existing recreational facilities can be maintained or improved; and
- New recreation facilities and recreation types will be located outside proclaimed PDWSAs. Noting that the 'recreation types' in Policy 13 are subject to review at five yearly intervals along with the policy.

Table 3 below outlines the relevant trail activities within this study and the implications of Policy 13. All activities are incompatible within the RPZ with the exception of the bike riding on the Mundi Bidli Trail and walking on the Bibbulmun Track. Therefore any other trail and related activity is not permitted in RPZ. A number of trails or parts thereof e.g. the Paton's Brook Trail would be required to be decommissioned as per Policy 13. Off road driving of motorised vehicles and horse riding are also incompatible in both the RPZ and outer catchment. Cycling and walking will be supported at "*September 2012 levels*" which is defined as the recreation activity is supported up to the level when Policy 13, 2012 is approved. This level will be determined by the Department of Water, based on Department of Water and Department of Environment and Conservation (DEC) management plans, approved before the approval of Policy 13, 2012 and in consultation with recreation stakeholders. The findings within this study will provide some base information to inform these levels.

Table 3: Relevant Trail Activities and the Implications of Policy 13

Relevant Trail Activity	PDWSA – reservoir protection zone*	PDWSA – outer catchment
Off road driving (e.g. trail bikes/4WD's)	Incompatible	Incompatible (except on existing approved tracks)
Bike riding	Incompatible (except on existing 2012 Mundi Bidli Trail)	Supported at September 2012 levels Φ
Bushwalking / hiking	Incompatible (except on existing 2012 Bibbulmun Track)	Supported at September 2012 levels Φ
Riding / walking / training of animals including dogs and horses - recreational or commercial (except on public roads and designated trails)	Incompatible	Incompatible

* Public access to Crown land in reservoir protection zones is prohibited, except along public roads.

Φ Recreation events, currently approved for the outer catchments of PDWSAs, will continue to be supported using the level of recreation infrastructure present at September 2012.

Given that a significant proportion of the study area is located within a PDWSA the implications of the revised Policy 13 appear to be great for trail based activities. The policy has yet to be tested in terms of what types of enhancements/developments will be permitted and it is understood a framework is currently being drafted between the Department of Water and DEC to determine a practical way forward. However it is clear that new developments that would promote additional usage would unlikely be supported. It is noted that existing facilities within PDWSAs can be improved as

long as the recreational capacity of those sites is not increased. Improvements may include environmental, amenity, public safety or public health reasons. However it is clear that new or enhanced recreation facilities, roads, tracks, trails, picnic areas, toilets and so on should be developed outside PDWSAs, to attract and accommodate increasing recreation numbers. The full policy can be viewed at www.water.wa.gov.au.

In addition to the Department of Water's Policy 13 the Department of Environment's Policy 18 is relevant this study.

Policy Statement No.18: Recreation, Tourism and Visitor Services; 2006

Policy Statement No.18 Recreation, Tourism and Visitor Services was developed by the Department of Environment and Conservation (DEC) WA. The objective of the policy guidelines contained within Policy 18 is:

- To provide world-class recreation and tourism opportunities, services and facilities for visitors to the public conservation estate while maintaining in perpetuity Western Australia's natural and cultural heritage.

Section A of the Policy Statement includes a set of Policy Guidelines applicable to all activities that may be undertaken on lands and waters managed by DEC. These policy guidelines seek to protect and manage existing recreational sites of value, aboriginal sites and sites of heritage value. Public access is generally permitted and, where appropriate, facilitated to areas of lands and waters managed by DEC, although the public tend to use only a very small proportion of available land, often focussed on features of interest such as water bodies and areas of high scenic value. Recreation and tourist facilities will be continually developed to ensure that residents and visitors are afforded quality nature based tourism and recreation opportunities. Visitor information and interpretation communication will be promoted through personal contact (with DEC staff), guided experiences and media, together with interpretive signs, displays and exhibits. The DEC will attempt to accommodate organised activities and events that are compatible with management/maintenance plans and 'necessary' operations.

Section B details Policy Guidelines applicable to specific activities including:

- active land based (bushwalking, rock climbing, horse riding, cycling);
- passive land-based (picnicking, camping);
- wildlife interaction (nature appreciation, feeding, photography);
- motorised vehicle-based (scenic driving, competitive/social car rallies, off-road vehicles); and
- water-based activities (boating, surfing, swimming, diving, fishing).

Broadly speaking, the policy guidelines seek to accommodate these widely varying activities as far as possible, where they do not conflict with the protection of the natural and cultural environment, other park visitors or management operations. The suitability of a particular area to host any one activity will be considered, based in part on the proposed intensity, frequency and timing of the activity. Limits, modifications and conditions may be set to ensure that an event is acceptable in that particular area. Compliance with relevant safety standards appropriate to each activity is also an essential consideration.

Experience Perth Tourism Development Priorities 2010-2015 Tourism WA; March 2010

The Experience Perth region includes the greater Perth metropolitan area and surrounding areas, broadly incorporating six sub-regions: Perth, Fremantle and Rottneest, Swan Valley and Perth Hills, Sunset Coast, Peel and Rockingham as well as the Avon Valley

The Tourism Development Priorities (TDP), formerly Destination Development Strategies, are a series of documents that identify tourism product and infrastructure priorities in each of Western Australia's six tourism regions. The purpose of the TDP documents is to focus Government and other organisations' resources on the enhancement of tourism product and infrastructure in key tourism destinations around the State.

The Perth Hills is included within the Swan Valley and Perth Hills sub region of the Experience Perth region and the following extracts from the Experience Perth, Tourism Development Priorities 2010-2015, highlight the value of trails to the region and also the restrictions the water catchment places on tourism within the Perth Hills.

The Perth Hills is known mainly for its nature based attractions and is home to several national parks which provide the opportunity for walking, cycling, and picnicking. The area around Mundaring Weir is an extremely popular day trip destination, and is a hub for walkers and cyclists using the Bibbulmun Track, Kep Track, Railway Reserves Heritage Trail and Munda Biddi Trail.

In the Perth Hills, access to and the ability to undertake activities at water catchment areas is often limited and tourism development is often hampered by the regulations which apply when developing in water catchments. Furthermore, the impact of water related infrastructure, such as the infrastructure planned for Mundaring Weir, also has the potential to impact negatively on the tourism experience in the Perth Hills. With an increasing population in the region resulting in increasing demand for attractions and activities that revolve around waterways, it is essential that tourism agencies continue to collaborate with the Department of Sport and Recreation, the Department of Environment and Conservation and the Department of Water to ensure tourism related needs are taken into consideration in the long term planning for water catchment areas in the region.

3. Promotional Material

3.1 Online Information

A series of initiatives have been developed that encourage the use, development and further enhancement of trails in the Perth Hills. There are a number of websites available that promote and provide information on trails in the Perth Hills. These include:

- Department of Environment and Conservation: www.dec.wa.gov.au/parks-and-recreation/tracks-and-trails.html
- Eastern Metropolitan Regional Council: www.perthtourism.com.au
- Shire of Kalamunda: www.kalamunda.wa.gov.au/Visitors/WalkingTrails.aspx
- Shire of Mundaring: www.mundaringtourism.com.au/walk-and-cycle.html
- The TrailsWA website www.toptrails.com.au - features seven trails within the Perth Hills region - the Bibbulmun Track, Munda Biddi Trail, Kep Track, Railway Reserves Heritage Trail, Lesmurdie Falls Walk Trail, Eagle View's Walk Trail and Golden Pipeline Heritage Trail (this is a drive trail and outside the scope of this study)
- Peak trail groups; www.wamba.org.au, www.rtra.asn.au, and www.bushwalkingwa.org.au
- Specific trail websites; www.railwayreserves.com.au; www.mundabiddi.org.au; www.bibbulmuntrack.org.au, www.keptrack.org.au and www.goldenpipeline.com.au
- Private sites such as www.walkgps.com and www.everytrail.com also have myriads of information on trails within the Perth Hills

Figure 4: The Railway Reserves Heritage Trail Website



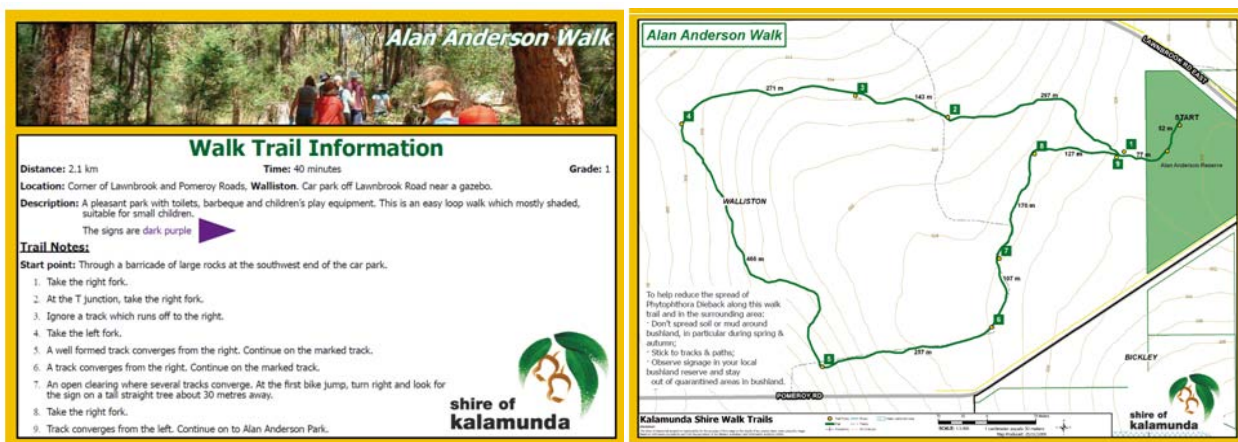
3.2 Brochures and Booklets

In addition to the internet websites there are a diverse range of brochures and booklets promoting the trails in the Perth Hills. Of the 73 trails identified as part of the Trail Audit (refer Section 6) 44 had some form of brochure or information sheet promoting and providing information on the trail/s. The type, style, year of publication and branding tend to vary significantly between the brochure types and there is an opportunity to improve the consistency of branding and format of information provision across the various trail managers and promoters.

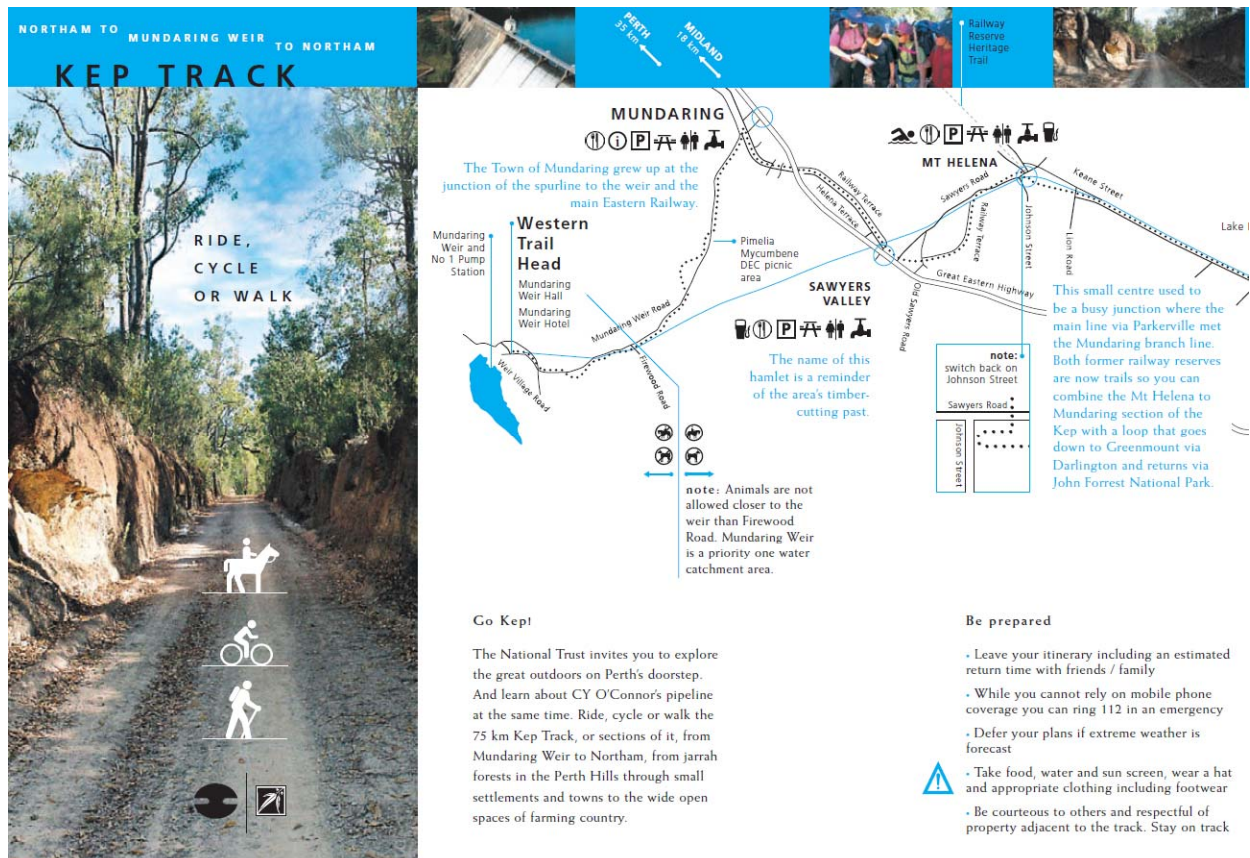
Examples of trail brochures are included below:

Figure 5: Examples of Various Brochure Types for Perth Hills Trails

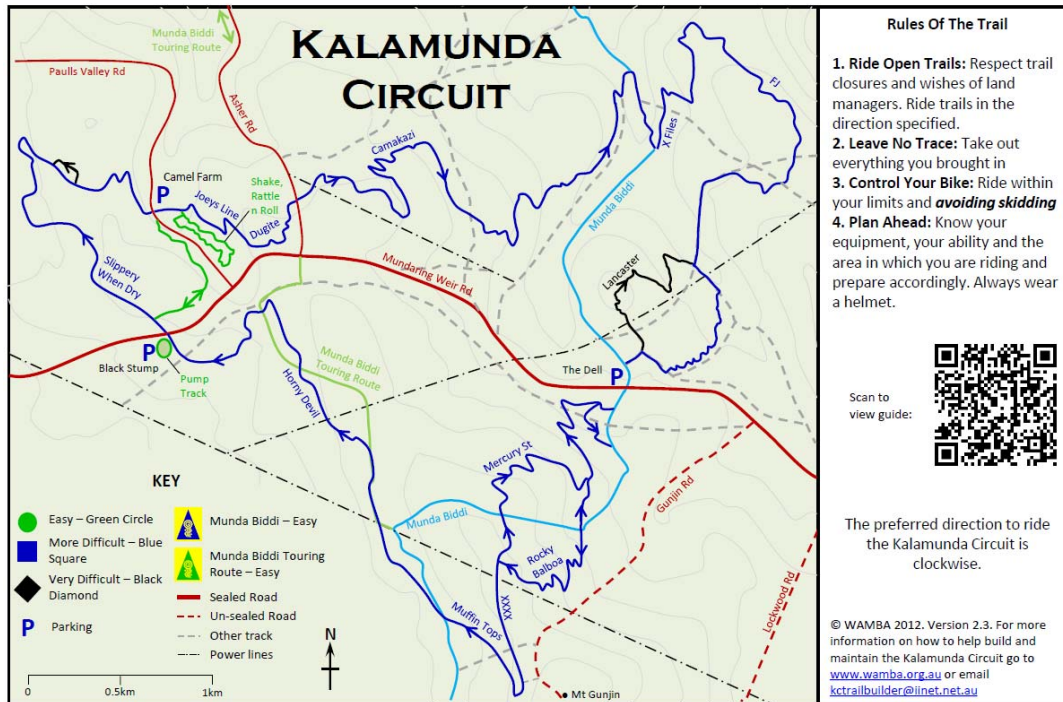
Alan Anderson Walk:



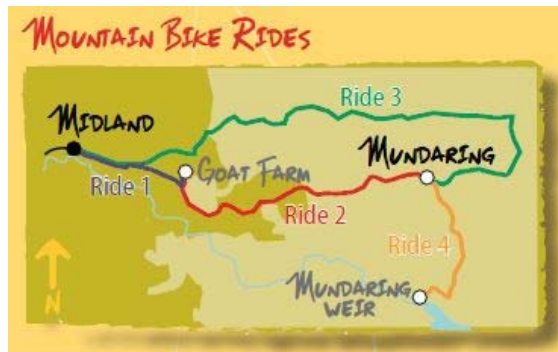
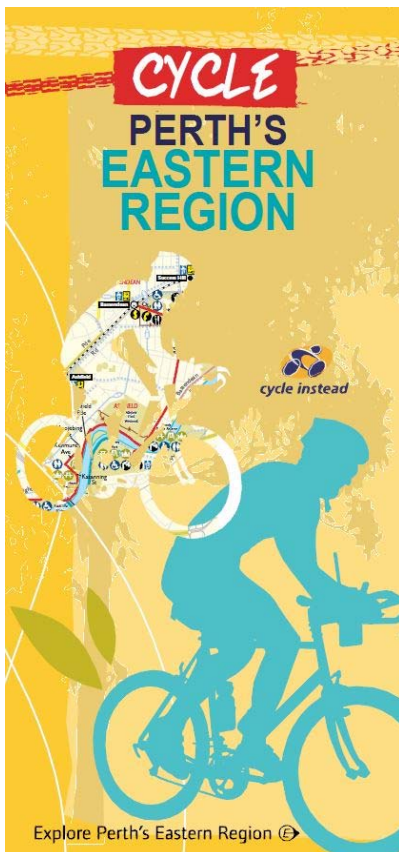
Kept Track:



Kalamunda Circuit:



Cycle Perth's Eastern Region Brochure:



3.3 Relevant Local Projects

Mundaring Weir

A number of local projects are of particular relevance to the Perth Hills Trails Master Plan including the Mundaring Weir Precinct redevelopment together with the Water Corporation Water Interpretive Facility development. During the site selection process for the Mundaring Water Treatment Plant a commitment was made to establish a water interpretive facility. It is envisaged that the Mundaring Weir precinct will be enhanced as a visitor destination through the story of water. The theme of the story will be based on how WA was settled and developed as a result of innovative engineering, ingenuity and brave decision makers. The intention is to celebrate this theme by enhancing and linking existing attractions, providing a cohesive experience for visitors to the Weir Precinct.

To achieve this two precinct hubs will be developed. These hubs form the major sites where visitors are invited to explore and learn further while picnicking with family and friends. Connected to the hubs are recreational trails enhanced with interpretive nodes. Different stories related to the Weir will be explored at each node through the use of attractive signage, art works, salvaged artefacts and public amenities. To guide and orient visitors, gateways and entry statements will be developed that speak to the community's values. Overall improvements will be made to landscaping, public facilities, disability access and parking. The project is due for completion during 2014.


Zig Zag Cultural Centre

The Zig Zag Cultural Centre is a major community asset within the Shire of Kalamunda, located in the town centre near the northern Terminus of the Bibbulmun Track. The centre was designed as a multi-purpose facility and has been developed to encourage greater community involvement and to assist with the growth of visitation to the Shire of Kalamunda and the Perth Hills as a tourism destination through the following key areas:

- Perth Hills Visitor Centre
- Zig Zag Gallery
- Meeting facilities
- Zig Zag Café

Mundaring Community Sculpture Park

Located in Jacoby Street, Mundaring Community Sculpture Park is adjacent to Mundaring's Railway Reserves Heritage Trail. Sculpture Park was developed by the Mundaring Bicentennial Community Committee in 1988 as a site in which visitors can enjoy and appreciate the recreational and cultural heritage of this unique area. Shaded areas are available, with gas barbeque facilities and tables, together with a well-equipped playground, public toilets, information boards and a series of specially commissioned sculptural works featuring some of Western Australia's best known artists. A masterplan has recently been developed for the park. Proposals include a 'Sculpture Axis'; providing opportunities for permanent and temporary art installations, a 'Play and Explore Zone'; offering a quality playspace, the 'hub'; defining a community activity/events zone and main arrival point, and a 'Rehabilitation Zone'; catering for community youth groups in a natural setting.



The Munda Biddi Trail starts in Sculpture Park and is further being extended from Manjimup to Walpole and Walpole to Denmark. The completed Munda Biddi Trail will be officially opened in April 2013 when it will claim the title of the longest, continuous, off-road cycle trail of its kind in the world.



4. Trail Overview

4.1 Benefits of Trail Use

Recreation and sport provides a wide range of benefits to individuals and communities that have been identified through numerous university and government research reports and studies. Many of these benefits are equally applicable to trails. These factors can be important contributors to 'quality of life' with individuals benefiting from:

- Improved physical and mental health;
- Positive self-esteem and confidence;
- Increased social interaction and support;
- Sense of achievement;
- Skill development;
- Challenge and competition; and
- Achievement and leadership.

At a broader level the community benefits socially, economically and environmentally:

Socially through:

- Improved personal and societal health and wellbeing;
- Increased community pride;
- Social inclusiveness; and
- Safer communities through reduced anti-social and criminal behavior.

Economically through:

- Employment in the industry and associated industries;
- Economic benefits of sport and recreation tourism such as special events; and
- Reduction in health care costs.

Environmentally through:

- Increased understanding of the environment particularly through trail based activities; and
- Protection of environmentally significant flora and fauna within recreation areas (open spaces, coast, rivers, open spaces, natural reserves etc.).

The following two extracts from the WA Trails Strategy further supports the social, economic and environmental benefits of trail provision (refer Figure 6).

Figure 6: Summary of the Benefits of Trails and Value Creation Opportunities of Trails

The Benefits of Trails

Trail users identify numerous benefits from the use of trails, including the sense of well being, unwinding and relaxing, closeness to nature and ability to both spend time with family and friends and time on their own. (Market Equity Trails Research, 2004)

- Trails are a key enabler of community access to sport, recreation, adventure and challenge. Physical activity has been associated with many benefits.
- 63 per cent of Western Australians walk for recreation, nine per cent cycle for recreation.⁴
- Regular physical activity is widely recognised as protective against the overall burden of disease.⁵
- There is clear evidence of the benefits of physical activity in preventing and treating obesity and depression.^{6,7}
- Research confirms the mental health benefits of physical activity in a "natural" environment.⁸

Trails provide economic benefits through trail construction and user spending. These benefits are often enjoyed by regional areas.

- Trail construction invested \$9 million into the community between 1988-2007.
- Individual users on major trails spend an average of \$72 (1 day) to \$737 (4 days).⁹
- Total revenue generated by the Bibbulmun Track (an example of a major WA trail) exceeded \$21 million per annum.⁹

Trails also provide an avenue for community development and an opportunity to leverage the enthusiasm of volunteers. Volunteerism is a significant input into the Australian economy.

Value creation opportunities/avenues			
Individual	Local communities	State	Australia
Developing, promoting or creating opportunities for:	Developing, promoting or creating opportunities for:	Developing, promoting or creating opportunities for:	Developing, promoting or creating opportunities for:
Active recreation.	Community health and vibrancy.	Attractiveness and vibrancy of the state.	National identity.
Physical and mental health benefits (inc. prevention).	Community infrastructure and assets.	Economic growth (particularly in regional areas).	Thought-leadership.
Social interaction.	Employment and revenue (particularly for small business).	Active recreation and lifestyles.	Tourism appeal.
Environmental interaction.	Alternative community resources for active recreation and passive environmental interaction (e.g. photography).	Community safety and crime reduction.	
'Escapism' and isolation.	Encouraging low-water recreation uses.	Community use and ownership of the environment.	
Opportunity for generational experiences.	Community safety and crime reduction.	Acknowledgment and appreciation of indigenous culture and heritage.	
Biodiversity and wilderness appreciation and conservation.	Environmental ownership by the local community.		
Heritage and indigenous cultural preservation and appreciation.	Community development.		
Adventure and challenge.	Physical connection between communities.		
Transport.	Offsetting climate change impacts.		
Excitement from planning for trails use.			
A sense of achievement or fulfillment when remembering the whole experience.			

4.2 Trail Use and Physical Activity

Nearly all of the trail based activities (walking, cycling, running, horse riding and trail bike riding) conducted on trails require moderate to high levels of physical exertion over sustained periods of time. Being physically active is important for the health and wellbeing of Australians. In fact it is of clear benefit in five of the six current Australian national health priorities including cardiovascular disease prevention, diabetes prevention and control; the primary prevention of some cancers; injury prevention and control; and the promotion of mental health.

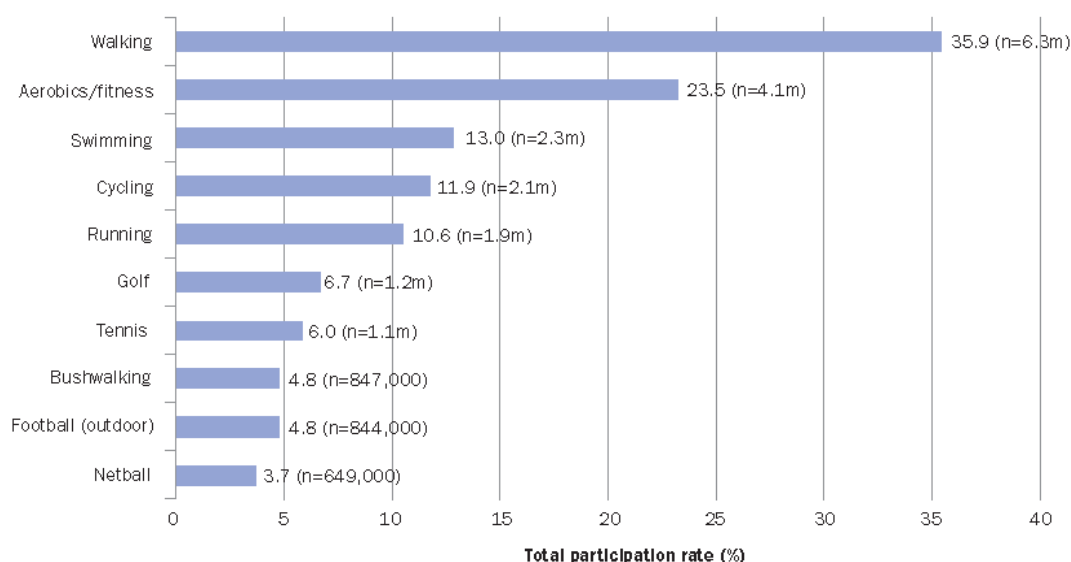
Just as importantly physical activity provides a range of social, environmental and economic benefits and therefore has an important role in the wellbeing of individual communities. Nearly half of Australians do not meet the recommended level of at least 30 minutes of moderate intensity physical activity on most days of the week. By encouraging regular trail use for recreation, transport or any other legal purpose governments have an opportunity to improve the wellbeing of their local communities.

4.3 Participation in Trail Activities

Trails and Non-Organised Recreation Activities

Sport and physical activities that are not organised by a club, community club, recreation or fitness centre are known as non-organised, such as walking, cycling and bushwalking. For most people these kinds of activities are attractive because they can be undertaken anywhere, anytime, and in some instances are less expensive than organised sport and physical activity. Even though they are less structured, non-organised activities such as those often undertaken on trails have a significant role in increasing physical activity levels among Western Australians. The trail disciplines of walking, cycling and running regularly feature in the top five activities undertaken by Australian's as outlined in Table 4. In addition walking [44%], cycling [45%] and bushwalking [6%] have all increased significantly from 2001-2010 (Exercise, Recreation and Sport Survey 2010).

Table 4: Total participation rates for the Top Ten Physical Activities in Australia 2010



Base: All persons aged 15 years and over (n=21,603)


Walking

Walking is the most popular physical activity participated in by Western Australians with 689,000 people walking in 2010. Bushwalking is also very popular with 65,100 people taking part in 2010.

Mountain Biking

Mountain biking specific statistics are not available from the usual sources such as the Australia Bureau of Statistics & Outdoor Foundation (U.S.). Currently mountain biking participation rates are grouped with road cycling and BMX and therefore it is difficult to obtain an accurate representation of the trends for mountain biking. Using sales & participation information available it could be estimated that approximately 30% of the "cycling" category is mountain biking.

The 2009-2010 Australian Participation in Sport and Physical Recreation report rated cycling (inc. BMX & mountain biking) as the fourth highest activity by participation,



after walking for exercise, aerobics/fitness/gym and swimming/diving. In 2012 the Outdoor Foundation recorded that Road Biking, Mountain Biking and BMX was the third most popular outdoor activity; 15% of Americans Ages 6 and Older, 43.0 million participants.

Horse Riding

Similarly to mountain biking, horse riding includes several disciplines such as equestrian events, trail riding, and polocrosse. Therefore it is difficult to obtain trends for trail riding which is the most applicable discipline in regards to this study.

The highest participation rate is observed in Queensland (0.8%), with Tasmania (0.7%), Western Australia and the Australian Capital Territory (both with rates of 0.6%) being the other areas where participation is high. Unlike the majority of organised sports, more females participate in horse riding than males.

Off Road Trail Bikes

In WA, the off road motorcycling industry is estimated to be worth around \$150 million annually and between the years of 2004 and 2006 the sales for off road motorcycles and quad bikes increased by 66%. Unfortunately there are very limited facilities for off road trail bike users in WA and there are many issues surrounding the activity. The State Trail Bike Strategy completed in 2008 Trail Bike Management Australia and Motorcycling WA 2008, discusses the overall vision for trail bike riding in WA including the issues and opportunities surrounding the activity. It is also estimated there are upwards of 50,000 trail bike riders in WA.

5. Trail Network

5.1 Hierarchy

Every trail is unique, however, trails can generally be categorised as a state/icon, regional or local trail. The common characteristic of all trails is their contribution to the lifestyle, health and social wellbeing of individuals and communities. The key distinguishing characteristics of trails at various hierarchy levels are as follows and are based on the hierarchy included within the Department of Sport and Recreation Government of Western Australia's Future Direction of Trails Development in Western Australia developed in 2003.

State/Icon Trail

- Developed considering several elements, in particular conservation, recreation, heritage interpretation, and tourism;
- High-level tourism appeal and attracts, or has the potential to attract, a significant number of visitors from all major markets, i.e. intrastate, interstate and international;
- Measurable economic benefit to the state;
- Generates, or has the ability to generate, significant associated saleable tourism products e.g. packages/accommodation;
- Crosses several land boundaries;
- Requires significant management and maintenance planning and resource allocation;
- No single 'proprietor'
- Supported by a lead state government agency;
- Trail specific activities are supported by a not for profit community organisation; and
- Attracts international and interstate visitors.

Examples of this type of trail in the Perth Hills include the Bibbulmun Track and the Munda Biddi Trail.



Regional Trail

- Developed considering several elements, in particular conservation, recreation, heritage interpretation, tourism and occasionally transportation;
- Crosses more than one land boundary;
- Land manager is usually the 'proprietor' of the trail;
- Requires coordinated management and maintenance planning and resource allocation;
- Varied management models, often characterised by the presence of community support groups such as "Friends" groups;
- Measurable tourism and/or economic benefits for the region; and
- Attracts interstate and intrastate visitors.

Examples of this type of trail in the Perth Hills include the Kep Track, Railway Reserves Heritage Trail and the Eagle View Walk.

Local Trails

- Developed considering local elements only, in particular with a focus on recreation and transportation;
- Resides within one land boundary;
- Land manager is usually the 'proprietor' of the trail;
- Attracts primarily local users; and
- Generates social and/or economic benefits for the local area.

Examples of this type of trail in the Perth Hills include the Jorgenson Park Walk, Lake Leschenaultia Trail and the Strathams Quarry Walk.



5.2 Trail Type & Classifications

Trail classifications allow land managers to develop trails that are appropriately designed for the anticipated trail users and to provide suitable levels of facilities and management. A number of attempts have been made to classify different types of trails for different user groups. In particular, Australian Standard AS2156.1 Walking Tracks Part 1: Classification and Signage identifies six classes of walking tracks, describing each in terms of the elements used for classification and the resulting

management considerations, this is currently in a transition phase as trail managers are moving to the new walking track grading system.

There is no single grading system that is applicable to all types of trail. Trails for mountain bikes use a different classification system ranging from easy to severe. The classification system for horse riding trails is different again, ranging from easy to advanced. A summary of the trail classes for the various user groups is included on the following pages. It should be noted that details on formal classification and grading systems for trail bike riding is under development in WA.

5.3 Australian Walking Track Grading System

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

Australian Standard 2156.1-2001 Walking Tracks - Classification and Signage

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

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

- Grade One is suitable for the disabled with assistance;
- Grade Two is suitable for families with young children;
- Grade Three is recommended for people with some bushwalking experience;
- Grade Four is recommended for experienced bushwalkers; and
- Grade Five is recommended for very experienced bushwalkers.



The Australian Walking Track Grading System was developed by the Walking Tracks Grading and Improvement Project and funded by 'Go for your life' – a Victorian Government Initiative. An explanation of how to grade a walking track using the new standard is detailed in the Users Guide which is attached as Appendix A.

An Excel spreadsheet has also been developed to assist land managers in first technically grading a walk and then converting this technical grade into plain English descriptions for use in brochures, interpretative boards and on walking track signs. This is available online.

The first walking track to have been re-graded is the Whipstick Loop Walk. Below is an image of the newly installed sign which includes the symbol showing the walk's grade as well as information on its distance, time to complete, gradient and quality of path.

Figure 7: Whipstick Loop Walk, Victoria



Whipstick Loop Walk






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

All information regarding the Australian Walking Track Grading System has been obtained from www.dse.vic.gov.au. It is highly recommended that the walking trails within the Perth Hills are assessed under this new system over time.

5.4 Mountain Bike Trail Classifications

The International Mountain Bicycling Association (IMBA) has developed a document to be used as a guide for developing trails to specific ratings or for assessing existing trails and networks. This system has been adopted worldwide and is referred to in the Department of Environment and Conservation's Policy Statement No.18 Recreation, Tourism and Visitor Services. The West Australian Mountain Bike Association (WAMBA) use this trail classification system.


Table 5: IMBA Track Classifications

	Very easy  White Circle	Easy  Green Circle	Intermediate  Blue Square	Difficult  Single Black Diamond	Extreme  Double Black Diamond
Description	Likely to be a fire road or wide single track with a gentle gradient, smooth surface and free of obstacles. Frequent encounters are likely with other cyclists, walkers, runners and horse riders.	Likely to be a combination of fire road or wide single track with a gentle gradient, smooth surface and relatively free of unavoidable obstacles. Short sections may exceed these criteria. Frequent encounters are likely with walkers, runners, horse riders and other cyclists.	Likely to be a single trail with moderate gradients, variable surface and obstacles.	Likely to be a challenging single trail with steep gradients, variable surface and many obstacles.	Extremely difficult trails will incorporate very steep gradients, highly variable surface and unavoidable, severe obstacles.
Suitable for	Beginner/ novice cyclists. Basic bike skills required. Suitable for most bikes.	Beginner/ novice mountain bikers. Basic mountain bike skills required. Suitable for off-road bikes.	Skilled mountain bikers. Suitable for mountain bikes.	Experienced mountain bikers with good skills. Suitable for better quality mountain bikes.	Highly experienced mountain bikers with excellent skills. Suitable for quality mountain bikes.
Fitness Level	Most people in good health.	Most people in good health.	A good standard of fitness.	Higher level of fitness.	Higher level of fitness.
Trail Width	Two riders can ride side by side.	Shoulder width or greater.	Handlebar width or greater.	Can be less than handlebar width.	Can be less than handlebar width.
Trail Surface and obstacles	Hardened with no challenging features on the trail.	Mostly firm and stable. Trail may have obstacles such as logs, roots and rocks.	Possible sections of rocky or loose tread. Trail will have obstacles such as logs, roots and rocks.	Variable and challenging. Unavoidable obstacles such as logs, roots, rocks drop-offs or constructed obstacles.	Widely variable and unpredictable. Expect large, committing and unavoidable obstacles.
Trail Gradient	Climbs and descents are mostly shallow.	Climbs and descents are mostly shallow, but trail may include some moderately steep sections.	Mostly moderate gradients but may include steep sections.	Contains steeper descents or climbs.	Expect prolonged steep, loose and rocky descents or climbs.

5.5 Horse Trail Classifications

The Australian Trail Horse Riders Association (ATHRA) is a leisure trail horse riding organisation. They have produced an information sheet 'Needs, Specifications and Infrastructure Requirements for Recreational Horseriding Trails' within which are descriptions of Horse Trail Classifications.

Table 6: Horse Trail Classifications excerpt – Class 1/Easy





HORSE TRAIL CLASSIFICATIONS	
 EASY (Class 1)	
	Description
Overview	<p>Easy Trails are most suitable for novices; social groups and others seeking a relatively short distance trail requiring a basic level of skill and horse & rider fitness.</p> <p>Easy Trails are most likely to be fire roads or wide single tracks (bridlepaths) with a gentle grade (not exceeding 10%) and a relatively obstacle free, hardened natural surface.</p> <p>Easy Trails are likely to be multi-use and frequent encounters with other users including cyclists, walkers & runners can be expected.</p>
Elements for classification	
Corridor (Width) (Height)	(Min.) 3 m (Min.) 3.7 m
Tread (Minimum Width)	1.5 m Note: Short sections of narrower tread (.60 m to 1.2 m) are acceptable at ground level however 1.5 metres is required at the height of the riders stirrups.
Surface	Generally a natural surface (topped with dolomite or compacted surface if desired). Hardened surfaces like concrete or asphalt to be avoided due to concussion on horse legs and poor traction with metal horseshoes. Hardened surfaces may be utilised on Rail Trails or other tracks where horses would generally only walk.
Distance	0 – 14 km
Gradient	Desired gradient 0 – 10% Maximum 10% Maximum sustained pitch 5% Out slope 4% maximum
Minimum turning radius	N/a
Level of skill / experience	Novices will require a basic level of riding skill and fitness is required coupled with riding on a trained, experienced horse.
On-trail facilities	Facilities along the trail may include mounting blocks, step overs, shallow fords, bridges, watering points, interpretative and/or management signs.
Trailhead facilities	The trailhead will be marked with a sign, specifying the name, distance, classification, multi-use code of conduct and other relevant information. Trailhead facilities may include car and separate horse float parking, manure receptacle, map dispensers, toilets, drinking water and information shelters. Trailhead facilities may include overnight yarding for horses. (Facilities will be dependent on the number of visitors using the trail or other attractions in the area.)
Recommended trail flow	Open and Flowing

* There may be circumstances where trails with a surface and slope similar to Class 1 exceed the suggested distance. These trails should be upgraded to Class 2 or 3.

5.6 4WD Trail Classifications

While there are not any national classification standards for four wheel drive trails the Victorian government have developed a four tier system as shown below in Table 7.

Table 7: Victorian Government 4WD Recreational Track Classification

4WD Recreational Track Classification				
	Easy	Medium	Difficult	Very Difficult
Overview Description	All Wheel Drive and High Range 4WD. Novice Drivers.	Mainly High range 4WD but Low Range required. Some 4WD experience or training required.	Significant Low range 4WD with standard 4WD ground clearance. Should have 4WD driver training.	Low range 4WD with High ground clearance. Experienced Drivers.
Advisory Sign	Green Circle	Blue Square	Black Diamond	Double Black Diamond
				
Expected terrain and track conditions	Mostly unsealed roads with no obstacles and minor gradients.	Tracks with some steep and/or rocky/slippery/sandy sections. May have shallow water crossings.	Tracks with frequent steep and/or rocky/slippery/sandy track sections. Possible water crossings.	Tracks with frequent very steep and/or rocky/slippery/sandy sections. May have difficult river crossings.
Vehicle suitability	All Wheel Drive and High Range 4WD. Can be low clearance with single range and road tyres.	Suitable for medium clearance vehicles with dual range and all terrain or road tyres.	Suitable for medium to high clearance vehicles with dual range and all terrain tyres.	Suitable for high clearance vehicles with dual range and tyres suitable for the terrain. (Mud Terrain tyres).
Recovery Equipment				Winch/ Recovery equipment required.
Driver Training / Experience	Suitable for novice drivers.	Recommended that drivers have experience or 4WD training. Recommended to be done in groups of vehicles.	Recommended for drivers with reasonable experience or 4WD training. To be done in groups of vehicles.	Drivers with extensive experience and advanced training should only attempt as there are several technical challenges. Recommended to be done in groups of four or more vehicles.
Weather	May be more difficult in wet conditions.	Will be more difficult in wet conditions.	Will be more difficult in wet conditions.	Will be more difficult in wet conditions.

6. Trail Audit and Assessment

6.1 Approach

A two phase approach was developed to conduct an audit and assessment of the Perth Hills trail network. The first step was to conduct a desktop of audit of trails by using existing information sources from the relevant trail managers and previous reports on trails within the area along with information gained through the consultation and research phases. The second phase was to audit a selection of trails by physically walking/cycling/driving the trails to gain an understanding and appreciation of the variety of trails on offer, their general condition, key issues, the type of natural and physical environment and the experience (the full trail audit spreadsheet is included as Appendix B). This information was then combined into a trail audit database which enabled the collection of the following information:

- Trail type;
- Trail location;
- Trail length;
- Time;
- Grade;
- Major attractors;
- Land Owner/Manager;
- Mapped;
- Brochure;
- Website;
- GIS/GPS Info;
- Trail usage;
- General condition;
- Trail infrastructure;
- Demand attributes; and
- Restrictions.

A summary of the major findings of the assessment are as follows:

- There were 74 trails in total identified;
- The trail types included: 1 four wheel drive track, 2 drive trails, 2 multi-use, 3 bridle trails, 4 trail bike areas, 14 mountain bike trails and 48 walking trails;
- There were only 8 trails where some form of mapping information could not be found;
- 30 of the trails identified did not have a brochure or marketing information;
- 38 trails had details that were included on a recognised website;
- 38 trails did not have official GPS/GIS information for their alignment;
- 13 trails [18%] were assessed as high usage, 10 as medium [13.5%] and 35 as low usage [47%];
- Only four trails were assessed as good condition overall, they were the Bibbulmun Track, Forsyth's Mill Mountain Bike Trail, Kalamunda Circuit, and the Railway Reserves Heritage Trail;
- 49 trails were assessed as average condition and 6 poor condition.

Note: a number of trails had insufficient information available to allow an assessment in some categories.

6.2 Mapping

A series of maps were developed outlining the existing situation within the Perth Hills. They included a map (refer Map 1) of all trails with reliable GIS data and a series of layers including the water catchments, disease risk areas, major land ownership and townships. A map (refer Map 2) was also produced which included the high use/popular trails.

A site analysis map (Map 3) was also prepared which included identifying activity areas and the major uses of each area including the level of use which was determined through the research and consultation processes. These have been depicted graphically as areas or zones. 10 zones were identified as follows, including their level of activity:

- Lake Leschenaultia (High)
- John Forrest National Park (High)
- Bickley/ Victoria (Low)
- Mundy/Lesmurdie (Medium)
- Kalamunda (Low)
- Goat Farm Mountain Bike (High)
- Forsyth's Mill (High)
- Mundaring Weir (High)
- Kalamunda Mountain Bike Zone (High)
- Pickering Brook (Low)

Maps 1 to 3 are included on the following pages.

Figure 8: Map of the Trails within the Perth Hills with Reliable GIS Information (Map 1)

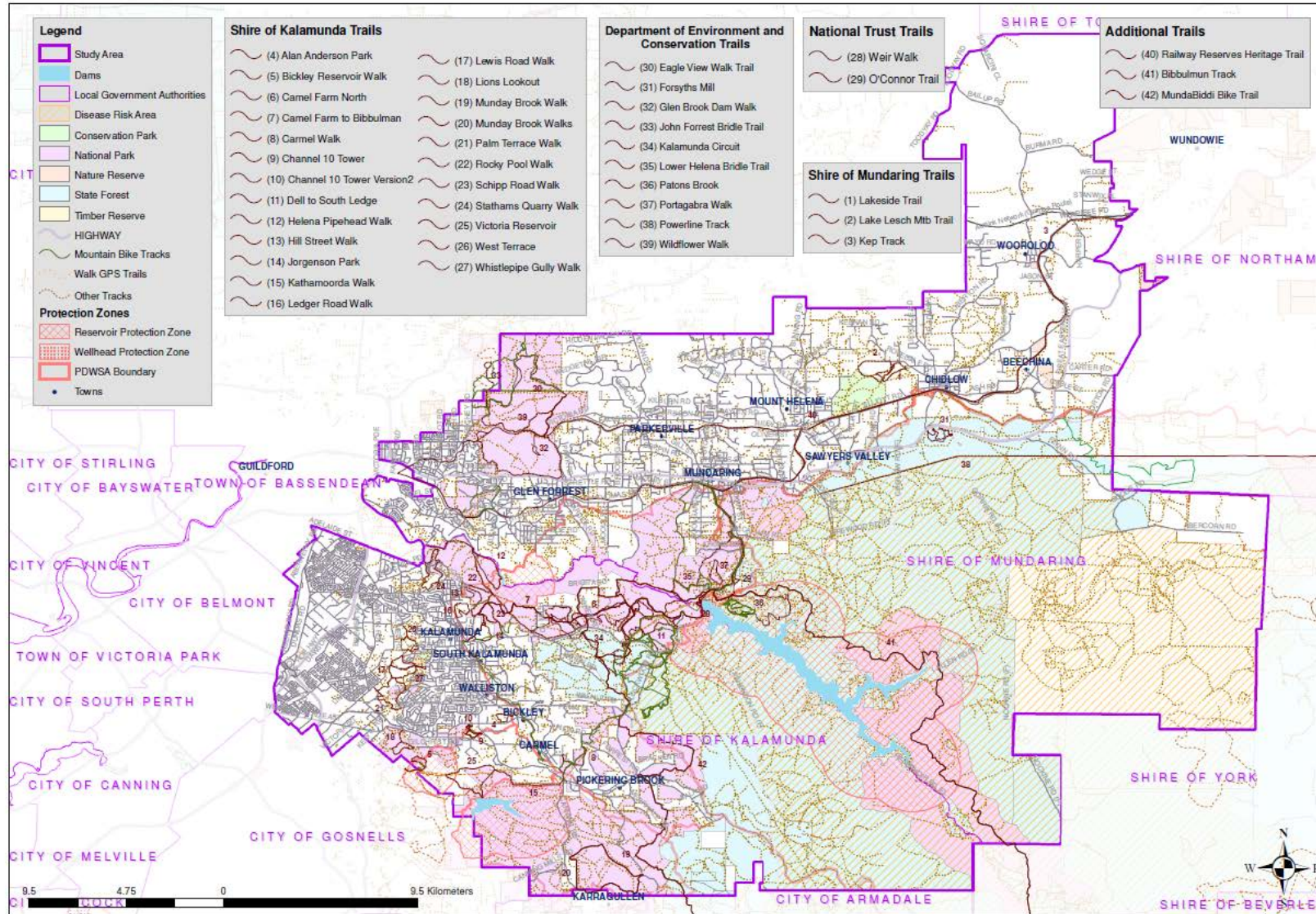


Figure 9: Popular Trails within the Perth Hills region (Map 2)

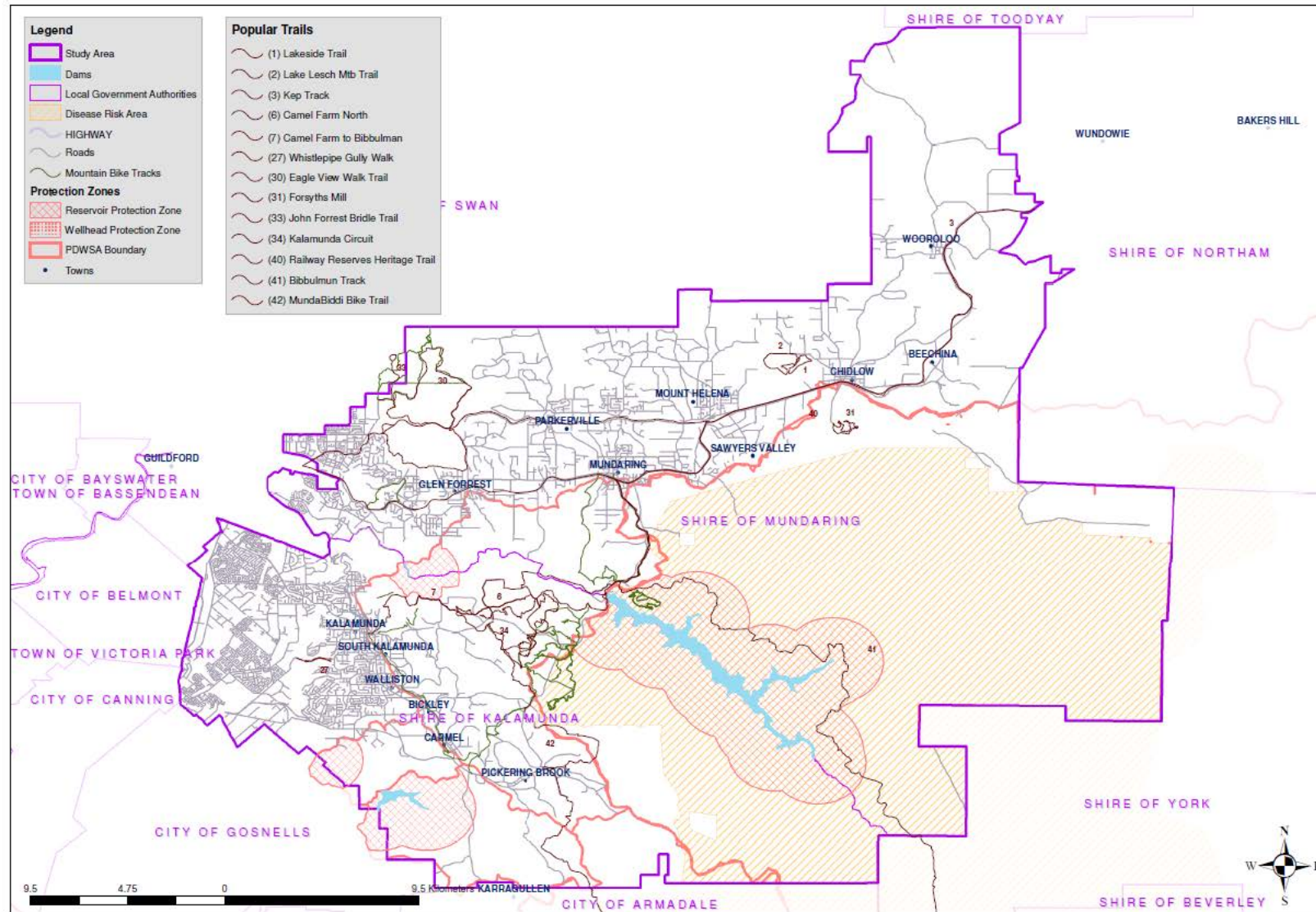
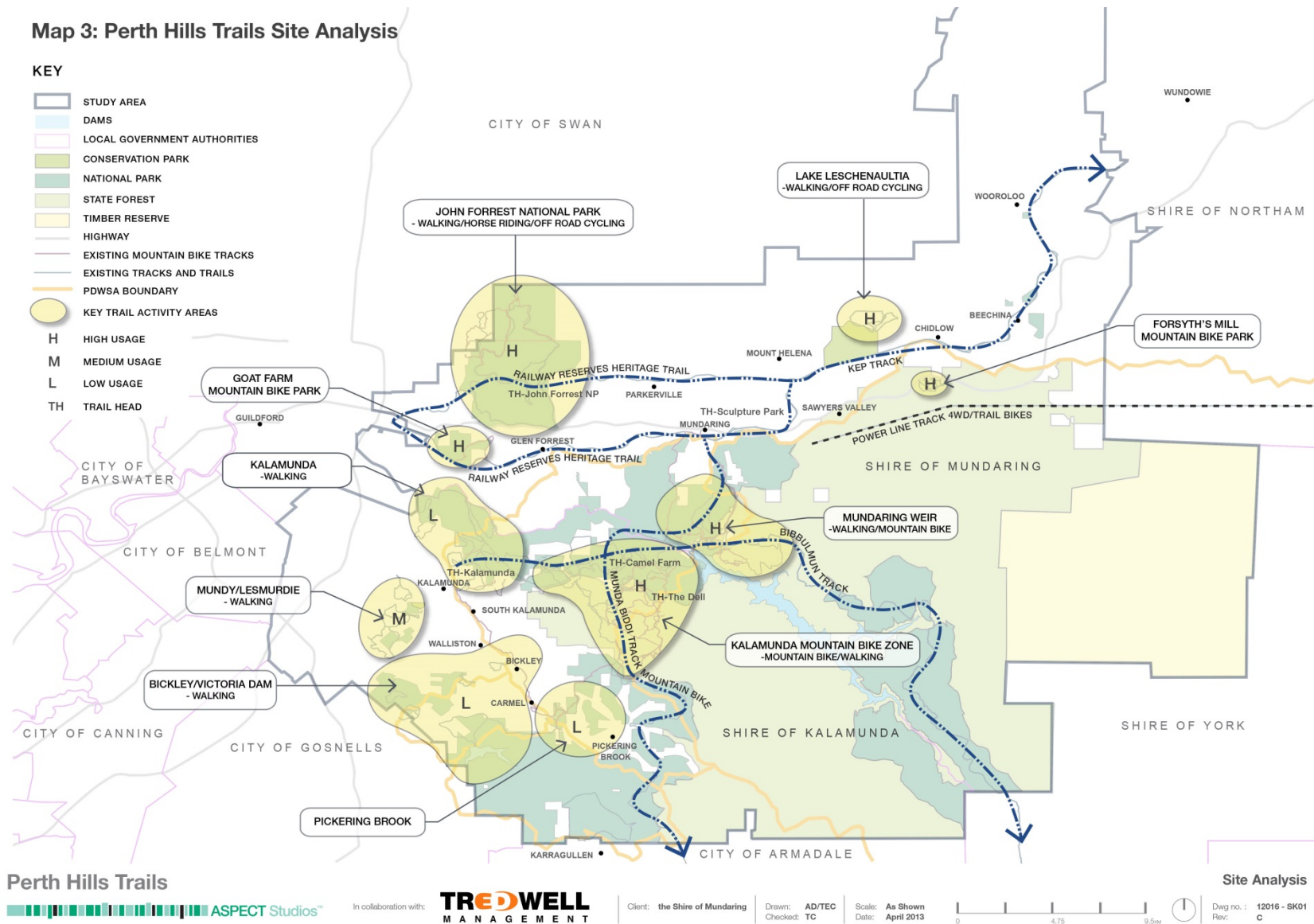


Figure 10: Perth Hills Trails Site Analysis (Map 3)



7. Demand Analysis

To determine the demand for various trail disciplines a comprehensive research and consultation process was conducted. This included an online survey of the wider community and trail users to assist in determining the usage and demand of the Perth Hills trails network both currently and in the future. Furthermore ongoing discussions and consultation has occurred through the project steering committee which comprised of representatives from the SoK, SoM, DEC, EMRC and the Perth Hills Trails Reference Group which comprises of representatives of all the peak trail bodies (e.g. WAMBA, Bushwalking WA, RTRA) and other trail related groups (e.g. Bibbulmun Track Foundation).

Broader factors such as participation rates and recreation trends established during the research and consultation processes combined with local demand factors have also been considered as part of establishing demand. This includes the growing popularity of most trail related activities including walking, cycling, trail bike riding and four wheel driving. In addition the strong population growth of Perth and WA will also result in a continuing increase in trail based recreation in the future.

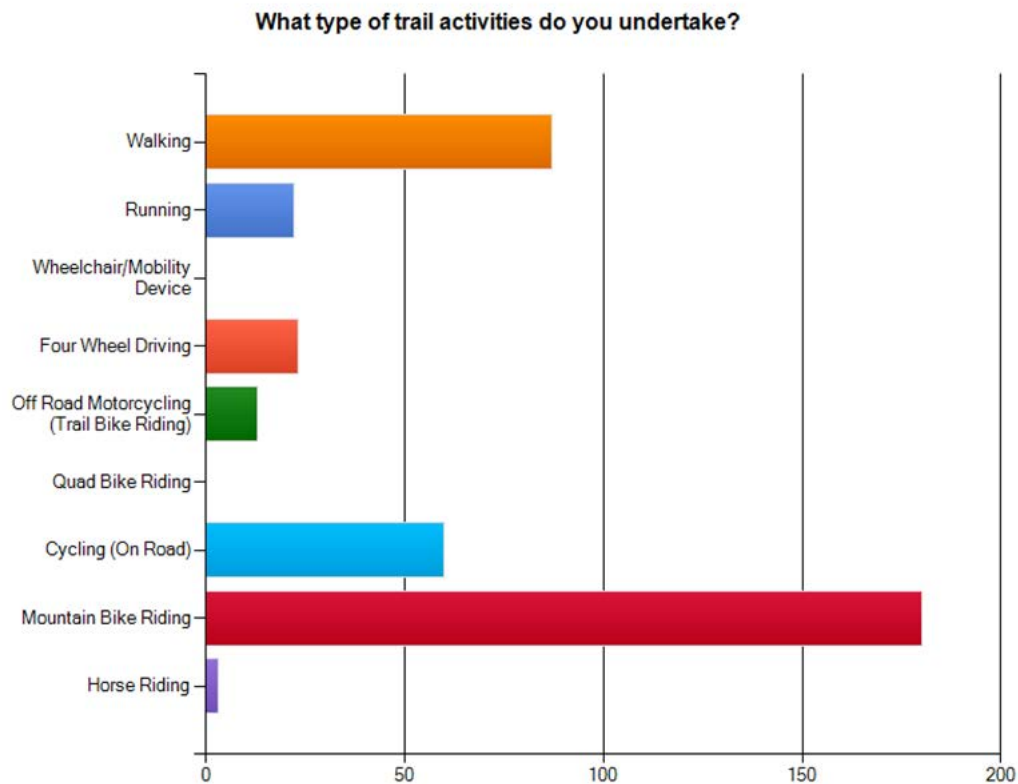
A summary of the user survey is provided below and the full report included at Appendix C.

7.1 Summary of Survey Findings

A key component of the consultation process for the development of the Perth Hills Trails Master Plan was the User Survey. The voluntary survey was conducted over September 2012 and was promoted through the reference group member's networks. The aim of the survey was to gain a further understanding of the current trail needs, demands and requirements in the Perth Hills Region. 306 respondents accessed the online survey, with 83% males and 17% females. Half of all respondents were within the 35-50 year age cohort, while another 33% were in the age group 25-34. The survey may not fully represent trail usage in the Perth Hills as the survey response was voluntary and indicated a high response rate from peak body members.

The majority of users of the Perth Hills region use the trails frequently (at least weekly) and are prepared to travel over 30 minutes to participate in recreation pursuits with the top three pursuits being mountain bike riding, walking and cycling (on road). Almost three quarters of the users spend over 2 hours on the trails. The main reasons they do this is for the exercise, fun and the nature appreciation. The majority of respondents use a private car or ride a bicycle to access the trails.

Figure 11: Trail Activity Types – Number

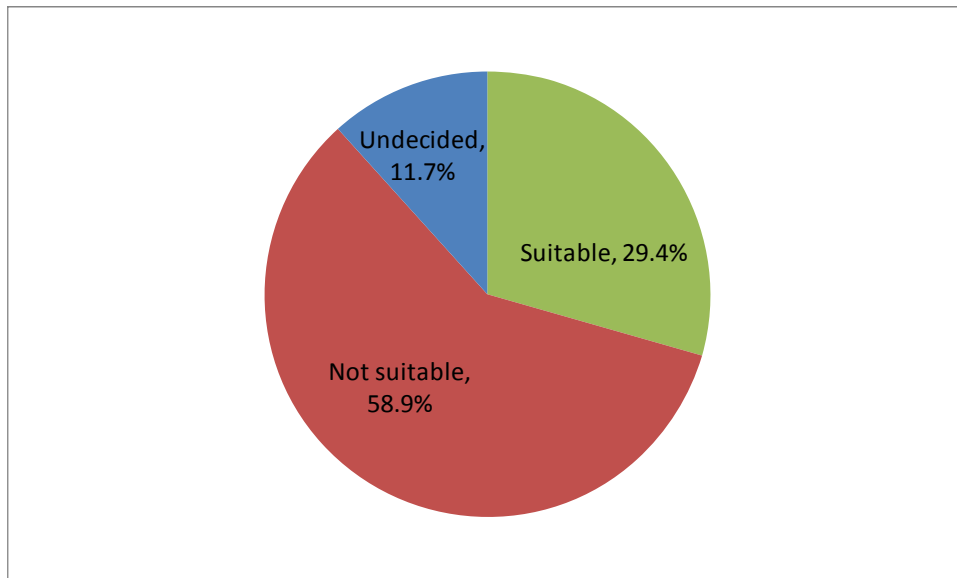


Overwhelmingly users obtain information primarily through trail/recreation organisations (WAMBA, RTRA, WA Horse Council) and word of mouth. The www.toptrails.com.au was the most popular site; followed by <http://perthmtb.asn.au> and www.wamba.org.au.

Almost 60% of respondents stated that the existing trails in the Perth Hills are not suitable for current demand, with a large proportion commenting on the reason for this. These comments resembled the top three issues for the Perth Hills trails as follows:

1. Lack of number and diversity of trails
2. Maintenance of trails
3. Signage (lack of, condition, type etc.)

Figure 12: Suitability for Current Demand



Although users have a number of issues/concerns associated with the trails in the Perth Hills overall the majority of respondents rate the trail experience as good to very good.

The top 10 trails used in the Perth Hills in the last 12 months were:

1. Kalamunda Circuit
2. Munda Biddi Trail
3. The Goat Farm (Mountain Bike Park)
4. Bibbulmun Track
5. Forsyth's Mill Mountain Bike Trail
6. Camel Farm Trail
7. Little Oven Circuit
8. Railway Reserves Heritage Trail
9. Dell to South Ledge Circuit
10. Kep Track

Seventy trails were rated for overall condition, the top three trails in good condition were:

1. Kalamunda Circuit
2. Forsyth's Mill Mountain Bike Trail
3. Bibbulmun Track

While the three lowest ranked trails in relation to overall quality (with at least 30 respondents) were:

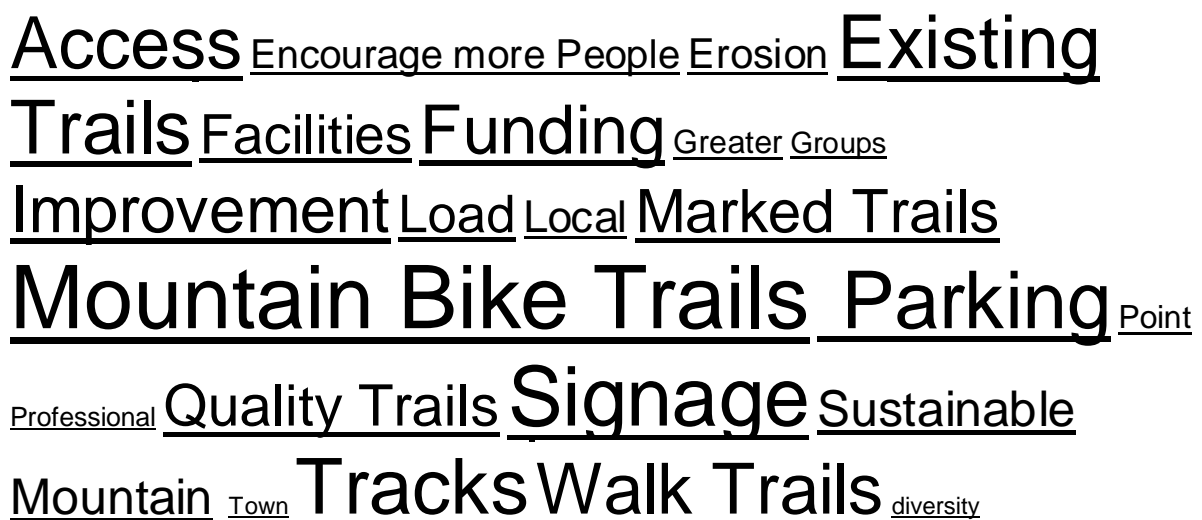
- 61. Eagle View Walk Trail
- 68. The Powerline
- 70. The Elevator

The trails that had the highest total of respondents nominating it as their favourite track were:

- 1. Kalamunda Circuit (156)
- 2. Forsyth's Mill (77)
- 3. Goat Farm (75)
- 4. Little Oven Circuit (64)
- 5. Munda Biddi Trail (51)
- 6. Camel Farm (32)
- 7. Railway Reserves Heritage Trail (31)
- 8. Bibbulmun Track (27)
- 9. Eagle View Walk Trail (23)
- 10. Kep Track (20)

Respondents were asked an open ended question about what they believe is the highest priority for trails improvement in the Perth Hills. Comments centred around extra trails, signage, information, maintenance, water catchment areas and disease risk area, environment, planning, funding, car park security, user conflict, catering for all abilities, locations for new mountain bike trails, linkages and loop trails, amenities/facilities, trail specific and trail users information. Other comments included positive feedback on the trail network, unsanctioned trails, trail hubs and other general issues. Figure 12 provides a visual representation of the key words utilised by respondents in relation to trail improvement priorities; the larger the word, the more frequently it appeared in responses, and therefore deemed to be of greater significance to the respondents.

Figure 13: Visual Representation of Key Comments



8. Key Issues and Opportunities

The following is a summary of the key issues and opportunities facing each of the trail activities within the scope of this study. They have been determined through the comprehensive research, consultation and site inspection processes. A priority rating has been applied to each key issue and opportunity based on the significance and importance of the issue/opportunity identified.

Table 8: Trail Key Issues and Opportunities Table

KEY ISSUES & OPPORTUNITIES	PRIORITY
Overall	
The ongoing sustainability of existing and proposed trails	High
The implications of constraints such as water catchment and disease risk areas	High
Need for improved coordination amongst trail management and land owners (although it is acknowledged that the trail reference group has assisted in improving this situation)	High
Need for integrated planning and development (e.g. sport and recreation plans, local government planning schemes, specific master plans)	High
Improved trail management practices (risk management, maintenance and user management)	High
Improvements to the coordination of marketing and promotion of trails	High
Improvements to signage including establishing a hierarchy of trail signage types and consistency across the region	High
Upgrading/improving existing trails and areas particularly those outside of PDWSA's such a John Forrest National Park, Lake Leschenaultia, and walking trails on the western side of the range	High
Economic and community development opportunities through trail provision across the region	High
Further detailed assessment of the medium and low level use trails to determine future need which may result in decommissioning of some trails	Medium

KEY ISSUES & OPPORTUNITIES	PRIORITY
Need to create a link through the western end of the Helena Valley between the northern area of Kalamunda and the Railway Reserves Heritage Trail to enable a complete Mundaring to Kalamunda loop trail	Medium
Opportunity to improve the link from Kalamunda to Bickley to Pickering Brook for walkers and cyclists	Medium
Opportunity to establish trail based recreation opportunities within the Bickley Brook Catchment Area once reproclaimed	Medium
Enhancement of the Mundaring Weir Precinct through the Water Interpretive Facility & associated network	High
Cycling	
Demand for increased mountain biking opportunities in the region such as improvements at Gunjin Gully, The Dell, Lake Leschenaultia and the Goat Farm	High
Need to establish a link for cyclists between Kalamunda township and the mountain biking opportunities centred around the Kalamunda Circuit	High
Opportunity to market the Mountain Biking precinct around the Kalamunda Circuit, The Dell and Gunjin Gully	Medium
Horse Riding	
Pressure from urban development on existing bridle trails therefore the need to protect the existing trail/s within John Forrest National Park which are outside the PDSWA catchment	High
Need for improved mapping and information	Medium
Four Wheel Driving	
Demand for additional four wheel drive tracks in the region although given the large water catchment areas the prospect of retaining and determining future areas in the region seems low	Medium
Opportunity to work in with nearby regions to identify four wheel drive opportunities	Medium
Trail Bike Riding	
Demand for additional trail bike tracks and riding areas in the region although given the large water catchment areas the prospect of retaining and determining future areas in the region seems low	High

KEY ISSUES & OPPORTUNITIES	PRIORITY
Conflict with other trail uses due to usage of other non-motorised trail networks in the area	High
Opportunity to develop an off-road motorcycling area east of the Perth Hills region	High
Walking	
Sustainability of existing network	High
Improvements to well utilised walking trails	Medium
Opportunity to develop a walking precinct around the Mundy/Lesmurdie activity area	Medium



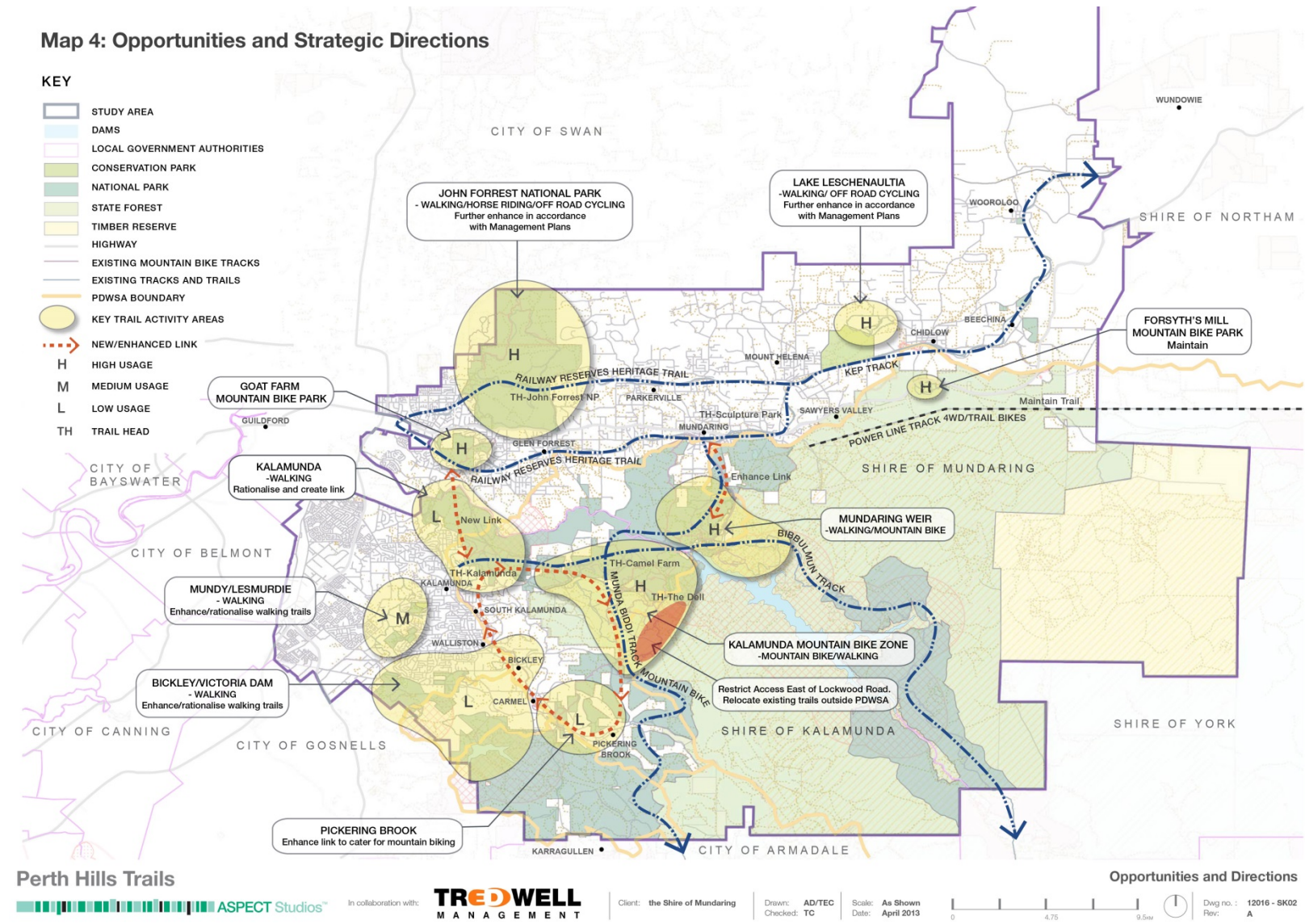
8.1 Opportunities and Strategic Directions Map

To reflect the opportunities and provide strategic directions for the next stage an Opportunities and Strategic Directions Map (Map 4) has been developed. This map identifies a series of initiatives and linkages that could be achieved in the Perth Hills over the next 15-20 years. In addition the key trail heads have been identified including Sculpture Park at Mundaring, the Camel Farm, The Dell and Zig Zag Cultural Centre, all at Kalamunda. These are the key commencement points that many users begin their trail journeys.

Key linkages include providing a link from Kalamunda, through to the Kalamunda MTB zone through to Pickering Brook and return. In addition a new link is proposed that connects Kalamunda to the north through the Helena Valley to the Railway Reserves Heritage Trail, which then provides a connecting loop through the region connecting the major towns and attractions.

The key opportunities and directions are further detailed along with relevant strategies and actions for their implementation in the Strategy and Action Plan (refer Section 10).

Figure 14: Opportunities & Strategic Directions (Map 4)



9. Vision and Principles

9.1 Vision

The Perth Hills will remain as a premier Trails destination in Western Australia through the provision of high quality, sustainable, well designed, diverse, accessible and appropriately located trail networks.

9.2 Principles

The following recreation and trail planning principles have been developed to guide the Strategy and Action Plan (Section 10) development for the Perth Hills Trails Master Plan. They are as follows:

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

10. Strategy and Action Plan

The strategy and action plan provides a practical framework for the implementation of the key strategies and actions identified from the extensive research and assessment processes undertaken as part of this study. The plan has four key strategic themes:

1. Integrated Planning and Management;
2. Sustainable Trail Provision and Enhancement;
3. Participation and Utilisation;
4. Economic, Tourism and Community Development;

For each strategic area relevant strategies have been developed and then for each strategy a series of actions comprised. Strategies have been given a priority of High, Medium or Low and then for each action the recommended timeframe (refer table below), partners (see below) that are most suitable to assist in achieving the action and the likely resources (refer table below) that will be required to fulfill the action.

Timeframe

Term	Year Range
Short	2013 – 2015
Medium	2016 – 2020
Longer	2021 onwards

Partners

The lead partner is identified in **bold** e.g. **DEC** and the assisting partners are identified and are not bolded e.g. SoM.

- Bibbulmun Track Foundation (BTF)
- Department of Environment and Conservation (DEC)
- Department of Sport and Recreation (DSR)
- Eastern Metropolitan Regional Council (EMRC)
- Federation of Western Australian Bushwalkers (FWAB)
- Munda Biddi Trail Foundation (MBTF)
- Perth Hills Trails Reference Group (PHTRG)
- Recreation Trail Riders Association (RTRA)
- Shire of Kalamunda (SoK)
- Shire of Mundaring (SoM)
- Trails WA (TWA)
- WaterCorp (WC)
- Western Australian Horse Council (WAHC)
- Western Australian Mountain Bike Association (WAMBA)

Resources

Level	Cost Range
Low (L)	0 - \$20,000
Medium (M)	\$20,001 - \$50,000
High (H)	Over \$50,000

10.1 Integrated Planning and Management

Table 9: Strategy 1: Key Trail Activity Areas

Key Trail Activity Areas

1. Strategy: Focus trail development and enhancement within the Key Trail Activity Areas throughout the Perth Hills.¹

Rationale: The Perth Hills region offers a diverse range of trail activities and there tends to be areas within the Perth Hills region that are conducive to certain trail disciplines which have been identified as Key Trail Activity Areas (refer Map 3). Walking occurs throughout the Perth Hills with the Bibbulmun Track, John Forrest National Park, Lake Leschenaultia, Mundaring Weir, Kalamunda, Mundy/Lesmurdie and Bickley/Victoria areas being the most popular. The Goat Farm, Forsyth's Mill, Munda Biddi Trail and Kalamunda Mountain Bike Zone are the primary mountain biking areas within the Perth Hills. The motorised activities of trail bike riding and four wheel driving are currently taking place along the Power Line Track and adjoining forest areas, there is demand for additional legal and designated areas for trail bike riding however the disease risk and water catchment issues present hard constraints to this occurring.

There are limited opportunities for horse riding in the Perth Hills, there is a bridle trail within the John Forrest National Park, as well as the Lower Helena Bridle Trail which is in poor condition and experiences minimal use. The Shire of Kalamunda has numerous walking trails which they actively promote and there is an opportunity to rationalise and enhance this network.

It is recommended that trail development focuses on the Key Trail Activity Areas identified in this study along with key linkages between these areas. By further developing activity based themes for these areas there are opportunities to attract new and enhance existing businesses and community organisations that service these user groups and contributing to the overall development of the community they are located within.

Priority: High

Key Performance Indicator.

One themed precinct mapping product developed per annum

¹ Note: Themed trail areas do not preclude other trail related activities from locating in the area if there is a substantiated need.

Actions	Timeframe	Partners	Resources
1.1. Create a multi-discipline (walking, horse riding, off road cycling) Key Trail Activity Area within John Forrest National Park.	Short (2013-14)	DEC SoM, DSR	L
1.2. Create shared-discipline (walking, off road cycling) Key Trail Activity Areas within Lake Leschenaultia and around Mundaring Weir.	Medium	DEC, SoM	L
1.3. Enhance and rationalise where unsustainable the walking trails within the Kalamunda, Mundy/Lesmurdie and Bickley/Victoria Key Trail Activity Areas.	Medium	SoK FWAB	M
1.4. Retain and enhance the Powerline Track as a trail bike riding and four wheel driving area/track.	Short (2013-15)	RTBA DSR, DEC	H
1.5. Retain and enhance the horse riding trails within John Forrest National Park and consider decommissioning the Lower Helena Bridle Trail.	Longer	DEC DSR, WAHC	M

Table 10: Strategy 2: Integrated Trail Planning Framework

Integrated Trail Planning Framework

2. Strategy: Develop an integrated trail planning framework for the Perth Hills region.

Rationale: Due to the varying stakeholders (various government agencies, community groups and trail users) and two local government areas within the Perth Hills region it is important that an integrated approach to planning is undertaken for the whole region. Furthermore, trails have recreation, transport, environmental, cultural and heritage elements and there is a need to ensure that when planning for these that trail planning and management is considered and incorporated. Regular communication and collaboration will need to be maintained, led by the Perth Hills Trails Reference Group and trail planning and implementation within the local governments will need to be resourced.

Priority: High

Key Performance Indicators

Trail planning sections in all major planning documents

Trail planning position created by 2015

Actions	Timeframe	Partners	Resources
2.1. Ensure trail planning initiatives are incorporated and recognised in broader community planning such as Local Government (strategic plans, development plans and recreation planning documents), DEC management and regional recreation plans for national and conservation parks and other relevant government agency planning.	Ongoing	PHTRG DEC, DSR, SoM, SoK, EMRC	L
2.2. Continue to incorporate and engage representatives from the community, State and Local Government agencies and the private sector through attendance at Perth Hills Trails Reference Group meetings.	Ongoing	PHTRG DEC, DSR, SoM, SoK, WAMBA, FWAB, WAHC, RTBA, EMRC Other organisations as required.	L
2.3. Encourage, advocate and seek funding for the two Local Governments to have a designated trail planning and development officer at least on a part-time basis or as a joint position that services both local government areas.	Short (2013-14)	PHTRG SoM, SoK	M
2.4. When enhancing and creating new trails or sections of trails incorporate indigenous, cultural, educational and heritage interests where relevant and feasible.	Ongoing	DEC, SoM, SoK, WC	L
2.5. Design new trails and sections of trails to ensure they cater for transport demands and requirements where practical, particularly in proposed linkages between Key Trail Activity Areas and major towns.	Ongoing	SoM, SoK, DEC EMRC	M

10.2 Sustainable Trail Provision and Enhancement

Table 11: Strategy 3: Existing Trail Provision

Existing Trail Provision

3. Strategy: Enhance and continually develop existing popular and sustainable trails.

Rationale: The Perth Hills region has 74 recognised trails. The trail types include 1 four wheel drive track, 2 drive trails, 2 multi-use trails, 3 bridle trails, 4 trail bike areas, 14 mountain bike trails and 48 walking trails. Of these 74 trails 13 trails [18%] were assessed as high usage, 10 as medium [13.5%] and 35 as low usage [47%] (note all trails usage was not able to be assessed due to limited information).

The trail types include the Bibbulmun Track, Camel Farm Walk Trail, Dell to South Ledge Circuit, Forsyth's Mill Mountain Bike Trail, John Forrest National Park Bridle Trail, Kalamunda Circuit, Kalamunda Heritage Trail, Kep Track, Little Ovens Single Track, Munda Bididi Trail, Railway Reserves Heritage Trail, The Goat Farm (Mountain Bike Park) and the Powerline Track.

Only four trails were assessed as good condition overall, they were the Bibbulmun Track, Forsyth's Mill Mountain Bike Trail, Kalamunda Circuit, and the Railway Reserves Heritage Trail. The trails rated as average condition were the Camel Farm Walk Trail, Dell to South Ledge Circuit, John Forrest NP Bridle Trail, Kalamunda Heritage Trail, Kep Track, Little Ovens Single Track, Munda Bididi Trail, and The Goatfarm (Mountain Bike Park). The Powerline Track was rated as poor condition and given its high usage is a high priority for upgrading.

The trails with medium usage were the Bickley Reservoir Walk, Camel Farm to Hewett's Hill Walk Trail, Eagle's View Walk, Gungin Gully Downhill, Jorgensen Park Walk, Lake Leschenaultia Trail, Lesmurdie Falls Trail, Sculpture Park, The Elevator and the Zig Zag Trail. All were rated as average condition with the exception of The Elevator which was rated as poor condition.

Six trails were assessed as in poor condition Bilgoman Well Heritage Trail, Greystones, and Kattamordo Heritage Trail have low usage, whereas Magpies and The Elevator have medium usage and the Powerline Track has high usage.

Priority: High

Key Performance Indicator

Two trails upgraded/redeveloped to a high standard

	per annum.		
Actions	Timeframe	Partners	Resources
3.1. Continue to maintain in good condition and further enhance the Bibbulmun Track, Forsyth's Mill Mountain Bike Trail, Kalamunda Circuit, and the Railway Reserves Heritage Trail.	Ongoing	DEC DSR, WAMBA	H
3.2. Substantially upgrade the Powerline Track.	High	DEC	H
3.3. Upgrade the Camel Farm Walk Trail, Dell to South Ledge Circuit, John Forrest National Park Bridle Trail, Kalamunda Heritage Trail, Kep Track, Little Ovens Single Track, Munda Biddi Trail, and The Goat Farm (Mountain Bike Park).	High	DEC, SoM, SoK, WAMBA, FWAB, WAHRC, MTF, BTF	H
3.4. Upgrade the Bickley Reservoir Walk, Camel Farm to Hewett's Hill Walk Trail, Eagle's View Walk, Gungin Gully Downhill, Jorgensen Park Walk, Lake Leschenaultia Trail, Lesmurdie Falls Trail, Sculpture Park, and the Zig Zag Trail.	Medium	DEC, SoM, SoK, WAMBA, FWAB, WAHRC	H
3.5. Conduct a detailed audit and assess all trails rated as low usage to determine whether to retain or decommission.	Medium	PHTRG DEC, SoK, SoM	M

Table 12: Strategy 4: Future Trail Provision

Future Trail Provision

4. Strategy: Develop trails, linkages and networks to meet current and forecast demand.

Rationale: There is a very good opportunity to create key linkages between towns and Key Trail Activity Areas within the Perth Hills region. By creating a link from the western end of the Helena Valley between the northern area of Kalamunda and the Railway Reserves Heritage Trail there is an opportunity to create a significant loop traversing much of the Perth Hills and linking key nodes such as Mundaring, Mundaring Weir and Kalamunda. Also by improving the link from Kalamunda to Bickley to Pickering Brook this would create a loop trail suitable for cyclists and walkers.

The reclamation of the Bickley Brook catchment area will present trail opportunities in an area outside of the PDSWA catchments which should be capitalised on. Supporting DEC and WAMBA to relocate informal and illegitimate trails from the area east of Lockwood Road which is located in Restricted Protection Zone and Disease Risk Area. Support should also be provided to the development of the trail network within the Mt Gunjin area. Also a link suitable for mountain bikes and off road cycles needs to be established from Kalamunda through to the Camel Farm trail head.

Due to the significant and often unresolvable constraints that face off road vehicle use within the Perth Hills region the further establishment of designated trails and areas is unlikely, the PHTRG should work with neighbouring local governments to establish areas in close proximity if feasible.

Priority: Medium

Key Performance Indicator

One trail initiative scoped and implementation commenced every two years

Actions	Timeframe	Partners	Resources
4.1. Support the enhancement of the Mundaring Weir Precinct through the Water Interpretive Facility and associated network.	Short (2013-14)	PHTRG	M
4.2. Create a link through the western end of the Helena Valley between the northern area of Kalamunda and the Railway Reserves Heritage Trail to enable a complete Mundaring to Kalamunda loop trail.	Medium	PHTRG DEC, SoM, SoK	H
4.3. Improve the link from Kalamunda to Bickley to Pickering Brook for walkers and cyclists.	Medium	PHTRG DEC, SoK	H
4.4. Establish trail based recreation opportunities within the Bickley Brook Catchment Area once reproclaimed.	Medium	PHTRG DEC	H
4.5. Support the relocation of mountain bike trails from east of Lockwood Road into more suitable areas.	Ongoing	DEC WAMBA	H
4.6. Support the development of the Mt Gunjin mountain bike trail improvements and developments.	Short (2013-14)	DEC WAMBA, PMBC	M
4.7. Establish a link for cyclists between Kalamunda township and the mountain biking opportunities centred around the Kalamunda Circuit.	Short (2014-15)	DEC SoK, BTF	M
4.8. Work with adjoining local government areas to develop off road motorcycling and four wheel drive tracks and areas.	Short (2013-15)	PHTRG DEC, SoK, SoM	L

Table 13: Strategy 5: Management Structure

Management Structure

5. Strategy: Ensure the management structures for all current and future regional trails are clearly defined.

Rationale: A number of trails in the past have deteriorated primary due to factors such as unclear management responsibilities and minimal or no maintenance schedules being in place. It is essential that for any new or re-developed trails a designated body is responsible for the management and maintenance of that trail, this should ideally be a government agency (local or state) as they are more likely to have the necessary resources and expertise.

Priority: Medium

Key Performance Indicator.

Designated trail manager in place for all upgraded/developed trails

Actions

Timeframe

Partners

Resources

5.1. Ensure all trail manager roles are clearly defined particularly for community driven trail developments.

Short
(2013-14)

SoM, SoK
PHTRG,DEC

L

5.2. Ensure adequate trail maintenance schedules and procedures are defined and adhered to for all trails.

Short
(2014-15)

SoM, SoK
PHTRG, DEC

L

5.3. Develop a management and maintenance manual as a guide for all trail managers.

Medium

SoM, SoK
PHTRG,DEC,

L

10.3 Participation and Utilisation

Table 14: Strategy 6: Mapping and Trail Identification

Mapping and Trail Identification

6. Strategy: Improved mapping and identification of trails throughout the Perth Hills region.

Rationale: There are a wide range of mapping products available for the region's trails however a number are outdated and there are also a number of trails that do not have an existing map. There were 8 trails where some form of mapping information could not be found however 38 trails did not have official GPS/GIS information for their alignment.

Priority: Medium

Key Performance Indicator

2 trail maps produced/updated per annum.

10 trail GIS datasets developed per annum.

Actions	Timeframe	Partners	Resources
6.1. Traverse each of the trails that do not contain GIS mapping information with a GPS tracker to record their alignment.	Short (2013-14)	SoM, SoK PHTRG,DEC	H
6.2. Develop a series of trail user maps for the trails that are not mapped (refer Perth Hills Trails Database for a list of non mapped trails).	Medium	SoM, SoK PHTRG,DEC	M
6.3. Continue to roll out the DEC trail directional markers.	Ongoing	DEC	M
6.4. Develop a new trail head at Greenmount to provide a gateway to the rail network within the Perth Hills region.	Short (2014-15)	SoM DSR	H
6.5. Upgrade and enhance the trail heads at Sculpture Park, Mundaring; Zig Zag Cultural Centre, Kalamunda; Mundaring Weir, Mundaring, the Camel Farm and The Dell in Kalamunda.	Ongoing	SoM, SoK PHTRG,DEC	M

Table 15: Strategy 7: Promotion and Marketing

Promotion and Marketing

7. Strategy: Increased promotion and marketing of trail opportunities within the Perth Hills region

Rationale: There exists many trail opportunities within the Perth Hills region and although there are various websites and other promotional materials, there appears to be a lack of a coordinated and efficient marketing approach. There is also a need to ensure consistent branding across the network and it is recommended that the Perth Hills tourism logo is incorporated on all trails in the region at a minimum on the trail head signage to provide that consistency. In the medium term a designated Perth Hills Trails logo should be developed that would then be included on any promotional material and signage. Of the 74 trails identified 30 of the trails identified did not have a brochure or marketing information and 38 trails had details that were included on a recognised website. Consequently, there is an opportunity to develop marketing and brochure material for these trails.

Priority: High

Key Performance Indicator

3 trail brochures developed per annum.

Actions	Timeframe	Partners	Resources
7.1. Develop a coordinated approach to marketing the Perth Hills trails network through the development of a Trails Marketing Strategy.	Short (2013-14)	PHTRG DEC, SoM, SoK	M
7.2. For new trail signage developed (trail head at a minimum) include the Perth Hills tourism logo to identify the trail as a Perth Hills region trail.	Short (2014-15)	PHTRG DEC, SoM, SoK	L
7.3. Develop a Perth Hills Trail Network logo for inclusion on all future trail signage.	Medium	PHTRG DEC, EMRC, SoM, SoK	L
7.4. Develop a style guide for trail signage, facilities and infrastructure.	Medium	PHTRG DEC, EMRC, DSR, SoM, SoK	M
7.5. Remove dysfunctional, damaged and illegible trail signage and replace with contemporary and appropriate signage.	Short (2013-14)	DEC SoM, SoK, PHTRG	M

10.4 Economic and Community Development

Table 16: Strategy 8: Economic and Community Development

Economic and Community Development			
8. Strategy: Use trail development and provision as an economic and community development tool.			
<p>Rationale: Established trail networks and their associated activities are able to provide significant benefits to the communities they traverse, particularly from an economic and tourism perspective. A number of special events are conducted in the region that use the trail networks as their principle facility, these should be supported and enhanced to assist in raising the profile of the Perth Hills trails and provide economic spinoffs to the communities that host the events. Also, through educating the local community about the benefits of adopting the Key Trail Activity Areas there is an opportunity to create vibrant precincts based on each of the major trail disciplines which over the long term should provide significant economic and tourism benefits to the region.</p>			
<p>Priority: Low</p>		<p>Key Performance Indicator</p> <p>Three events supported per year.</p>	
Actions	Timeframe	Partners	Resources
8.1. Support and develop trail related special events such as mountain bike racing, trail rides, walks, orienteering, rogaining and other appropriate activities.	Ongoing	<p>Event Organisers</p> <p>DEC, SoM, SoK, PHTRG</p>	L
8.2. Tap into the economic and community development projects being developed by the MBTF and BTF to encourage communities along these trails to become 'walker and bicycle friendly'.	Medium	<p>PHTRG</p> <p>DEC, SoM, SoK</p>	L

10.5 Implementation

The PHRTG will be the lead partner in the implementation of the Strategy and Action Plan. The Plan will need to be adequately resourced, ideally including the provision of a designated trail planning and development officer, in line with short term Action 2.3.

Progress of the Strategy & Action Plan will be continually monitored and reported annually to Council and the community. The Strategy and stated actions will be periodically reassessed and updated to respond to the changing circumstances and requirements of the area. Actions may be amended, removed or re-prioritised to address the key issues identified at any given time.

Community engagement will be encouraged to ensure that the evolving needs and aspirations of the community are identified and reflected in the targeted actions of the Strategy.

An ongoing commitment of funds and resources will be required to achieve the objectives of the Strategy. A range of funding options will be considered, together with the sourcing of potential grant schemes. Opportunities to form partnerships with other potential stakeholders will be sought where this would deliver successful outcomes and assist in the completion of the Action Plan.

11. Trail Planning & Design Guidelines

11.1 Sustainable & Accessible Trails

Prior to the consideration of a new trails initiative it is important to ensure that the proposal is both sustainable and accessible. This will assist in attracting a desired user group, minimise the likelihood of environmental damage and maximise opportunities for funding:

Sustainable Trails

It is fundamentally important that recreational trails are socially, economically and environmentally sustainable. Recreational activities that diminish natural values (biodiversity and landscape amenity) are inappropriate and will not be acceptable to the community or other stakeholders. It is vital, therefore, that high quality recreational experiences are developed in landscapes that are capable of supporting the activities.

The conservation and enhancement of natural areas, protection of biodiversity and raising environmental awareness should underpin the development of an environmentally sustainable trail network. This can be achieved through appropriate trail design, location selection and ongoing management.

Trails must also be economically and socially sustainable. There is a growing body of evidence which identifies the economic benefits that well developed trails can bring to a local community and/or a region through increased visitation, including tourism. However, the development of recreational trails must also take into account the sensitivities and desires of local communities. While well designed and managed recreational trails can enhance the well-being of local communities by improving access and increasing physical activity, recreational trails should not be developed at the expense and safety of local residents and adjoining property owners.

Accessible Trails

Intertwined with the objective of sustainability is the need for trails to be accessible. One of the main roles of trails is to link communities to a variety of high quality experiences and interesting natural and rural landscapes. In addition, trails can improve mobility and connectivity within and between urban areas. Trails which are readily accessible and provide links between communities and landscapes can enhance lifestyles through the promotion of physical activity, reducing the reliance on motorised vehicles and improving health and fitness.

Accessibility is determined by:

- proximity to the metropolitan area, population centres or tourist attractions;
- proximity to transportation facilities such as railway lines or road network providing access to the site;
- existing or proposed linkages to other trails and the wider trails network;

- proximity to natural attractions such as scenic views, native vegetation, waterfalls, lakes, coastline, etc;
- presence of existing facilities that may support or facilitate use of the trail such as car parks, toilets, picnic facilities, camping sites, tourist information centres, cafes, tour operators, etc;
- the nature of the terrain and landform; and
- access for emergency vehicles.

Proposals for new trails, or upgrades to existing trails, should clearly demonstrate that they meet at least half of the accessibility determinants expressed above. This will assist in the promotion of the trail to prospective user groups and ensure that any associated economic and social benefits are shared amongst nearby communities.

11.2 Sustainable Recreation Trails Guidelines, Trails SA; 2008

The South Australian Trails Coordinating Committee oversaw the preparation of the Sustainable Recreation Trails Guidelines, which provides guidelines for the planning, design, construction and maintenance of recreational trails in South Australia. It is widely recognised that these guidelines currently represent industry best practice in Australia.

Trail Planning Guidelines

Section 5.0 of the guidelines provides information to assist with the initial planning stage associated with recreational trails. The key steps to undertake during this stage are:

- Establish a working group and develop a plan to manage and coordinate the trail planning process;
- Review existing trail provision to establish need and demand for a new trail;
- Seek Local Government endorsement to support the project development and maintenance of the trail; and
- Undertake community consultation to develop community support and ownership of the project.

Following this process a decision should be taken on whether or not to proceed with the trail proposal, based on the outcomes of the above investigations. If the decision is to proceed with the proposals the next steps would involve:

- Undertaking a well-researched feasibility study;
- In addition to providing more detail on the findings of first stage investigations, consideration will also be required for:
 - Establishing connections and linkages between towns/community facilities/significant nodes;
 - Addressing environmental issues to protect and enhance natural assets;
 - Protecting and interpreting cultural/heritage assets;
 - Strategies to maximise the range of different trail users and potential conflicts; and

- Conducting a survey of existing on ground conditions, identifying opportunities and constraints.
- Develop a concept design; based upon the on ground survey findings and the principles of sustainable trail design, the concept design should give special consideration to road crossings, trail width, surfacing, directional/interpretive signage and markers (satisfying relevant Australian Standards); and
- Source appropriate levels of funding for construction and ongoing maintenance.

Trail Design & Construction

Section 7.0 of the Guidelines provides guidance on the design and construction of sustainable trails. Key guidance includes the following:

Design

- Generally, it is preferable to design a trail system with loops that offer a number of options and a variety of experiences, while preventing the need to back track;
- The planning and design phase should clearly determine whether the trail is intended for single or shared-use; shared-use will encourage greater usage, however they need to be carefully designed to avoid conflict between users;
- Identification of 'control points' (places of interest) will dictate where the trail should commence and finish, the location of parking areas, structures, road and water crossings etc;
- The most sustainable trails tend to have a low overall grade (less than 10% change in elevation) thereby minimising the potential for water erosion. They also tend to follow existing contour lines;
- Design should respond to 'trail flow'; mountain bike riders tend to travel faster than walkers and horse rider and require a certain tempo/rhythm. Types of flow might be described as 'open and flowing', 'tight and technical', or a combination of both;
- Once a preferred route alignment is identified consideration will need to be given to items such as trail dimensions (corridor/path width & height clearance), construction timelines, logistics of the build and responsibilities for associated infrastructure (signage, parking, stiles, crossings etc); and
- Conservation values of the area need to be considered in terms of protecting habitat and areas of cultural significance through control and management of access.

Construction

- There may be a need to clear obstacles from the chosen route. Tree and vegetation removal may require prior approval from relevant planning authorities (such as local Council) or from the Native Vegetation Council;
- Trails are usually built on sloping ground therefore some excavation will likely be required. When tree roots or impenetrable rock make it difficult to

establish a full bench a retaining wall can be built to support the downslope side;

- Natural surfaces will be suitable in many circumstances, whilst an artificial trail surface (such as bitumen, crushed rock, sand) may be required if anticipated user numbers are high. Types of surface are also dependent on the type of user;
- Running water will erode the trail so diverting surface water off the trail is a high priority, achieved through the use of cross slopes, grade or drain dips and waterbars;
- Water crossings are sites that may have the greatest impact on water quality and also the greatest potential to damage the trail. ; and
- Where possible, low lying and boggy terrain should be avoided, otherwise a raised boardwalk or reinforced tread may need to be considered.

Trail Management & Maintenance

Section 8.0 of the Guidelines provides guidance on management and maintenance. A Trail Management Plan should be prepared that is both flexible and responsive to change whilst setting firm guidelines for future directions and priorities. The Trail Management Plan should include:

- philosophical background to trail development;
- statement of guiding principles;
- trail construction standards;
- target user groups and user experiences;
- risk management policy;
- hazard inspection policy;
- promotional and interpretation policy;
- group usage policy and guidelines;
- annual trail maintenance program;
- clarification of management roles and responsibilities;
- promotional mapping and brochures; and
- fire management and emergency evacuation procedures.

Trail projects will inevitably involve a range of partners and it is crucial to clearly establish roles and responsibilities for all those involved. Ongoing trail maintenance is also essential and a clear and concise management plan including a regular maintenance program will assist in managing ongoing resource demands.

Maintenance can generally be divided between regular inspections and simple repairs, potentially undertaken by a variety of individuals ranging from land manager's staff and contractors to volunteers under skilled supervision. Maintenance activities are most likely to address issues of regrowth vegetation, damage to signage and accumulation of litter/debris.

11.3 Trail Signage Guidelines

The Perth hills trail network should be well marked with a high quality suite of way finding, directional and promotional signs for the purposes of marketing and legibility and to ensure that the routes for designated trails are clear. A well-considered signage and way finding strategy will be essential in ensuring a consistency of signage throughout the trails and to ensure that essential information about the trail network, including trail rating and length is provided.

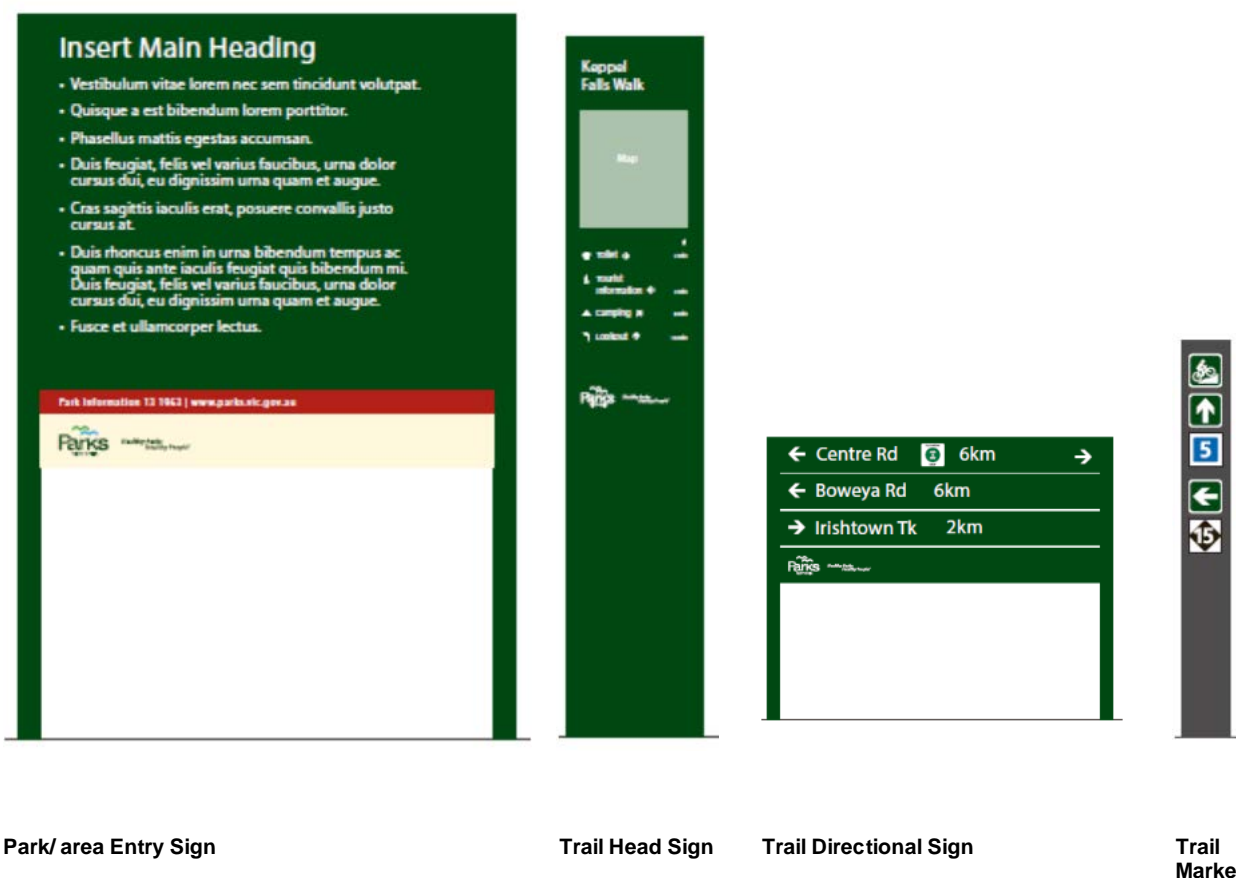
Creating a clear and consistent visual language

The development of a consistent visual language not only provides cues to link a wayfinding system together, but also helps to create a sense of trust in the accuracy of the information. It is important that the trail signage plan is developed with the aim of reducing the quantity of signs across the park to avoid excessive clutter and to minimise the cost of maintenance and repair in the case of vandalism.

Signage Family

A family of signs that is consistent, legible and accessible for the widest possible audience (age, ability, linguistically diverse) should be provided. In the context of a trail network, signage can be broken down into the following general hierarchy.

Figure 15: Signage hierarchy



Images courtesy of Parks Victoria

Pictograms and Iconography

Pictograms and iconography play an integral role in wayfinding signage. Wherever possible iconography should be used in lieu of text to ensure signage communicates to the widest possible audience. Trail grading symbols help assist users to enjoy, challenge and improve the experience.

Signage Materials

Signage materials should be long-lived, cost effective and practical, designed with materials that can be manufactured in regional and remote areas and do not require specialist fabricators.

Signage Standards

The AS 2156.1 Walking Tracks Part 1: Classification and Signage provides a classification system for walking tracks. The Standard also provides guidance on the design, fabrication and use of trail markers, and information signs to be used for walking trails. Reference should also be made to:

- Guidelines for Producing Trail Signage. Greg Drew, Craig Grocke and Peter Cahalan for SA Tourism Commission; 2003
- Austroads: Guide to Traffic Engineering Practice Part 14 - Bicycles

11.4 Materials Palette

All materials should blend with the natural environment, be sturdy and long lasting and locally sourced if possible. Material selection will need to carefully consider the following trail features:

- Trail surfacing;
- Signage/interpretation boards;
- Shelters;
- Lighting columns and bollards/access control;
- Picnic benches & seating;
- Landscaping;
- Drainage;
- Car park surfacing;
- Ancillary structures (such as water crossings, retaining walls and toilet blocks); and
- Public art.

Materials used for trail surfacing should be appropriate to the site context and anticipated user demands, with consideration for ongoing maintenance. Paved or other sealed surfaces may be appropriate in built up, heavily trafficked areas. Natural surfaces may be more appropriate in more natural contexts. Materials selected should minimise visual intrusiveness upon the surroundings and avoid urbanising rural areas.

Given the natural surroundings and environment of the Perth Hills the use of sustainably produced hard wood in this context would be suitable.

11.5 Trail Heads

A trail head can be defined as a point of formal public entry onto an established trail network. The trail head might provide a number of associated public amenities, such as parking, shelter/shade, toilets, signage/interpretation boards, water source, picnic areas and public art/waymarkers.

Trail Head Concept Design: Greenmount, Railway Reserves Heritage Trail

Figure 16: Trail Head Concept Design



The concept design illustrated above provides a conceptual layout that establishes a more formalised trail head at Greenmount, in the Perth Hills.

The existing site lies on the Railway Reserves Heritage Rail Trail and currently comprises an area that serves as an informal, undefined car park, with some mature tree coverage, and provides direct access onto the trail.

The site was identified as a suitable location for a formalised trail head on the Heritage Trail due to its relatively easy accessibility for significant numbers of residents from the surrounding neighbourhoods. Innamincka Road/Balfour Road bound the site to the west with Buckingham Road running to the north, providing good vehicular access to this location from the surrounding suburbs and the Great Eastern Highway. The location also sits conveniently between two established

trailheads at Bellevue and Swan View and offers another alternative to potential trail users. It is understood that this location is already utilised as an informal entry point onto the trail.

The alignment of the former railway has created a well treed, green corridor that runs through these suburbs, linking in with the adjacent residential areas and connecting small parks and formal/informal recreation areas through a network of green spaces. The trail runs straight through the site, crossing the Innamincka Road corridor, and providing access to Bellevue in the west and Swan View in the east.

Existing vehicular access into the site broadly follows the alignment and road crossing point of the trail itself. It is proposed to create a dedicated vehicular access point positioned further to the south, providing access to an area providing up to 22 parking spaces. Relocating the vehicular access further to the south would reduce the potential for conflict with trail pedestrians/cyclists and allow the creation of a more defined and formalised trail crossing point over Innamincka Road. Roadside feature tree planting, waymarkers, signage and street furniture could be considered to visually identify the crossing point to both road and trail users. Public art at the junction of Innamincka Road/Buckingham Road could also act as a local feature and point of interest to identify the trail head. Additional tree planting would reinforce the trail alignment and create a distinct space that clearly identifies the arrival at a trail head, and distinguishes the space from the adjoining sections of the trail. The continuation of upgraded surfacing and new tree planting for a short length of the trail to the west of Innamincka Road would reinforce a sense of connectivity between both sides of the road, further define the road crossing point and establish a green setting for the new trail head.

Low key facilities associated with the trail head might include a small toilet block and associated shaded area, directly accessible from both the trail and parking areas. Interpretation boards and a picnic area beneath the shade of existing trees might also be considered within the scheme.

11.6 Best Practice Case Studies

7Stanes Mountain Bike Trails, Scotland

In 2001, the 7Stanes mountain biking project began to extend the success of Glentress Forest across the whole of southern Scotland. The 7stanes mountain biking trails run from Glentroll near Newton Stewart in the west of Dumfries & Galloway through to Peebles in the Scottish Borders in the east. The 7stanes mountain biking project is now nearing the end of its second phase, with additional funds being spent to provide more world class routes to suit all types of mountain biking and all skills levels. New biker facilities are also planned at venues such as Kirroughtree and Glentress to further enhance the world class reputation of the 7stanes mountain biking venues.

The 7Stanes Mountain Bike Trails are world class, purpose built mountain bike trails that includes 400km of way marked all-weather trails for all abilities. The trails are single purpose (mountain biking) and single direction and are also free of charge.

Figure 17: Map of 7Stanes region and trail in Glentroof



The aim of the 7Stanes project is:

“To maintain the South of Scotland as a **WORLD CLASS MOUNTAIN BIKE DESTINATION** supporting tourism and rural based business as well as bringing people’s health, wealth and enjoyment together in the forest environment”

The project to date has cost around £3.6m (\$A7.8m), attracts over 400,000 bikers per annum and is the 11th most popular Scottish tourist attraction. In addition to the construction costs it has been estimated that an additional expenditure of £9.3m (\$A20m) has been injected into Southern Scotland and 205 FTE jobs created since 2002 as a result of the 7Stanes project.

Further information and resources can be found at the official trail website: www.7stanesmountainbiking.com.

Otago Central Rail Trail, New Zealand

The Rail Trail was the first trail of its kind to be established in New Zealand, comprising 150km of track suitable for walkers, cyclists and horse riders, traversing relatively moderate terrain. The trail runs from the town of Clyde in the west to Middlemarch in the east and offers a vehicle free route along which the remoteness and tranquillity of the area can be experienced.

Figure 18: Otago Central Rail Trail images



Further information and resources can be found at the official trail website: www.otagocentralrailtrail.co.nz.

12. Funding

An essential component of a successful trail is the sourcing of appropriate levels of funding for the construction and ongoing maintenance of the trail.

Utilising a staged approach to delivering the trail will assist in reducing levels of funding required at any one time. Stages might include feasibility study and concept design stages plus the staged construction of various sections of the trail. A project which can demonstrate a strong component of environmental rehabilitation is also likely to attract funding from a much wider range of agencies.

Applications for grants will likely initially focus on various State Government Departments, however, assistance may also be available from local Council, and local community and user groups.

This section identifies potential external funding sources available through state and federal government programs that could be utilised in the implementation of the Strategy & Action Plan. The status of these funding programs are continually changing and updated to respond to such issues as shifts in community participation rates and the continual evolution of the industry more widely.

At the date of publication of the Perth Hills Trails Master Plan current programs include:

Lotterywest

These grants are available to not-for-profit organisations and local government authorities and support various types of trails such as walking, cycling, horse riding and paddling routes. Projects likely to attract funding include those that:



- are identified in relevant local/regional/State-wide trails master plans;
- involve the development of multi-use trails;
- consider the needs of trail users through consultation and planning;
- involve community in trail management, upkeep and promotion;
- gain agreement of relevant stakeholders
- meet regional and sustainable strategies for trail promotion;
- have good project planning;
- include sound trail management, maintenance and sustainability credentials; and
- promote active involvement of Indigenous people and communities.

T-Qual Federal Funding

T-QUAL Grants is a competitive merit-based grants program aimed at stimulating sustainable economic growth in the Australian tourism industry. By providing matched funding to large and small-scale tourism projects, the program aims to increase Australia's supply of quality tourism products and experiences.



Australian Government
**Department of Resources,
Energy and Tourism**

Two types of funding are available:

- **Tourism Quality Projects** of up to \$100,000 (plus GST) for smaller scale projects;
- **Strategic Tourism Investment Grants** of up to \$1 million (plus GST) to fund a small number of larger scale projects to support Indigenous tourism and/or economic development and/or tourism employment.



Tourism Western Australia – Regional Events Scheme (RES)

The RES is an annual funding round administered by Tourism WA, through its Eventscorp division. The scheme is designed to assist with the development of events as tourist attractions within regional Western Australia. Application criteria stipulate that events must:

- Bring additional tourism income to regional communities by increasing visitor expenditure in the host community (economic impact);
- Involve and inspire the local community (social benefits); and
- Attract media coverage that will help to raise the profile of the region as a tourist destination (media impact).

Funding requests must be between \$5,000 and \$50,000. Lower amounts than what is requested may be rewarded and any request for more than \$20,000 must be accompanied by a three year strategic plan. Multiple year funding is available.

Regional Development Australia

The Australian Government has allocated almost \$1 billion to the Regional Development Australia Fund. The RDAF is administered by the Department of Regional Australia, Local Government, Arts and Sport. Refer www.regional.sa.gov.au



Trusts and Foundations

There are numerous trusts and foundations established in Australia and a number provide funding for projects such as this. Often they are established by large corporations. Refer www.philanthropy.org.au.

Information on alternative grants which might be considered can be found at:

www.grantslink.gov.au

www.aph.gov.au/library/intguide/sp/spgrants.htm



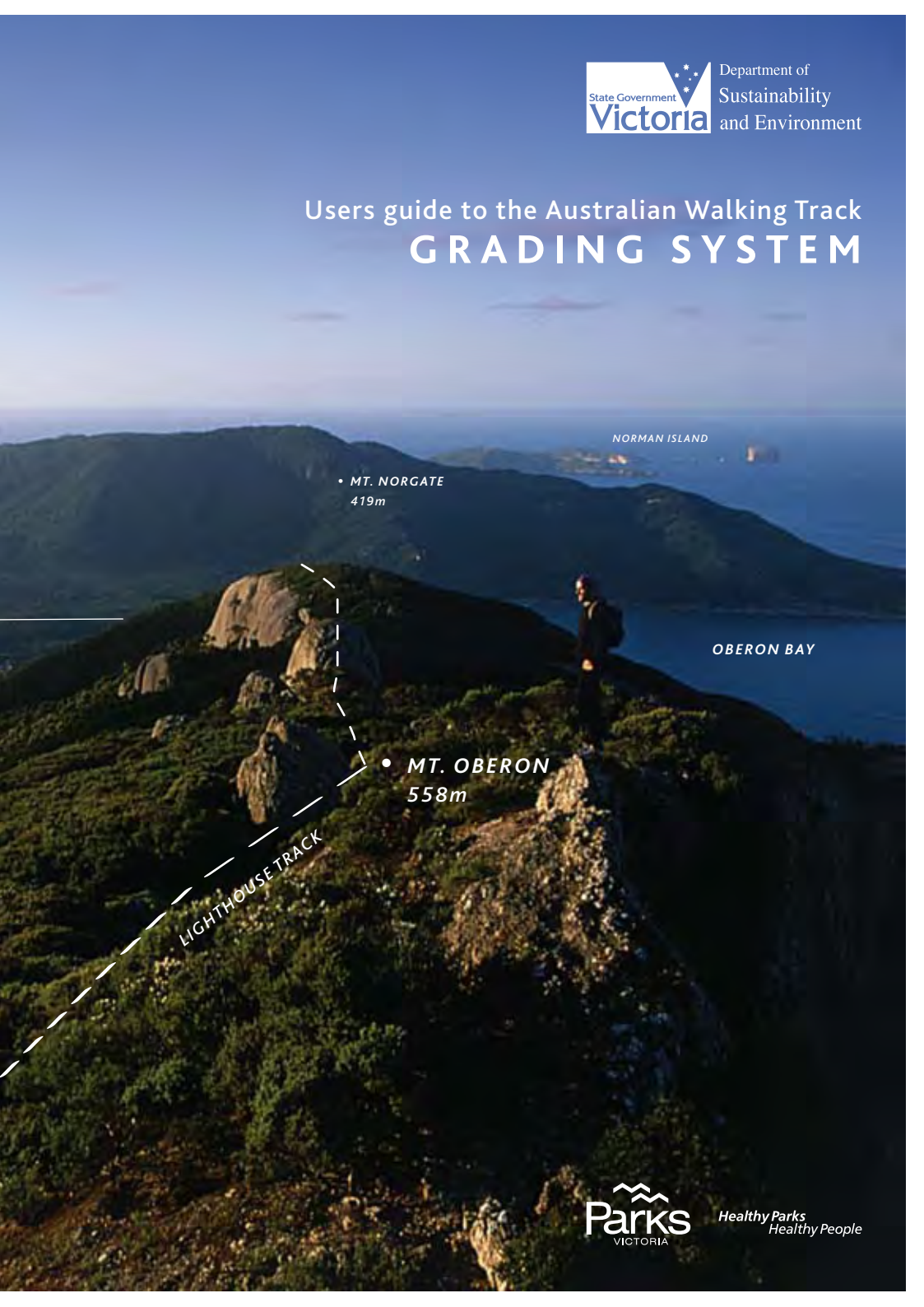
Appendices

Appendix A - The Australian Walking Track Grading System User Guide

Appendix B - Trail Audit Spreadsheet

Appendix C – Trail User Survey Full Report

Users guide to the Australian Walking Track GRADING SYSTEM



• **MT. NORGATE**
419m

NORMAN ISLAND

OBERON BAY

• **MT. OBERON**
558m

LIGHTHOUSE TRACK

• MT. BOULDER
501m

RODONDO ISLAND

LIGHTHOUSE TRACK

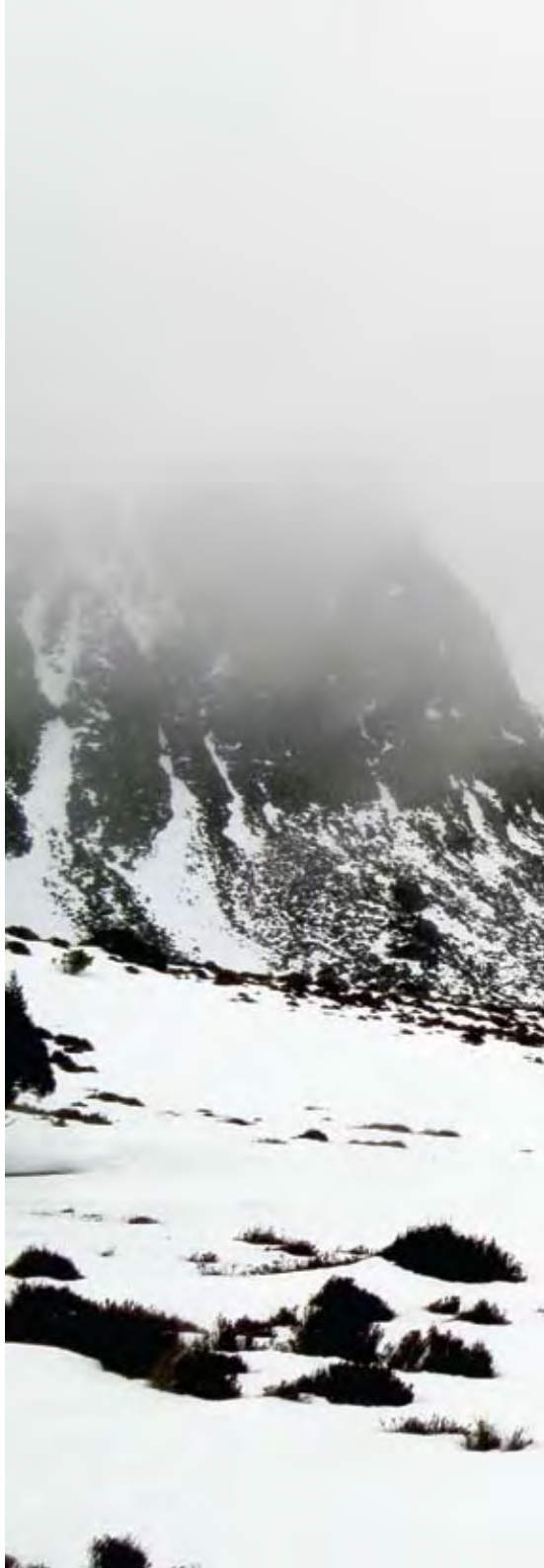
ISBN 978-1-74242-552-8

Wilson's Promontory National Park, VIC
Photographer: Basquali Skamaachi
Tourism Australia ©

The Australian Walking Track Grading System has been developed by the Walking Tracks Grading and Improvement Project and funded by 'Go for your life' – a Victorian Government initiative aimed at developing stronger, healthier communities through promoting healthy eating and increased participation in physical activity.



The Australian Walking Track Grading System has been endorsed by Parks Forum as a voluntary industry standard and will be promoted for adoption amongst its members.





Australian Walking Track Grading System

This booklet shows you how to apply the Australian Walking Track Grading System.

The Grading System is essentially designed to assist people who are not regular or confident bushwalkers to experience walking by providing helpful information about walking trails.

Why do we need an Australian Walking Track Grading System?

The Australian Walking Track Grading System answers one question – *is this walk suitable for me?*

Track grading is a primary means of informing people about the features of walking tracks and assists in the marketing and promotion of walking as a leisure activity. By providing a standardised level of difficulty or track grading users are able to gauge whether a particular track is suitable for them. Currently there is no nationally consistent system to grade the level of difficulty of the track walking experience and then to clearly communicate that information to the public.

The lack of an agreed Australian track grading standard is limiting the accessibility and use of walking tracks for recreation and physical activity.

Does the Australian Walking Track Grading System ask the right questions?

97.3% of respondents felt the Australian Walking Track Grading System enables them to decide if a walk is the right level of difficulty for them.

The Grading System has been developed after a three year program of extensive research into domestic and international walkers' information needs.

Three major studies and nearly 1900 consumer interviews were commissioned to answer one question. *What information do people considering going walking actually want?*

The more criteria used to grade a walk, the more complex the system becomes to apply. Consequently the system is designed to be simple – easy to apply and easy to use.

Using the Australian Walking Track Grading System

The application of the Australian Walking Track Grading System is a two step process.


The first step is a technical grading of the walk. The land manager determines a walk's grade of difficulty using descriptors taken from the *Australian Standard 2156.1 - 2001 Walking Tracks - Classification and Signage*.

The second step is to communicate to the public why a walk has received its grading – in essence translating the technical grading into 'plain English language'.



Technical and public descriptors: Grade One walk




A Grade 1 walk corresponds to AS 2165.1 Class 1 track

	Technical Description for Land Manager use	Walk Description for Public Information	Generic Description for Public Information
Grade of walk	Grade 1	Grade 1	Grade 1
Symbol			
Distance	Total distance of track must not exceed 5km.	Total distance of track to nearest 100 metre (eg 4.2km).	No bushwalking experience required. Flat even surface with no steps or steep sections. Suitable for wheelchair users who have someone to assist them. Walks no greater than 5km.
Gradient	Grades in accordance with the AS 1428 series. (AS 2165.1) A ramp at 1:14 (7.14% slope or 4.1degrees) is the maximum slope/gradient suitable for a person in a wheelchair.	Flat.	
Quality of path	Broad, hard surfaced track suitable for wheelchair use. Width: 1200mm or more. Well maintained with minimal intrusions. (AS 2165.1)	Well formed track.	
Quality of markings	Track head signage and route markers at intersections.	Clearly sign posted .	
Experience required	Users need no previous experience and are expected to exercise normal care regarding their personal safety. (AS 2165.1)	No experience required.	
Time	30 minute increments (eg 1-1.5hr) or if the predicted time is less than an hour in 15 minute increments (eg 30-45 minutes).	Time needed to complete track to nearest half hour or nearest 15 minute increment (eg 1-1.5hrs or 30-45 minutes).	
Steps	Steps allowed only with alternate ramp access. (AS 2165.1)	No steps.	



Technical and public descriptors: Grade Two walk

A Grade 2 walk corresponds to AS 2165.1 Class 2 track

	Technical Description for Land Manager use	Walk Description for Public Information	Generic Description for Public Information
Grade of walk	Grade 2	Grade 2	Grade 2
Symbol			
Distance	Total distance of track must not exceed 10km.	Total distance of track to nearest 100 metre (eg 4.2km).	No bushwalking experience required. The track is a hardened or compacted surface and may have a gentle hill section or sections and occasional steps. Walks no greater than 10km.
Gradient	The gradient is generally no steeper than 1:10 (or 10% or 5.7 degrees). (AS 2165.1).	Gentle hills.	
Quality of path	Generally a modified or hardened surface. Width: 900mm or more. Well maintained with minimal intrusions. (AS 2165.1).	Formed track.	
Quality of markings	Track head signage & route markers at intersections.	Clearly sign posted.	
Experience required	Users need no previous experience and are expected to exercise normal care regarding their personal safety. (AS 2165.1). Suitable for most ages and fitness levels.	No experience required.	
Time	30 minute increments (eg 1.5-2hrs) or if the predicted time is less than an hour in 15 minute increments (eg 30-45 minutes).	Time needed to complete track to nearest half hour or nearest 15 minute increment (eg 1-1.5hrs or 30-45 minutes).	
Steps	Minimal use of steps. (AS 2165.1).	Occasional steps.	



Technical and public descriptors: Grade Three walk




A Grade 3 walk corresponds to AS 2165.1 Class 3 track

	Technical Description for Land Manager use	Walk Description for Public Information	Generic Description for Public Information
Grade of walk	Grade 3	Grade 3	Grade 3
Symbol			
Distance	Total distance of track must not exceed 20km.	Total distance of track to nearest 100 metre (eg 4.2km).	Suitable for most ages and fitness levels. Some bushwalking experience recommended. Tracks may have short steep hill sections a rough surface and many steps. Walks up to 20km.
Gradient	May exceed 1:10 (or 10% or 5.7 degrees) for short sections but generally no steeper than 1:10. (AS 2165.1).	Short steep hills.	
Quality of path	Formed earthen track, few obstacles. Generally a modified surface, sections may be hardened. Width: variable and less than 1200mm. Kept mostly clear of intrusions and obstacles. (AS 2165.1).	Formed track, some obstacles.	
Quality of markings	Track head signage and route markers at intersections and where track is indistinct.	Sign posted.	
Experience required	Users need no bushwalking experience and a minimum level of specialised skills. Users may encounter natural hazards such as steep slopes, unstable surfaces and minor water crossings. They are responsible for their own safety. (AS 2165.1).	Some bushwalking experience recommended.	
Time	Hours/days (eg 9hrs) or if the predicted time is less than an hour in 15 minute increments (eg 45 minutes).	Hours/days or if the predicted time is less than an hour 15 minute increments.	
Steps	Steps may be common. (AS 2165.1).	Many steps .	



Technical and public descriptors: Grade Four walk

A Grade 4 walk corresponds to AS 2165.1 Class 4 track

	Technical Description for Land Manager use	Walk Description for Public Information	Generic Description for Public Information
Grade of walk	Grade 4	Grade 4	Grade 4
Symbol			
Distance	Total distance of track may be greater than 20km. Distance does not influence grading.	Total distance of track to nearest km.	<p>Bushwalking experience recommended. Tracks may be long, rough and very steep. Directional signage may be limited.</p>
Gradient	May have arduous climbs and steep sections. May include long steep sections exceeding 1:10.	Very steep.	
Quality of path	Generally distinct without major modification to the ground. Encounters with fallen debris and other obstacles are likely. (AS 2165.1) Walkers may encounter natural obstacles (eg tides).	Rough track, many obstacles.	
Quality of markings	Track head signage and route markers.	Limited signage .	
Experience required	Users require a moderate level of specialised skills such as navigation skills. Users may require maps and navigation equipment to successfully complete the track. Users need to be self-reliant, particularly in regard to emergency first aid and possible weather hazards. (AS 2165.1).	Experienced bushwalkers.	
Time	Hours/days (eg 9hrs) or if the predicted time is less than an hour in 15 minute increments (eg 45 minutes).	Hours/days or if the predicted time is less than an hour 15 minute increments.	
Steps	N/A (AS 2165.1) Steps do not influence grading.	-	



Technical and public descriptors: Grade Five walk

A Grade 5 walk corresponds to AS 2165.1 Class 5 & 6 track

	Technical Description for Land Manager use	Walk Description for Public Information	Generic Description for Public Information
Grade of walk	Grade 5	Grade 5	Grade 5
Symbol			
Distance	Total distance of track may be greater than 20km. Distance does not influence grading.	Total distance of track to nearest km.	Very experienced bushwalkers with specialised skills, including navigation and emergency first aid. Tracks are likely to be very rough, very steep and unmarked. Walks may be more than 20km.
Gradient	May have very arduous climbs and steep sections. May include long steep sections exceeding 1:10.	Very steep and difficult.	
Quality of path	No modification of the natural environment. (AS 2165.1).	Rough unformed track.	
Quality of markings	Signage is generally not provided. (AS 2165.1).	No directional signage.	
Experience required	Users require previous experience in the outdoors and a high level of specialised skills such as navigation skills. Users will generally require a map and navigation equipment to complete the track. Users need to be self-reliant, particularly in regard to emergency first aid and possible weather hazards. (AS 2165.1).	Very experienced bushwalkers.	
Time	Hours/days .	Hours/days.	
Steps	N/A (AS 2165.1). Steps do not influence grading.	-	



How do I grade a walk?

The key to grading a walk is to describe it so that a person doing the walk gets a good idea of what to expect. This means:

- Walks should be described as they actually are; and
- A walk gets its grading from its hardest component.

Therefore, a walk will often have components that are easier than the walk's ultimate grade.

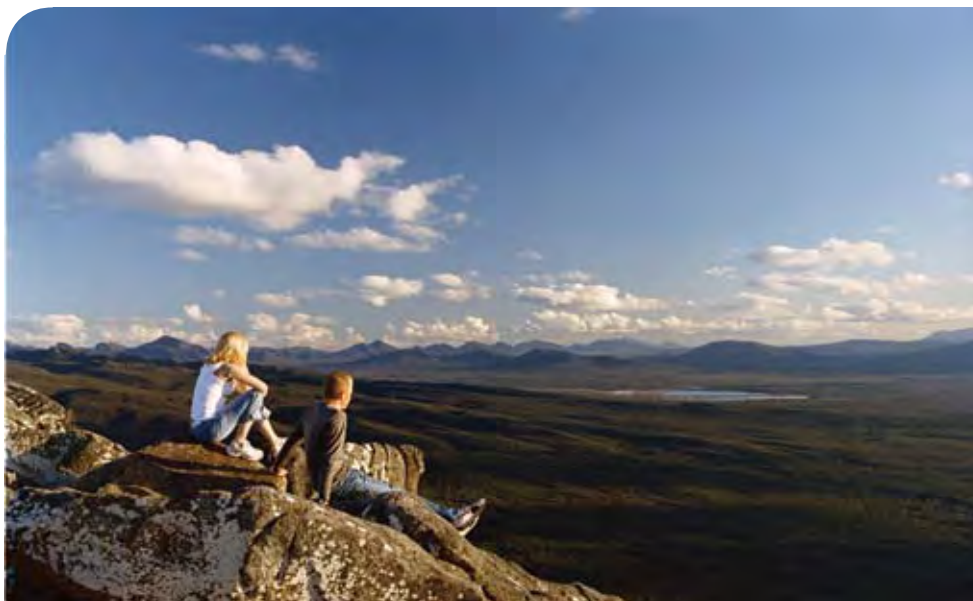
The application of the Australian Walking Track Grading System is a two step process.

Step 1 – Technical grading of a walk

The person grading the walk uses technical descriptors, based on *AS 2156.1 Walking Tracks – Classification and Signage*, to determine the walk's level of difficulty.

Step 2 – Translating the technical grading into a plain English grading

Using the 'Walking Track Grading System Decision Matrix for the public' the technical grading information is translated into plain English.



How much information should you provide?

Land managers wanting to get the best out of the grading system should provide the full suite of information.




If it's not practical to provide the full suite of information at the start of the track, and in supporting material, the minimum information you should provide is the grade of walk (difficulty), identifying symbol and the actual distance.

Other key information may be delivered via pre-visit brochures, websites, information boards or other means.

Minimum information

	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
Symbol					
Distance	x km	xx km	xx km	xx km	xx km

Recommended information

	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
Symbol					
Distance	Distance to complete walk. x km	Distance to complete walk. xx km	Distance to complete walk. xx km	Distance to complete walk. xx km	Distance to complete walk. xx km
Gradient	Flat.	Gentle hills.	Short steep hills.	Very steep.	Very steep and difficult.
Quality of path	Well formed track.	Formed track.	Formed track, some obstacles.	Rough track, many obstacles.	Rough unformed track.
Quality of markings	Clearly sign posted.	Clearly sign posted.	Sign posted.	Limited signage.	No directional signage.
Experience Required	No experience required.	No experience required.	Some bushwalking experience recommended.	Experienced bushwalkers.	Very experienced bushwalkers.
Time	High and low estimate of time needed to complete track (eg 1.5-2hrs).	High and low estimate of time needed to complete track (eg 1.5-2hrs).	Time needed to complete track (hours/days).	Time needed to complete track (hours/days).	Time needed to complete track (hours/days).
Steps	No steps.	Occasional steps.	Many steps.	N/A	N/A






Example: Wineglass Bay Lookout Walk

Wineglass Bay Lookout Walk

This short walk offers visitors one of Tasmania's most celebrated views over the beautiful white sands of Wineglass Bay. The track is a short, fairly steep climb to the saddle between Mt Amos and Mt Mayson, two of the imposing granite peaks of the Hazards. From the saddle, a side track leads to a lookout with spectacular views over Wineglass Bay.

The track and Wineglass Bay are located within Freycinet National Park in Tasmania.

In this example the technical assessment of the components distance, quality of path, quality of markings and experience required are all Grade 1 or 2. The gradient and steps are Grade 3. Therefore, as the Wineglass Bay Lookout Walk has one or more Grade 3 components the Tasmanian Parks and Wildlife Service have graded the walk at Grade 3.

	Technical description	Technical description	Technical description	Technical description	Technical description
Grade of walk	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
Symbol					
Distance	Total distance of track must not exceed 5km. Wineglass Bay Lookout Walk 2.4km.	Total distance of track must not exceed 10km.	Total distance of track must not exceed 20km.	Total distance of track may be greater than 20km. Distance does not influence grading.	Total distance of track may be greater than 20km. Distance does not influence grading.
Gradient	Grades in accordance with the AS 1428 series. (AS 2165.1) A ramp at 1:14 (7.14% slope or 4.1degrees) is the maximum slope/ gradient suitable for a person in a wheelchair.	The gradient is generally no steeper than 1:10 (or 10% or 5.7 degrees). (AS 2165.1).	May exceed 1:10 (or 10% or 5.7 degrees) for short sections but generally no steeper than 1:10. (AS 2165.1).	May have arduous climbs and steep sections. May include long steep sections exceeding 1:10 (or 10% or 5.7 degrees).	May have very arduous climbs and steep sections. May include long steep sections exceeding 1:10 (or 10% or 5.7 degrees).
Quality of path	Broad, hard surfaced track suitable for wheelchair use. Width: 1200mm or more. Well maintained with minimal intrusions. (AS 2165.1).	Generally a modified or hardened surface. Width: 900mm or more. Well maintained with minimal intrusions. (AS 2165.1).	Formed earthen track, few obstacles. Generally a modified surface, sections may be hardened. Width: variable and less than 1200mm. Kept mostly clear of intrusions and	Generally distinct without major modification to the ground. Encounters with fallen debris and other obstacles are likely. (AS 2165.1) Walkers may encounter natural	No modification of the natural environment. (AS 2165.1)

			of intrusions and obstacles (AS 2165.1)	encounter natural obstacles (eg tides)	
Quality of markings	Track head signage & route markers at intersections.	Track head signage & route markers at intersections.	Track head signage & route markers at intersections and where track is indistinct.	Track head signage & route markers.	Signage is generally not provided. (AS 2165.1)
Experience Required	Users need no previous experience and are expected to exercise normal care regarding their personal safety. (AS 2165.1)	Users need no previous experience and are expected to exercise normal care regarding their personal safety. (AS 2165.1) Suitable for most ages and fitness levels.	Users need no bushwalking experience and a minimum level of specialised skills. Users may encounter natural hazards such as steep slopes, unstable surfaces and minor water crossings. They are responsible for their own safety. (AS 2165.1)	Users require a moderate level of specialised skills such as navigation skills. Users may require maps and navigation equipment to successfully complete the track. Users need to be self-reliant, particularly in regard to emergency first aid and possible weather hazards. (AS 2165.1)	Users require previous experience in the outdoors and a high level of specialised skills such as navigation skills. Users will generally require a map and navigation equipment to complete the track. Users need to be self-reliant, particularly in regard to emergency first aid and possible weather hazards. (AS 2165.1)
Time	30 minute increments (eg 1.5-2hrs) or if the predicted time is less than an hour in 15 minute increments (eg 30-45 minutes).	30 minute increments (eg 1.5-2hrs) or if the predicted time is less than an hour in 15 minute increments (eg 30-45 minutes).	Hours/days (eg 9hrs) or if the predicted time is less than an hour to the nearest 15 minute interval (eg 45 minutes). Wineglass Bay Lookout Walk 1.5hrs.	Hours/days (eg 9hrs) or if the predicted time is less than an hour to the nearest 15 minute interval (eg 45 minutes).	Hours/days (eg 9hrs).
Steps	Steps allowed only with alternate ramp access. (AS 2165.1).	Minimal use of steps. (AS 2165.1)	Steps may be common. (AS 2165.1)	N/A (AS 2165.1). Steps do not influence grading.	N/A (AS 2165.1). Steps do not influence grading.

Example: Wineglass Bay, Tasmania

The technical assessment of the Wineglass Bay Lookout Walk is then translated into plain English. NOTE: Time is the land manager's best estimate of the amount of time a person of average fitness, walking in good

conditions, will take to complete the walk. Time does not describe difficulty. Because this is a Grade 3 walk a high/low estimate is not required.

	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
Symbol					
Distance	Distance to complete walk is 2.4km.	Distance to complete walk. xx km	Distance to complete walk. xx km	Distance to complete walk. xx km	Distance to complete walk. xx km
Gradient	Flat.	Gentle hills.	Short steep hills.	Very steep.	Very steep and difficult.
Quality of path	Well formed track.	Formed track.	Formed track, some obstacles.	Rough track, many obstacles.	Rough unformed track.
Quality of markings	Clearly sign posted.	Clearly sign posted.	Sign posted.	Limited signage.	No directional signage.
Experience Required	No experience required.	No experience required.	Some bushwalking experience recommended.	Experienced Bushwalkers.	Very experienced bushwalkers.
Time	High and low estimate of time needed to complete track (eg 1.5-2hrs).	High and low estimate of time needed to complete track (eg 1.5-2hrs).	Time needed to complete track (hours/days) 1.5hrs.	Time needed to complete track (hours/days).	Time needed to complete track (hours/days).
Steps	No steps.	Occasional steps.	Many steps.	N/A	N/A






Wineglass Bay Lookout walk could be described to the public as:

Wineglass Bay Lookout Walk. Grade 3.

	Distance:	2.4km
	Gradient:	Short steep hills
	Quality of path:	Formed track
	Quality of markings:	Clearly sign posted
	Experience required:	No experience required
	Time:	1.5hrs
	Steps	Many steps



Glossary

AS 2156.1-2001 Walking Tracks - Classification and Signage	<p>The Australian Walking Track Grading System benchmarks to AS 2156.1-2001.</p> <p>A Grade 1 walk corresponds to AS 2165.1 Class 1 track</p> <p>A Grade 2 walk corresponds to AS 2165.1 Class 2 track</p> <p>A Grade 3 walk corresponds to AS 2165.1 Class 3 track</p> <p>A Grade 4 walk corresponds to AS 2165.1 Class 4 track</p> <p>A Grade 5 walk corresponds to AS 2165.1 Class 5 and 6 track</p>				
Descriptions	<p>Walk features are described as they exist. For example the description of a Grade 2 walk gradient is <i>gentle hills</i>. However if the walk is flat it should be described as flat.</p>				
Distance	<p>The distance given is the actual distance travelled to complete the walk.</p> <p><i>one way</i> if the walk is promoted as a walk from one point to another (Point A – Point B);</p> <p><i>return</i> if the walk is to a point and back (Point A – Point B – Point A); or</p> <p><i>circuit or loop</i> if the walk is a loop.</p> <p>For Grades 1-3 distance is given to the nearest 100 meters (eg 4.2km)</p> <p>For Grades 4-5 distance is given to the nearest kilometre.</p>				
Grade	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
Distance	Up to 5km.	Up to 10km.	Up to 20km.	N/A	N/A
Experience required	<p>Experience required refers to the degree of bushwalking experience required to safely complete a specific grade walk.</p> <p>Bushwalking experience required benchmarks to AS 2156.1-2001.</p> <p>A Grade 1 walk corresponds to AS 2165.1 Class 1 track</p> <p>A Grade 2 walk corresponds to AS 2165.1 Class 2 track</p> <p>A Grade 3 walk corresponds to AS 2165.1 Class 3 track</p> <p>A Grade 4 walk corresponds to AS 2165.1 Class 4 track</p> <p>A Grade 5 walk corresponds to AS 2165.1 Class 5 and 6 track</p>				
Gradient (or slope)	<p>The Australian Walking Track Grading System uses text to describe gradient to the public. Technical descriptions (eg. ratios or degrees) are used to technically grade the walk.</p>				
Grade or Level of Difficulty	<p>The grade of the walk is determined by its hardest characteristic.</p> <p>Specific symbols are assigned to each grade.</p>				
	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
					
Steps	<p>A structure with a series of risers (steps) which provides pedestrian access from one level to another.</p>				

Time	<p>For Grades 1 and 2 time is specified in a range given in 30 minute increments (eg 1-1.5hrs) or, if the predicted time is less than an hour, in 15 minute increments (eg 30-45 minutes).</p> <p>For Grades 3 – 5 time is given as hours or days or, if the predicted time is less than an hour, in 15 minute increments.</p> <p>Determining approximately how long an individual walk will take to complete is the responsibility of the agency describing the walk.</p>
Track (or trail)	The choice of the term <i>track</i> or <i>trail</i> is determined by local usage.

For further information on the Australian Walking Track Grading System please visit <http://www.dse.vic.gov.au/walking>

Acknowledgements – images

Inside cover

Walls of Jerusalem National Park, TAS
 Photographer: Andrea Turbett

Australian Walking Grading System

Mt. Gingera, Namadgi National Park, ACT
 Photographer: Parks, Conservation and Lands ACT

Grade One walk

Uluru Kata Tjuta National Park, NT
 Photographer: Steve Strike
 Tourism Australia ©

Grade Two walk

Nitmilulka, Katherine Gorge National Park, NT
 Photographer: Roland Muench

Grade Three walk

Sillers Lookout, Flinders Ranges National Park, SA
 Photographer: Mike Newling
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Grade Four walk

Alexandra Falls, Cape Tribulation, Daintree National Park, QLD
 Photographer: Susan Wright
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Grade Five walk

Mt. Hump, Alpine National Park, VIC
 Photographer: Ravi Pannell

How do I grade a walk?

Mt. William, The Grampians National Park, VIC
 Photographer: N. Sullivan
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Example: Wineglass Bay, Tasmania

Wineglass Bay, Freycinet National Park, TAS
 Photographer: Tom Keating
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Report



Sport, Recreation and Open Space Specialists

Perth Hills Master Plan
Survey Findings Report
November 2012



*“Enhance your
community's
health and fitness”*

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Executive Summary

A key component of the consultation process for the development of the Perth Hills Trails Master Plan was the User Survey. The voluntary survey was conducted over September 2012 and was promoted and disseminated through the reference group member's networks. The aim of the survey was to gain a further understanding of the current trail needs, demands and requirements in the Perth Hills region. 306 respondents accessed the online survey, with 83% males and 17% females. Half of all respondents were within the 35-50 year age cohort, while another 33% were in the age group 25-34.

The majority of users of the Perth Hills region use the trails frequently (at least weekly) and are prepared to travel over 30 minutes to participate in recreation pursuits with the top three pursuits being mountain bike riding, walking and cycling (on road). Almost three quarters of the users spend over 2 hours on the trails. The main reasons they do this is for the exercise, fun and the nature appreciation. The majority of respondents use a private car or ride a bicycle to access the trails.

Overwhelmingly users obtain information primarily through trail/recreation organisations (WAMBA, RTRA, WA Horse Council) and word of mouth. The www.toptrails.com.au was the most popular site; followed by <http://perthmtb.asn.au> and www.wamba.org.au.


Almost 60% of respondents stated that the existing trails in the Perth Hills are not suitable for current demand, with a large proportion commenting on the reason for this. These comments resembled the top three issues for the Perth Hills trails.

1. Lack of number and diversity of trails
2. Maintenance of trails
3. Signage (lack of, condition, type etc.)

Although users have a number of issues/concerns associated with the trails in the Perth Hills overall the majority of respondents rate the trail experience as good to very good.

The top 10 trails used in the Perth Hills in the last 12 months were:

1. Kalamunda Circuit
2. Munda Biddi Trail
3. The Goat Farm (Mountain Bike Park)
4. Bibbulmun Track
5. Forsyth's Mill Mountain Bike Trail
6. Camel Farm Trail
7. Little Oven Circuit
8. Railway Reserves Heritage Trail
9. Dell to South Ledge Circuit
10. Kep Track



Seventy trails were rated for overall condition, the top three trails in good condition were:

1. Kalamunda Circuit
2. Forsyth's Mill Mountain Bike Trail
3. Bibbulmun Track

While the three lowest ranked trails that had at least 30 respondents were:

61. Eagle View Walk Trail
68. The Powerline
70. The Elevator

The trails that had the highest total of respondents nominating it as their favourite track were:

1. Kalamunda Circuit (156)
2. Forsyth Mill (77)
3. Goat Farm (75)
4. Little Oven Circuit (64)
5. Munda Biddi Trail (51)
6. Camel Farm (32)
7. Railway Reserves Heritage Trail (31)
8. Bibbulmun Track (27)
9. Eagle View Walk Trail (23)
10. Kep Track (20)

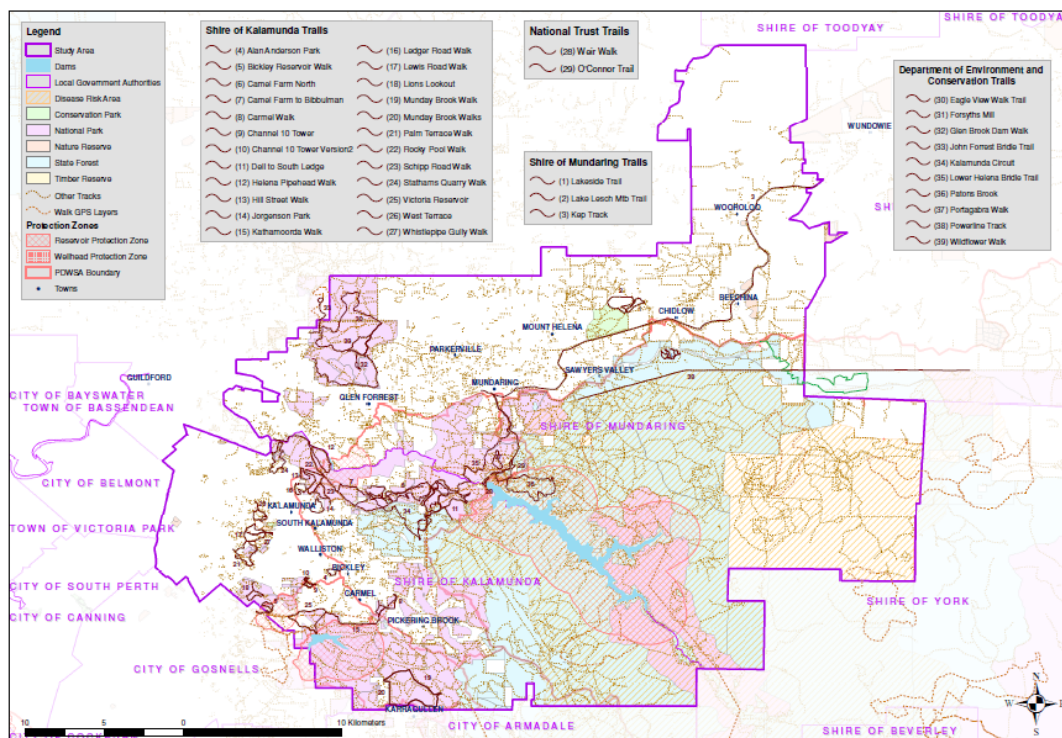
Respondents were asked an open ended question about what they believe is the highest priority for trails improvement in the Perth Hills. Comments centred around extra trails, signage, information, maintenance, water catchment areas and disease risk area, environment, planning, funding, car park security, user conflict, catering for all abilities, locations for new mountain bike trails, linkages and loop trails, amenities/facilities, trail specific and trail users information. Other comments included positive feedback on the trail network, unsanctioned trails, trail hubs and other general issues.

1. Introduction

A key component of the consultation process was the development of the Perth Hills Trails Master Plan User Survey. The survey was conducted over September 2012. The survey was voluntary and was promoted and disseminated through the reference group member's networks.

The aim of the survey is to gain a further understanding of the current trail needs, demands and requirements in the Perth Hills region. The Perth Hills for the scope of this study is the combined area of the local Shires of Kalamunda and Mundaring (refer map below).

Figure 1: Perth Hills Trails Master Plan Study Area



The master plan will allow appropriate planning for the future. It should be noted that much of the study area is subject to the Department of Water's recently revised Policy 13 document which restricts the development of trails in this region (refer www.water.wa.gov.au for further details).

The survey asked 20 questions both quantitative and qualitative requesting information on the following aspects;

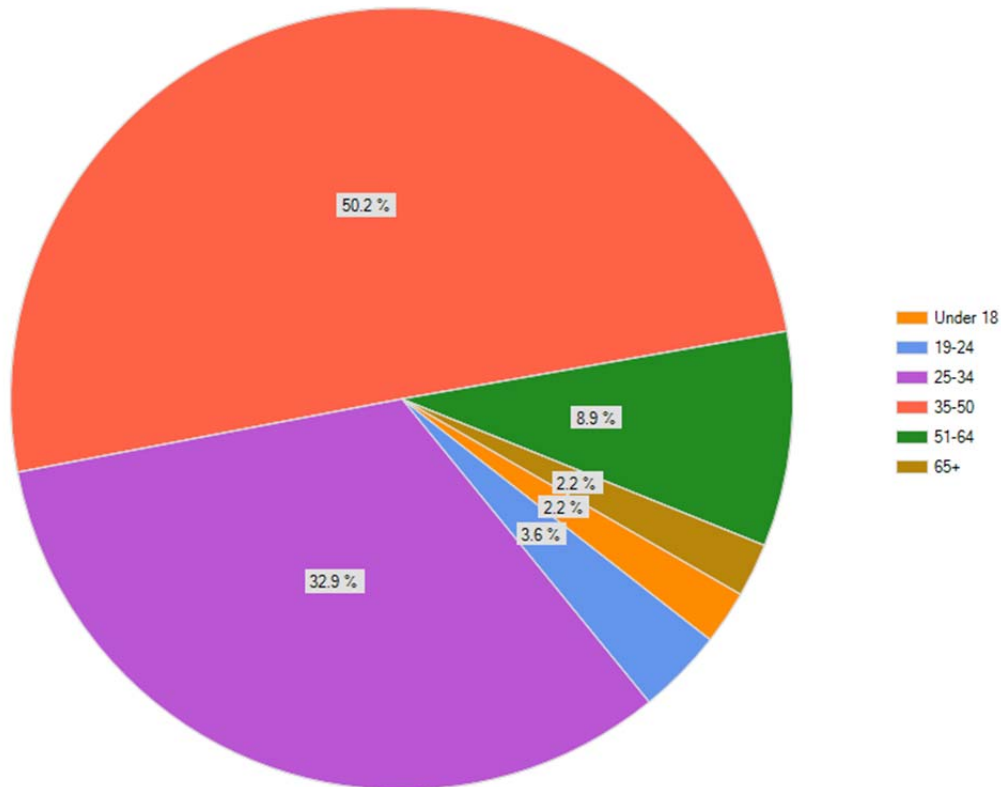
- Current usage of trails
- Trail information
- Facilities and needs
- Trail specific
- The future for trails in the Perth Hills
- Comments

The following is a summary of the key findings of the survey.

2. Respondents

306 respondents accessed the online survey, with 83% males and 17% females. Respondents were also asked to indicate their age group and the pie graph below reflects the proportion of responses in each category. Half of all respondents were within the 35-50 year age cohort, while another 33% were in the age group 25-34.

Figure 2: User Age Groups



3. Usage

3.1 Type of Trail Activity

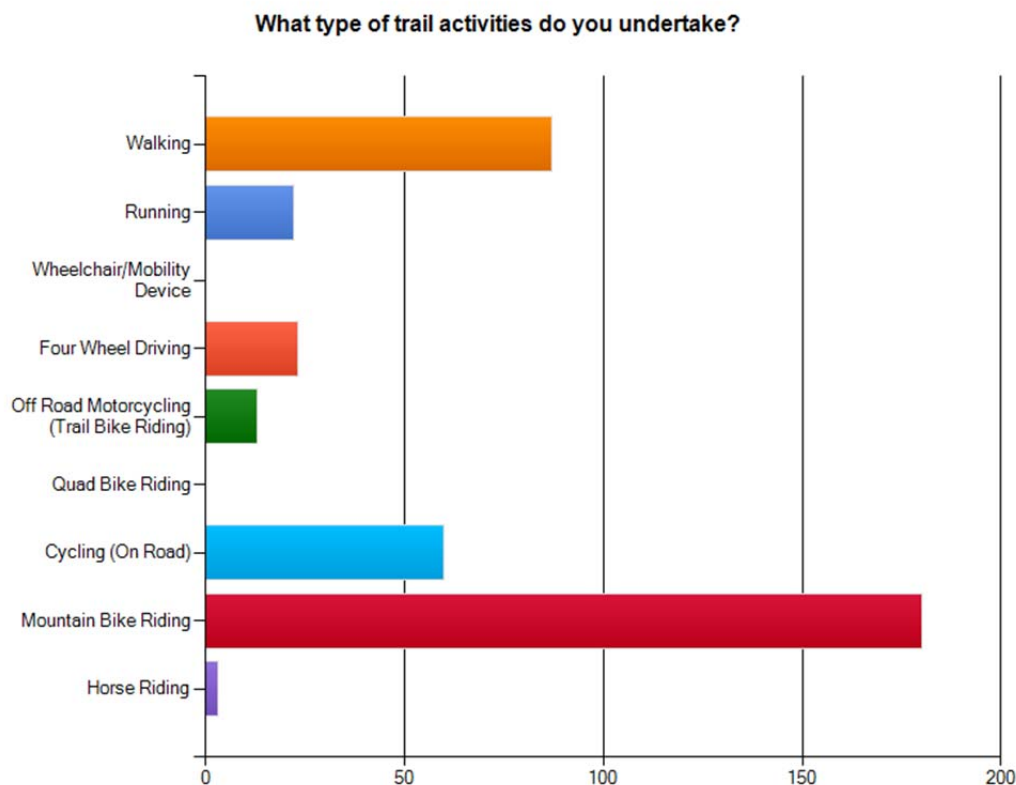
The first question in the survey asked respondents whether they use any of the recreational trails in the Perth Hills region. Out of the 306 respondents, 300 (98%) respondents stated 'Yes' to this question.

Respondents were then asked what type of trail activities they undertook from a pre-set selection of activities (more than one option could be selected).

The graph below illustrates the findings, with the top three pursuits being;

- Mountain bike riding (180)
- Walking (87)
- Cycling (on road) (60)

Figure 3: Activity Types – Number



Two respondents noted alternative trail activities to the list, which were that of volunteer trail building and photography.

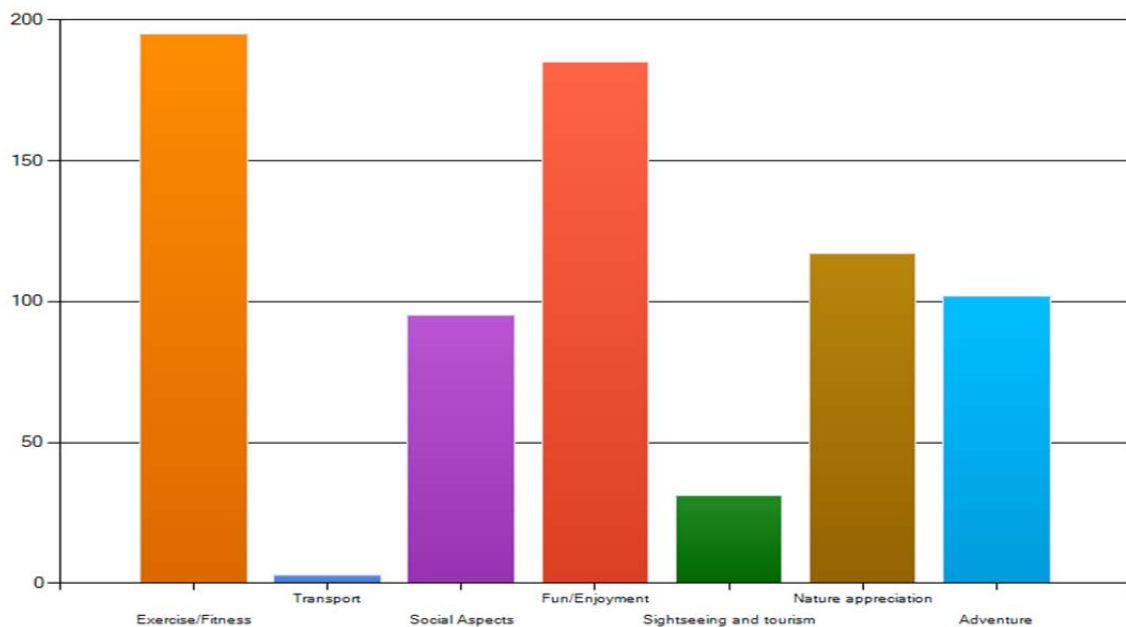
3.2 Utilisation reason

Respondents were asked to specify the main reason/s for utilising the Perth Hills Trails Network. The column graph reflects the breakdown of answers with the top three reasons of:

1. Exercise and Fitness
2. Fun and Enjoyment
3. Nature Appreciation

However, the notion of adventure was rated fourth which may be attributed to the fact that almost 80% of the respondents were participating in mountain bike riding or cycling (on road).

Figure 4: Reasons for Utilising Perth Hills Trails – Number

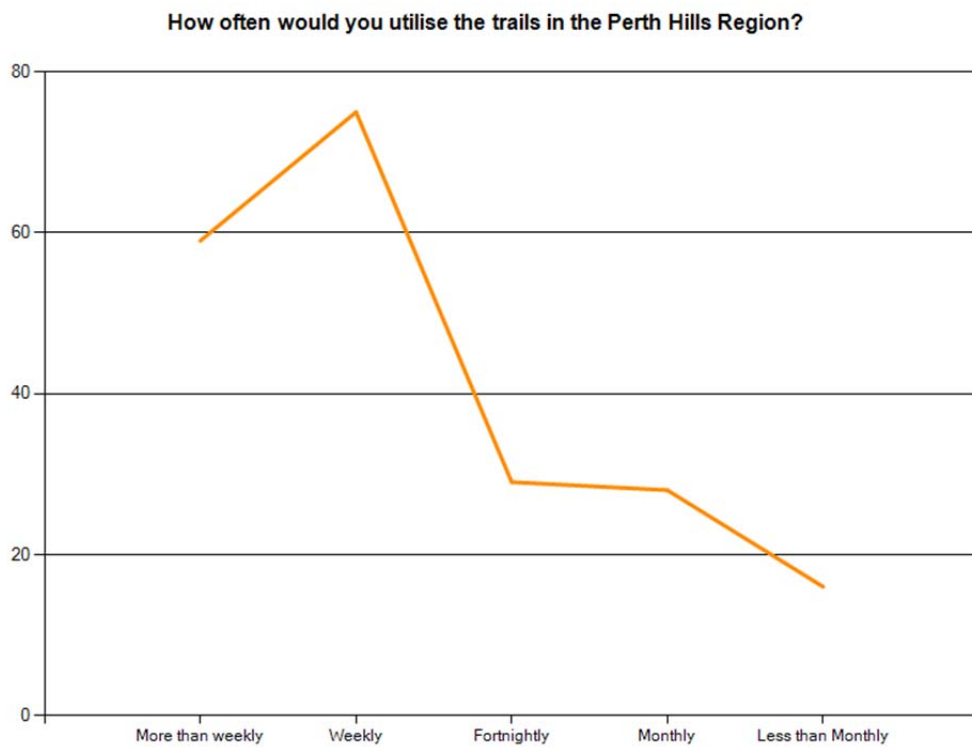


3.3 Frequency of Use

Of those respondents who utilised the trails in the Perth Hills region and over a third (36%) stated they use it weekly, while just over a quarter (29%) use it more than weekly.

Therefore, it can be concluded that around 65% of people who utilise the Perth Hills region do so at least weekly. The graph below reflects the number of people in each category.

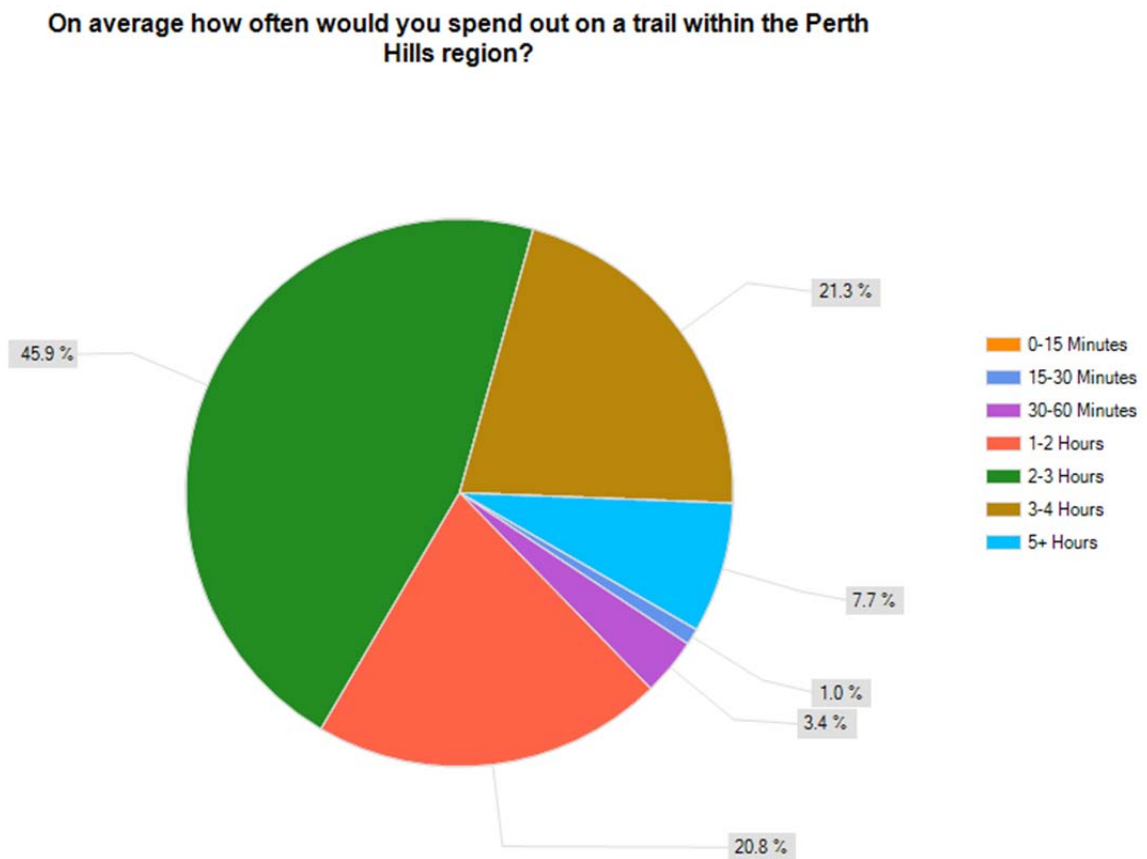
Figure 5: Frequency of Use of Perth Hills Trails



3.4 Length of Time

The respondents were also asked on average how much time they would spend out on a trail within the Perth Hills region. Just under half of the respondents (46%) said that they would spend on average between 2-3 hours on the trail, while another 20% stayed on the trail for an average 1-2 hours, and another 20% indicated their use on the trails was 3-4 hours.

Figure 6: Length of Time Spent on Perth Hills Trails

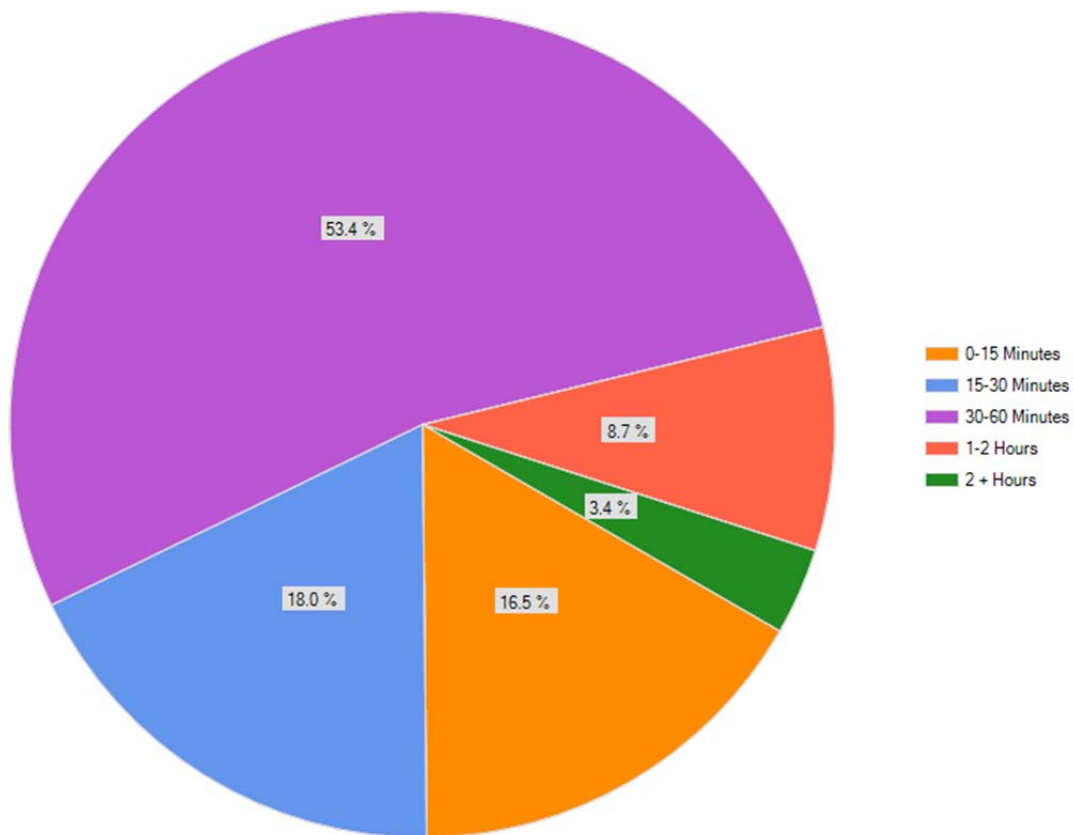


3.5 Travel Time

Respondents were asked how far they regularly travel to utilise a trail/s in the Perth Hills. Just over half of the respondents (53%) travel between 30-60 minutes, 9% travels between 1- 2 hours and a small number (3%) travel over 2 hours.

These results suggest that around 35% of users in the Perth Hills are local people, and the remainder of respondents are users who are prepared to travel over 30 minutes to access the trails. (Note: local defined as those who travel less than 30 minutes).

Figure 7: Travel Time to Perth Hill Trails



3.6 Usage Interpretation

From the statistics in the previous questions the conclusion can be drawn that the majority of users of the Perth Hills region use the trails frequently (at least weekly) and are prepared to travel over 30 minutes to participate in recreation pursuits such as mountain bike riding, walking and cycling (on road). Almost three quarters of the users spend over 2 hours on the trails. The main reasons they do this is for the exercise, fun and the nature appreciation.

4. Trail Information

4.1 Source

Respondents were asked where they source the majority of their trail information from a pre-set selection of sources. Overwhelmingly users obtain information primarily through trail/recreation organisations and word of mouth.

Details are outlined in the tables below.

Source	Number of Responses (199)
Trail/Recreation Organisations (WAMBA, RTRA, WA Horse Council)	117
Word of Mouth	112
Retail Outlet	17
Tourist Information Centre	13
Local Council/s	7

Table 1: Primary Source of Trail Information

Respondents also stated in their comments that they obtain trail information from a variety of other sources. The top multiple nominated sources were:

Source	Number of Responses
http://www.wamba.org.au/ WAMBA	20
http://perthmtb.asn.au/ PMTB	19
Western Australia's Mountain Bike Guide - Travis Deane	8
Explore myself & local knowledge	7
http://www.walkgps.com	4
Google Maps	3
www.toptrails.com.au	3
www.everytrail.com	2

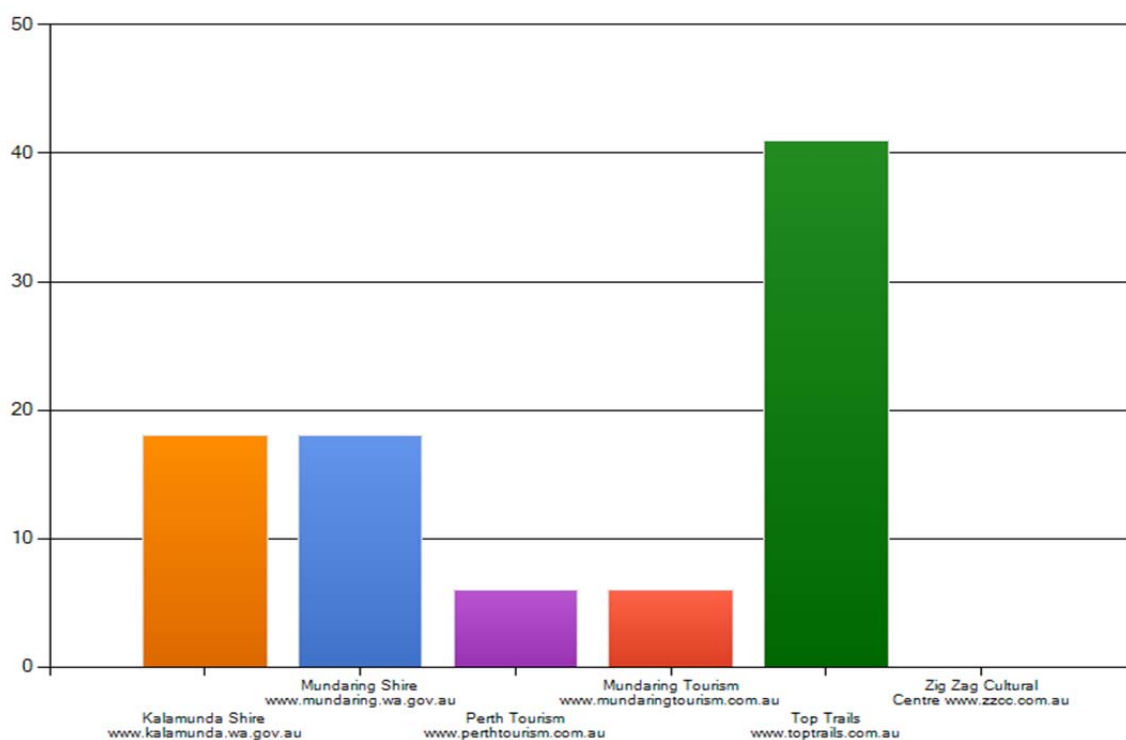
Table 2: Other Sources of Trail Information

Individual responses also included DEC, Bibbulmun Track website and handbooks, Munda Biddi trail foundation and website, www.openstreetmap.org.au, <http://openmtbmap.org/>, Swan Valley and Perth Hill trails discovery guide printed by ERM (now out of print), Internet forums, strava.com, www.connect.garmin.com, Swan Valley/Mundaring Visitor Centres and brochures in libraries, Trail talk, Perth bushwalking club, www.hucktoflat.com, www.silentrevolution.com.au

4.2 Websites

Respondents were requested to state the websites they access for trail information from a pre-set selection of Kalamunda Shire, Mundaring Shire, Perth Tourism, Mundaring Tourism, Top Trails and Zig Zag Cultural Centre. As outlined in the graph below the www.toptrails.com.au was the most popular site; however in the comments respondents also stated two other sites that were almost as equally visited. These were the <http://perthmtb.asn.au> and www.wamba.org.au. Details provided in the table below.

Table 3: Website Used to Source Trail Information – Number




Respondents' detailed the following websites in the comments section:

Website	Number of Responses
http://perthmtb.asn.au	32
www.wamba.org.au	28
www.everytrail.com	3
www.google.com.au	2
http://www.walkgps.com	2

Table 4: Other Websites Used to Source Trail Information - Number

These responses were consistent with the previous question responses. Individual responses included, <http://www.bicycles.net.au>; <http://singletrackminds.com.au>;

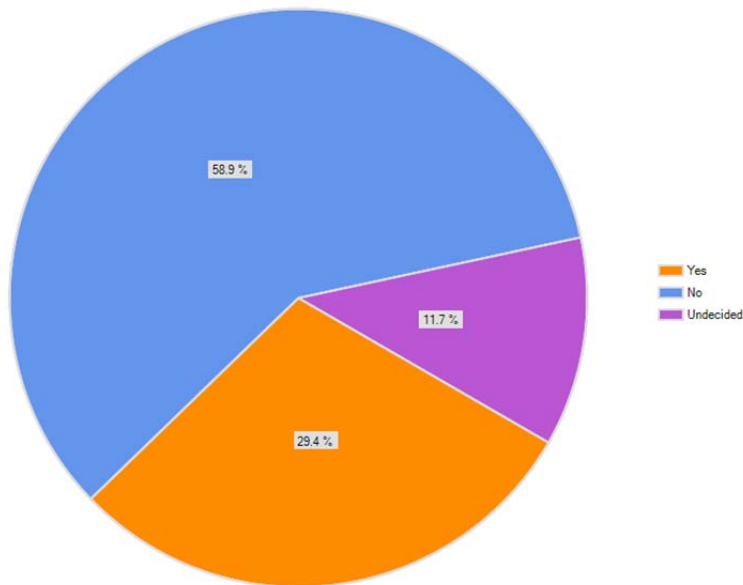


www.garmin.com; <http://www.openstreetmap.org.au>; <http://openmtbmap.org/>;
<http://www.walkgps.com>; <http://www.mundabiddi.org.au>;
<http://www.openstreetmap.org/>; www.strava.com

5. Suitability

Respondents were posed the question “In general, would you say the existing trails in the Perth Hills are suitable for current demand?” Almost 60% of respondents stated No, with a large proportion of these respondents commenting on the reason for this.

Figure 8: Suitability for Current Demand



The key words associated with this question are shown below, followed by the comments being classified into broad categories.

Amount of Users Beneficial Busy Choice Crowded

Demand Designed Excellent Extensive Facilities Growing

Population Trail Rage Interest Legal Trails

Mountain Bike Not Enough Trails

Not Maintained Overcrowded Policy Riding Tracks

Trails Close Trails Needed Variety Volume

of Traffic

5.1 Lack of Trails

The most common statement centred on the **lack of trails** to meet the growing demand. Comments included

- *“The number of **legal** mountain bike trails in the Perth Hills hasn't increased anywhere near the growth in the number of people out riding mountain bikes on the trails in the last 10 years”.*
- *“There is definitely a lack of **loop trails and connecting trails** for both walkers and cyclists and there needs to be a better dispersal of trails. linking of trails off a main trail e.g. Railway Reserves Heritage Trail and from main town centres e.g. Mundaring and Kalamunda”.*
- *“Not enough mountain bike trails. Trails need to link town sites such as Kalamunda, Mundaring, Pickering Brook and Carmel”*
- *“No, because from what I see there are more people using the same trails, there needs to be more effort and funds devoted to developing **new centres of use**. There are a lot of areas which could be opened up or the facilities improved”.*
- *“There could be a better range of technicality and difficulty of trails. There is a need with all riding spots to cater well for all skill levels. After all, this is how riders progress and how more riders get interested in the sport. To have more family orientated riding is as important as providing for the more skilled and adventurous riding.”*
- *“Can get busy, this means less fun and more track wear on trails when it could be spread across more tracks”.*
- *“Very little **variety** in types of trails”.*
- *“More mountain bike tracks please!!”*
- *“Population requires more outlets for recreation”.*
- *“Needs more variety and different levels of trails for mountain bikes. A greater concentration will create a hub which will be self-sustaining”.*
- *“Could always have more/greater variety”.*
- *“There are not really enough trails, to give much variety”.*
- *“It would be good to see more **loop trails** so you don't have to go back on yourself”.*
- *“Insufficient number of mountain bike trails”.*
- *“**lack of variation** in trails and which causes loss of interest”.*
- *“Very popular trails close to Perth, lots of new riders in the sport, not enough established trails”.*

- *“I think there is enough demand to justify more trails of the Kalamunda Circuit type in the Perth Hills”.*
- *“The amount of sanctioned trails for other trail users, other than for walking is appalling”.*
- *“More people are mountain biking so the trails are getting heavy use. More trails will bring more eastern states and overseas people to the community”.*
- *“Need more Mountain Bike trails and **different levels** to cater for the whole family”*
- *“There is an ever increasing interest in mountain biking and the current trail network is not enough to cater for this demand. I know more trails are under construction, but even more trails would be required to meet the ever increasing demand for mtb trails”.*
- *“Unfortunately there are not enough trails (MTB specifically) to sustain the amount of people that use them on a regular basis. Trails are being degraded by sheer numbers of people out and about. I feel most people utilizing these trails mean to do no harm it’s just a **numbers on trail vs. amount of available trail**”.*
- *“The **demand is increasing** and the trails are becoming more popular”*
- *“Not sure what the current demand is like”.*
- *“More trails needed for growing population”.*
- *“A lot of trails are walkers only and well know mountain bike trails are too close to each other would like a couple of new trails spread along the hills more”.*
- *“Not enough mountain bike trails especially compared to walking trails all mountain bike trails are a long way from the metro area”.*
- *“Trails have previously and are now currently being modified. There is a need for the possibility of further development of MTB trails”.*
- *“Insignificant Mountain Bike trails for the demand”.*
- *There needs to be a lot more trail to cater for the number of riders. They need to be spread over a larger area and **linked together**.*

5.2 Usage

- *“The **demand** for mountain bike trail - worldwide - is **increasing** constantly. the Perth hills are probably the most popular trails for mountain bikers in WA. Over 500 riders on a Sunday are even clogging up the car parks!”*
- *“Sunday morning is super popular for mountain biking. There's a single marked loop near Perth - the Kalamunda Circuit, and it's becoming overcrowded”.*
- *“The Kalamunda MTB Circuit gets very crowded on weekends”.*
- *“Very busy on a Sunday in particular, some multiple line options that give the opportunity for progression would be a useful addition i.e. similar feature but green, blue, black & double black line options”.*
- *“Compared to where I am from (Albany) , the hills trails are fantastic and some great work has been done in the last couple of years, but it does get crowded out there on some **weekends**”.*
- *“Mountain bike trails are over used and there are queue times on some trails”*
- *“Probably ok for current capacity, but I've been riding out there for 15+ years and have seen a lot of growth in that time. There's no reason to expect that trail usage will drop off in future”.*
- *“The trails are becoming **very busy** and are **degraded** quickly”.*
- *“More and more people are taking up mountain biking, it's one of the biggest **growth sports** in WA”.*
- *"The car parks are always full! And besides there can never really be enough trails”.*
- *“Too many users removes the feeling of isolation that was once enjoyed by mountain biking. more trails would spread the concentration”.*
- *“Some MTB trails are already very heavily used. The current level or increased use may not be sustainable. Increasing use of the existing trail network may also present safety hazards”.*
- *“Need more trails to reduce the **overall load** on each trail and increase their overall longevity”.*
- *“**Overcrowded**”.*
- *“The increase in mountain biking in Perth over the past 12 months has quadrupled, the heavy traffic use on the same trails over and over is unsustainable”.*
- *“The trails seem to deteriorate quite quickly and can get quite **congested** on weekends”.*

5.3 Maintenance

- *“Mountain bike trails are becoming very well utilised and as a result are suffering **degradation**”.*
- *“There are too few mtb trails resulting in too high a level of traffic, and therefore **track widening and erosion** is becoming more apparent. unmaintained / not legitimate tracks are also used extensively and create issues do to the lack of maintenance or proper build quality”.*
- *“Too many are poorly built. i.e. most of the Munda Biddi is now washed away. A professional trail builder/repairer who takes into account water runoff is sorely needed. Also our flora tends to drop limbs/litter/whole trees onto trails, diverting users into the surrounding bush which suffers because of the **poor response time** to clear the trails after weather”.*
- *“Not much choice, **over-usage** will result in **worn** trails’.*
- *“MTB trails are well used and in need of more maintenance, but generally not over crowded at the times I ride”.*
- *“Yes but I do think the **signage** within the trails is not maintained enough”.*
- *“they are overly used and worn away by bikes, the pea gravel tracks can be very difficult terrain to navigate, pet owners don't use leashes (I am a pet owner) and are sometimes too narrow to get enough distance between pets - they need more rubbish bins”.*
- *“Not enough mtb trails to cope with demand and maintenance **not keeping up** with **erosion** of trails due to overuse”.*
- *“The main trails are over used and the less used trails (some in not approved areas) are **over grown**. What I would love to see it a network of trails including single track in the area around Karragullen which would do 4 things*
 1. *Lighten the load on Kalamunda and reduce the damaged caused by overuse.*
 2. *Give access to additional tracks.*
 3. *Increase the linking between Karragullen and Kalamunda for some epic riding of fire trails and single tracks in both areas.*
 4. *VERY important I think with more bike traffic it might reduce the amount of rubbish dumped. I have been riding in the areas behind Karragullen and near Victoria dam and have been disgusted by the amount of dumped rubbish”.*
- *“**Not maintained adequately** by local govt”.*

- *"The increase in the popularity of mountain biking in the last couple of years has put a huge stress on the current trails close to the metropolitan area. The trails are having to sustain much higher through-put of riders than intended and this is contributing to increased (and un-sustainable) degradation of the trails. To counter this problem there needs to be an expanded network of intermediate and advanced trails with multiple start/end points and numerous 'loops' formed such that one section of trail is not burdened with all the traffic."*
- *"More and more people are using them - so a **system** or **policy** needs to be in place for maintenance and creation".*
- *"Growth in the sport has been exponential and it is now unsustainable to volume of traffic and the local infrastructure and release/development of trails".*
- *"Some of the trails that do exist have no maintenance - mostly local government trails".*

5.4 Other Reasons

A number of other reasons respondents stated that the Perth Hills were not suitable for current demand in general included:

- Restrictions from the Department of Water under Policy 13
- Environmental concerns
- Lack of facilities
- Lack of trails to cater for all users and abilities
- User conflict / trail rage

5.5 Trail Specific

5.5.1 Bibbulmun Track

- *“Barely - In some instance the Bibbulmun track should be called the Bibbulmun Highway”*
- *“On weekends the trails are packed with riders, much less of a problem during week days. While there are plenty of trails off the main Kalamunda circuit, many of them are run down, and some have been closed off due to dieback. Also myself and others occasionally ride a >30 loop, which requires riding on the Bibbulmun for some of the way, we know this is not allowed, but have no other way of getting from the end of one single track to the start of the next section”.*

5.5.2 Kalamunda Circuit

- *“To expand Kalamunda trails, more single track”*
- *“The mountain bike trails around Kalamunda get very busy on weekends”*
- *“The Kalamunda Circuit is at danger of being a victim of its own success as it is a great trail but it also attracts so many users it can degrade. Much more trail is needed to spread the riders out.”*
- *“The marked out route of Kalamunda circuit is a 20km loop at best. Personally I like to ride 30km plus in a ride and would want to be given the option to not repeat sections of trail. I think this is a common opinion”.*
- *“The number of riders and the type of riding they want is not catered for. The trails don't link well to Kalamunda”.*
- *“Not enough for mountain biking as it is easy to cover 40 or 50 km in a good morning and the Kalamunda circuit is only 22. Munda Biddi is not well designed for loops to return to your vehicle without backtracking what you have just ride”.*
- *“Mountain biking trail use demand and growth is unsustainable for the Kalamunda circuit”.*
- *“The huge increase in riders on the Kalamunda Circuit shows there is a large and growing demand - I have been riding in the area for 12 years and have never seen so many people out on the tracks. Some areas can get quite busy at peak times. There is huge untapped potential for many to enjoy the bush in a fun, sustainable way that could be beneficial for tourism”.*
- *“Huge volume of traffic concentrated on the Kalamunda circuit. Need other mtb trails to carry the load”.*
- *“Would like to have more MTB tracks. Kalamunda circuit is becoming increasingly busy”*

- *“From an MTB perspective, there is FAR too much focus on Kalamunda Circuit. within a 5km radius of Mundaring there is over a 100km of trails available. not used, not on the web so no one can find them unless they know them already. brochures just do not cover the available legal trails. Add to next question: clearer information re what is accessible and what isn't; AND better use of available trails”*
- *“Use Kalamunda Circuit which is wonderful but as interest increases expansion would be a bonus”*
- *“From an MTB perspective the Kalamunda Circuit is fantastic but is getting very busy at w/end. Many more of this standard or legalise existing tracks. There are no recognised MTB routes in John Forrest National Park. The Eagle Trail (walking) is used by MTB. This is bad for walkers”*
- *“For mountain biking, not enough single-track loops for current demand - Kalamunda circuit is already at capacity”*
- *“Traffic on marked trails around Kalamunda is too high. More trails to spread the load would be better”*
- *“Numbers are booming. everyone goes to the Kalamunda Circuit cause its awesome other options in Goat farm and Forsyth’s Mill are good but not enough trails there”*

5.6 Trail Users

5.6.1 Freeride/Slopestyle

- *"I ride at the Goat farm MTB park. this is a good facility but as I own a dirt jumper this is really only one of very few places to ride. I would like to see more dirt jump/ freeride/ slopestyle facilities and I'm sure that the rest of the growing population of freeriders would too".*
- *"Lack of freeride and all-mountain trails".*

5.6.2 Walking Trail

- *"Walking trail development should not simply be based on "current demand". Current demand may not be high and trails may not (yet) be overcrowded, but use of trails and demand will undoubtedly increase if suitable trails in a wider range of opportunities and locations are available. Demand for formal trail bike trails is clearly high as riders are currently out of control and doing a lot of damage using areas of the forest where they shouldn't be due to lack of more formal trails in more appropriate areas"*

5.6.3 Off Road Motorcycling

- *"The trails do not cover enough variety for the general population i.e. motorbike riding".*
- *"Access to trails are far too restrictive for things such as motorcycles and 4x4"*
- *"There seems to be growing use and therefore competition for recreational space in the Hills area. Often see and hear trail bike riders in the area where there are no legal trails. I wonder if this is because they have nowhere legal to ride?"*
- *"My family and I ride trail bikes (off road motor bikes) and there are no off-road vehicle areas in the Perth Hills for children to legally ride. Whilst I have a registered bike, it is very confusing about where you can and cannot go and more and more trails are being designated for walkers and mountain bikers. Off road motor bikes need some designated trail networks and don't lump us in with 4WDs".*

5.7 Positive Feedback

- *“Fine for my own demand but not sure if what others want”*
- *“I’m **very happy** with the trails. In summer, the demand on places like ‘the camel farm’ can get chopped up with the large amount of traffic, but it has the potential to be a lot worse than a lot better. I never feel like the tracks are crowded; even on the weekends; I still would love to see more tracks out there though”.*
- *“They meet my demand”.*
- *“**Excellent** trails and quite extensive but more would always be nice :-)”.*
- *“I think they are good but have the **potential** to be made much better”.*
- *“Demand is growing very fast due to some **excellent developments** in trail quality and awareness thanks to WAMBA”.*

6. Issues

Respondents were asked to rank the following issues for the Perth Hills trails. Rating 1 equated to the biggest issue, while 10 rated as a minor issue.

Based on the rating average the top three issues were:

1. Lack of number and diversity of trails
2. Maintenance of trails
3. Signage (lack of, condition, type etc.)

Issue	Rating Average
Lack of number and diversity of trails	3.23
Maintenance of trails	4.16
Signage (lack of, condition, type etc.)	4.77
Quality of trails	5.06
Information provision (Brochures, Maps etc.)	5.48
Safety & Security	5.73
Access to trails	6.02
Car parking	6.33
Lack of Amenities (toilets, drinking fountains, shelters etc.)	6.72
User Conflict	7.51

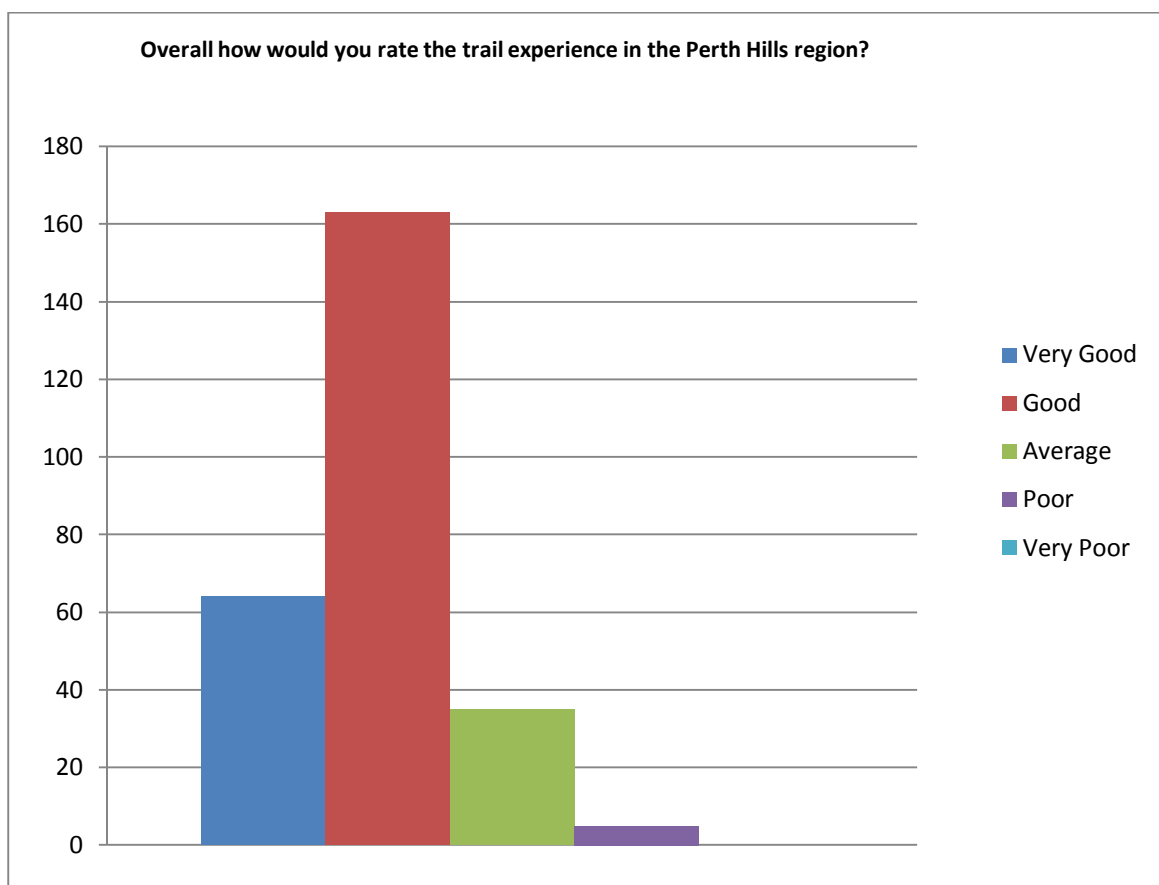
Table 5: Current Issues for Perth Hills Trails – Rating Average

7. Overall Rating

Respondents were asked to rate the trail experience in the Perth Hills region. 61% of respondents stated it was good, while another 24% stated it was very good and 13% stated it was average. The remainder of the respondents (2%) stated that the Perth Hills region trail experience was poor.

Hence, it can be quantified that although users have a number of issues/concerns associated with the trails in the Perth Hills overall the majority of respondents rate the trail experience as good to very good.

Figure 9: Overall Rating of the Trail Experience in the Perth Hills Region



8. Trail Specific Use

Respondents were asked to indicate whether they had used the following trails in the Perth Hills in the last 12 months. The findings concluded that the top trails used were:

1. Kalamunda Circuit
2. Munda Biddi Trail
3. The Goatfarm (Mountain Bike Park)
4. Bibbulmun Track
5. Forsyth's Mill Mountain Bike Trail
6. Camel Farm Trail
7. Little Oven Circuit
8. Railway Reserves Heritage Trail
9. Dell to South Ledge Circuit
10. Kep Track

Table 6: Perth Hills Trails Utilisation in past 12 Months

Trail Name	Yes	No
Kalamunda Circuit	197	15
Munda Biddi Trail	176	26
The Goat Farm (Mountain Bike Park)	167	35
Bibbulmun Track	161	42
Forsyth's Mill Mountain Bike Trail	159	43
Camel Farm Trail	158	47
Little Oven Circuit	158	37
Railway Reserves Heritage Trail	126	49
Dell to South Ledge Circuit	122	62
Kep Track	114	60
John Forrest National Park Bridle Trail	110	65
Kalamunda Heritage Trail	104	67
The Powerline Track	102	64
Eagle View Walk Trail	97	84
Gungin Gully Trail	97	78
Camel Farm to Hewett's Hill and Return	94	79
Zig Zag Trail	86	83
The Elevator	85	83
Lake Leschenaultia Mountain Bike Trail	78	89
Jorgensen Park Walk	73	88
Pipeline Trail	58	97
Lesmurdie Falls Trail	56	102
Sculpture Park Tracks	53	101
Bickley Reservoir Walk	50	106
Golden Pipeline Walk	49	102
Weir Walk	49	102
North Ledge to South Ledge Trail	47	106
Lake Leschenaultia Walk	46	110
Weir View Walk	45	106
Helena Valley Road Piesse Brook Track	41	115

Trail Name	Yes	No
Farrel Grove Walk	40	112
Falls Road	38	112
Stratham's Quarry Walk	36	116
Piesse Gully Loop	32	118
Helena Valley Horse Trail	31	120
Lower Helena Bridle Trail	30	118
Helena Pipehead Walk Trail	30	118
Victoria Reservoir trail	25	124
Rock Pool Walk	24	127
Carmel Walk	20	125
Whistle Pipe Gully Walk	19	131
Firewood Rd	18	129
Glen Brook Dam Walk Trail	18	127
Bilgoman Well Walk Trail	16	132
Portagabra Walk Trail	16	132
Lions Lookout Walk	15	130
Schipp Road Walk	13	132
Devenish Plantation	12	132
Mount Helena Conservation Reserve	12	131
O'Connor Trail	11	133
Wildflower Walk Trail	11	132
Mason and Bird Heritage Trail	10	138
Ray Owen Reserve	10	135
Channel 10 Tower Walk	9	136
Ledger Road Walk	9	138
Owen Road	9	135
Palm Terrace Walk	9	131
Lewis Road Walk	8	135
Alan Anderson	7	144
West Terrace Walk	7	136
Darkan Road	6	137
Kintore Road Reserve	6	136
Riley Road Bridle Path	5	139
Booking Road Reserve	4	139
Alps Reserve Walk	3	145
Hill Street Walk	3	139
Gorne Road	2	139
Coie Road	1	143
Old Southwells Track	1	142
Southall Track	1	141

Respondents also noted the use of alternative trails

- Axehead
- BeeKeeper Road
- Blue Tag
- Carinyah
- Catchment Road
- Chudich Bypass
- Darlington dirt jumps
- Gorrie road
- Hacksaws
- Helena Road
- Kattamordo Heritage Trail
- Magpies
- Mt Gunjin/Dell/ area not listed.
- Mundaring downhill mountain bike tracks
- Munday Brook near Karagullen
- Pickering Brook General store to the top of Gungin
- Pony Ride
- Red Tag
- Ridgeways
- Scorpion – Little hairy trail
- The Dropper
- The old Mundaring Loop
- The Slabs
- The trail from Mundaring to Kalamunda Circuit not using the Munda Bidli
- The trails between Jacoby Park and Mundaring (over 100km of them)
- The various trails NORTH of Great eastern Hwy from Mundaring Sculpture Park to Leschenaultia and on to Gorrie Rd (Forsyth's Mill) and return using various trails on SOUTH side of Great Eastern Highway - and NOT using the heritage or Kep tracks.
- Trails in John Forrest National Park that have no names or signage.
- White Tag
- Whore No More to Pickering
- Trail bike trails e.g. West Talbot Rd, area that trail bike riders call "The Lakes", Flynn Rd, Barton's Mill.

9. Trail Condition

Respondents were asked to rate the overall condition of 70 known trails if they had used them in the last twelve months.

9.1 Good Condition

The top three trails

1. Kalamunda Circuit had 87% of the 164 respondents rating the overall condition as Very Good – Good.
2. Forsyth's Mill Mountain Bike Trail had 81% of the 110 respondents rating the overall condition as Very Good – Good.
3. Bibbulmun Track had 79% of the 92 respondents rating the overall condition as Very Good – Good.

Table 7: Top 10 'Good' Condition Perth Hills Trails

The table below lists the top 10 trails by the rating average.

Ranking	Trail	Rating Average	Response Number
1	Kalamunda Circuit	1.73	164
2	Forsyth's Mill Mountain Bike Trail	1.95	110
3	Bibbulmun Track	1.98	92
4	Railway Reserves Heritage Trail	1.98	64
5	Camel Farm to Hewett's Hill and Return	2.04	45
6	Lake Leschenaultia Walk	2.04	24
7	Camel Farm Trail	2.08	99
8	Kalamunda Heritage Trail	2.15	39
9	Kep Track	2.15	67
10	Lesmurdie Falls Trail	2.15	27

9.2 Poor Condition

The three lowest ranked trails were:

61. Eagle View Walk Trail had 62% of the 55 respondents rating the overall condition as Average, Poor or Very Poor.

68. The Powerline had 77% of the 35 respondents rating the overall condition as Average, Poor or Very Poor.

70. The Elevator had 78% of the 50 respondents rating the overall condition as Average, Poor or Very Poor.

Table 8: Top 10 'Poor' Condition Perth Hills Trails

The table below lists the trails that have over 30 respondents and what they ranked out of the 70 trails in relation to the overall condition.

Ranking	Trail	Rating Average	Response Number
19	Jorgensen Park Walk	2.3	30
20	John Forrest National Park Bridle Trail	2.31	45
22	Dell to South Ledge Circuit	2.34	44
27	Munda Biddi Trail	2.4	113
31	Zig Zag Trail	2.47	30
43	Gungin Gully Trail	2.58	43
50	Lake Leschenaultia Mountain Bike Trail	2.63	41
57	Little Oven Circuit	2.78	116
60	The Goat Farm (Mountain Bike Park)	2.8	114
61	Eagle View Walk Trail	2.82	55
68	The Powerline	3.09	35
70 (Last)	The Elevator	3.26	50

9.3 Data

Table 9: Perth Hills Trails Condition Ranking by Rating Average

	Answer Options	Very Good	Good	Average	Poor	Very Poor	Rating Average	Response Count
1	Kalamunda Circuit	67 41%	76 46%	19 12%	2 1%	0	1.73	164
2	Forsyth's Mill Mountain Bike Trail	32 29%	57 52%	17 15%	3 3%	1 1%	1.95	110
3	Bibbulmun Track	23 25%	50 54%	17 18%	2 2%	0	1.98	92
4	Railway Reserves Heritage Trail	15 23%	35 55%	14 22%	0 0%	0	1.98	64
5	Camel Farm to Hewett's Hill and Return	9 20%	25 56%	11 24%	0	0	2.04	45
6	Lake Leschenaultia Walk	5 21%	13 54%	6 25%	0	0	2.04	24
7	Camel Farm Trail	14 14%	65 66%	18 18%	2 2%	0	2.08	99
8	Kalamunda Heritage Trail	9 23%	17 44%	11 28%	2 5%	0	2.15	39
9	Kep Track	17 25%	25 37%	23 34%	2 3%	0	2.15	67
10	Lesmurdie Falls Trail	6 22%	11 41%	10 37%	0	0	2.15	27
11	Piesse Gully Loop	3 25%	4 33%	5 42%	0	0	2.17	12
12	Weir View Walk	3 25%	4 33%	5 42%	0	0	2.17	12
13	Weir Walk	3 20%	6 40%	6 40%	0	0	2.20	15
14	Firewood Rd	3 27%	2 18%	6 55%	0	0	2.27	11
15	Darkan Road	2 29%	1 14%	4 57%	0	0	2.29	7
16	Ledger Road Walk	2 29%	1 14%	4 57%	0	0	2.29	7
17	Owen Road	2 29%	1 14%	4 57%	0	0	2.29	7
18	Whistle Pipe Gully Walk	3 21%	5 36%	5 36%	1 7%	0	2.29	14
19	Jorgensen Park Walk	4 13%	13 43%	13 43%	0	0	2.30	30
20	John Forrest National Park Bridle Trail	11 24%	14 31%	17 38%	1 2%	2 2%	2.31 4%	45

	Answer Options	Very Good	Good	Average	Poor	Very Poor	Rating Average	Response Count
21	O'Connor Trail	1 11%	4 44%	4 44%	0	0	2.33	9
22	Dell to South Ledge Circuit	5 11%	22 50%	14 32%	3 7%	0	2.34	44
23	North Ledge to South Ledge Trail	4 20%	6 30%	9 45%	1 5%	0	2.35	20
24	Farrel Grove Walk	1 9%	5 45%	5 45%	0	0	2.36	11
25	Glen Brook Dam Walk Trail	1 10%	4 40%	5 50%	0	0	2.40	10
26	Golden Pipeline Walk	2 13%	5 33%	8 53%	0	0	2.40	15
27	Munda Bididi Trail	14 12%	55 49%	33 29%	7 6%	4 4%	2.40	113
28	Sculpture Park Tracks	2 11%	7 39%	8 44%	1 6%	0	2.44	18
29	Carmel Walk	1 9%	4 36%	6 55%	0	0	2.45	11
30	Lions Lookout Walk	1 9%	4 36%	6 55%	0	0	2.45	11
31	Zig Zag Trail	2 7%	15 50%	10 33%	3 10%	0	2.47	30
32	Bickley Reservoir Walk	1 5%	9 45%	9 45%	1 5%	0	2.50	20
33	Devenish Plantation	1 13%	3 38%	3 38%	1 13%	0	2.50	8
34	Helena Valley Road Piesse Brook Track	3 19%	2 13%	11 69%	0	0	2.50	16
35	Ray Owen Reserve	1 17%	1 17%	4 67%	0	0	2.50	6
36	Victoria Reservoir trail	1 7%	5 36%	8 57%	0	0	2.50	14
37	West Terrace Walk	2 20%	1 10%	7 70%	0	0	2.50	10
38	Schipp Road Walk	1 9%	3 27%	7 64%	0	0	2.55	11
39	Lewis Road Walk	1 11%	3 33%	4 44%	1 11%	0	2.56	9
40	Helena Valley Horse Trail	3 21%	2 14%	7 50%	2 14%	0	2.57	14
41	Stratham's Quarry Walk	1 7%	5 36%	7 50%	1 7%	0	2.57	14

	Answer Options	Very Good	Good	Average	Poor	Very Poor	Rating Average	Response Count
42	Wildflower Walk Trail	1 14%	1 14%	5 71%	0	0	2.57	7
43	Gungin Gully Trail	3 7%	16 37%	21 49%	2 5%	1 2%	2.58	43
44	Alan Anderson	0	4 40%	6 60%	0	0	2.60	10
45	Falls Road	1 10%	3 30%	5 50%	1 10%	0	2.60	10
46	Gorne Road	1 20%	0	4 80%	0	0	2.60	5
47	Hill Street Walk	1 20%	0	4 80%	0	0	2.60	5
48	Mount Helena Conservation Reserve	1 10%	2 20%	7 70%	0	0	2.60	10
49	Pipeline Trail	1 5%	7 35%	11 55%	1 5%	0	2.60	20
50	Lake Leschenaultia Mountain Bike Trail	6 15%	10 24%	19 46%	5 12%	1 2%	2.63	41
51	Rock Pool Walk	1 13%	1 13%	6 75%	0	0	2.63	8
52	Kintore Road Reserve	1 17%	0	5 83%	0	0	2.67	6
53	Palm Terrace Walk	1 11%	1 11%	7 78%	0	0	2.67	9
54	Riley Road Bridle Path	1 17%	0	5 83%	0	0	2.67	6
55	Southall Track	1 17%	0	5 83%	0	0	2.67	6
56	Helena Pipehead Walk Trail	1 5%	5 26%	12 63%	1 5%	0	2.68	19
57	Little Oven Circuit	13 11%	31 27%	46 40%	20 17%	6 5%	2.78	116
58	Coie Road	0	1 20%	4 80%	0	0	2.80	5
59	Mason and Bird Heritage Trail	1 10%	2 20%	5 50%	2 20%	0	2.80	10
60	The Goat Farm (Mountain Bike Park)	11 10%	32 28%	42 37%	27 24%	2 2%	2.80	114
61	Eagle View Walk Trail	8 15%	13 24%	19 35%	11 20%	4 7%	2.82	55
62	Alps Reserve Walk	0	1 17%	5 83%	0	0	2.83	6
63	Booking Road Reserve	0	1 13%	7 88%	0	0	2.88	8

	Answer Options	Very Good	Good	Average	Poor	Very Poor	Rating Average	Response Count
64	Channel 10 Tower Walk	0	2 25%	5 63%	1 13%	0	2.88	8
65	Lower Helena Bridle Trail	1 13%	0	6 75%	1 13%	0	2.88	8
66	Portagabra Walk Trail	1 13%	1 13%	5 63%	0	1 13%	2.88	8
67	Old Southwells Track	1 17%	0	4 67%	0	1 17%	3.00	6
68	The Powerline Track	1 3%	7 20%	18 51%	6 17%	3 9%	3.09	35
69	Bilgoman Well Walk Trail	0	1 11%	6 67%	2 22%	0	3.11	9
70	The Elevator	2 4%	9 18%	19 38%	14 28%	6 12%	3.26	50

Comments

- *“The issue above is what constitutes 'Good'. A rough unmaintained rutted trail is better than a manicured sanitised one in my opinion. For me a tree blown across a trail could be left there and the walker/rider negotiates the obstacle. Natural, minimally maintained trails are far more interesting than manicured swept trails with bits of wood nailed together in a structure for MTBs. Kalamunda circuit gets average as it is cleared too much :) So maybe the above ratings should be ignored, haven't rated all as they pretty much all the same standard in my opinion”.*
- *“Some berms are a little unkept (on the dugite run), the jump at the top after the first major berm is also a little hard to clear, similarly the jump at the bottom before the very last jump is a little overgrown and the lip of camber”.*
- *“Kattomordo (Kattamorda) Heritage Trail - it's a wonderful trail. Parts are closed however and lots of it needs maintenance. It could be a REALLY good way of linking Kalamunda Circuit to the Kalamunda Heritage Trail. It could also be used to link to Bickley Reservoir if it was properly maintained”.*
- *“Condition is completely subjective.....”*

10. Transport Type

The majority of respondents use a private car or ride a bicycle to access the trails. Detailed below is the actual number of respondents in each category.

Table 10: Transport Types used to Access Perth Hills Trails.

Transport Type	Respondent Numbers (237)
Private Car	220
Bicycle	67
Walking	20
Train	6
Bus	1

Comments included

- *“There is no public transport worth using”*
- *“Road rego'ed off road motor cycle”*
- *“With trailer for the bikes”*



11. Favourite Trails

Respondents were asked to list their top 5 favourite trails in the Perth Hills Region.

11.1 Favourite Trail

The Kalamunda Circuit was overwhelmingly nominated as respondent's favourite trail with 120 respondents stating it was their favourite trail (Trail 1).

It then substantially dropped in popularity to trails such as Camel Farm (11), Railway Reserves Heritage Trail (8), Bibbulmun Track (7), Eagle View, Forsyth's Mill (6), Goat Farm (4).

11.2 Top 10 Trails

The trails that had the highest total of respondents nominating it as their favourite track were:

11. Kalamunda Circuit (156)
12. Forsyth Mill (77)
13. Goat Farm (75)
14. Little Oven Circuit (64)
15. Munda Biddi Trail (51)
16. Camel Farm (32)
17. Railway Reserves Heritage Trail (31)
18. Bibbulmun Track (27)
19. Eagle View Walk Trail (23)
20. Kep Track (20)

11.3 Data

The table summarises the results (arranged by Total).

Table 11: Favourite 5 Perth Hills Trails for Survey Respondents - Ranked 1 to 5

Trail	1	2	3	4	5	Total
Kalamunda Circuit	120	23	7	4	2	156
Forsyth's Mill	4	28	25	15	5	77
Goat Farm	4	15	27	10	19	75
Little Oven Circuit	4	27	14	13	6	64
Munda Biddi Trail	4	10	14	14	9	51
Camel Farm	11	8	7	3	3	32
Railway Reserves Heritage Trail	8	6	9	7	1	31
Bibbulmun Track	7	5	3	8	4	27
Eagle View Walk Trail	6	3	9	2	3	23
Kep Track	1	3	4	7	5	20
Gungin	3	1	3	4	4	15
Dell	3	3	5	2		13
Lake Leschenaultia Conservation Park	1	2	2	5	3	13
Heritage Rail Trail	1	2	4	3	2	12
John Forest National Park	2	3		3	2	10
Whistle Pipe Gully	1	3		2	2	8
Scorpion Trail		2	3	2	1	8
Jorgenson Park		1	3	1	2	7
Kamikaze	4		1		1	6
Turner Hill	1	4	1			6
Lancaster		3	2	1		6
Langford Park	1	1	1	1	1	5
Zig Zag Trail		1		2	2	5
Lesmurdie Falls		1	1	1	2	5
Mundaring downhill MT tracks	2		1	1		4
Lion's Lookout	2		2			4
Powerline	1	2		1		4
Elevator				1	3	4
Weir View Walk		2		1	1	4
Pickering Brook		1	2	1		4
Mercury		3	1			4
Rock Pool Walk			1	1	1	3
Helena Pipeline			1	2		3
North Ledge to South Ledge		2		1		3
Carinyah	2					2
Canning Mills	1				1	2
Statham's Quarry	1		1			2
Pony Road					2	2
Ridgeways				1	1	2

Trail	1	2	3	4	5	Total
Devenish Plantation		1			1	2
Blue Tag			1	1		2
Muffin Tops			1	1		2
Bumper Rd		1		1		2
Sculpture Park		1		1		2
Kattomordo (Kattamorda) Heritage Trail		1	1			2
Piesee Brook		2				2
Ridley Rd	1					1
Susannah Brooke walk.	1					1
Old Mundaring Loop	1					1
West Talbot Rd	1					1
Dugite					1	1
Farrel Grove					1	1
Hacksaw					1	1
Karragullen					1	1
Ledger Road Walk					1	1
Luvín' Shovels					1	1
North Dandalup Brook					1	1
Palm Terrace Walk					1	1
Pink Tags					1	1
Victoria Dam					1	1
Corolla Track				1		1
Jarrahdale				1		1
Mt Dale and Beraken Brook				1		1
Roleystone				1		1
Southall				1		1
White Trail				1		1
Whore No More				1		1
Bouncer Road			1			1
Crawler Road			1			1
Mt Cooke			1			1
Bickley Brooke and Victoria Reserve		1				1
Bridle path		1				1
Darlington Dirt jumps		1				1
Falls		1				1
Flynn Rd		1				1
Schipp road		1				1

12. Trail Improvement

Respondents were asked an open ended question about what they believe is the highest priority for trails improvement in the Perth Hills. The key words associated with this question are shown below, followed by the comments being classified into broad categories.

Access Encourage more People Erosion Existing
Trails Facilities Funding Greater Groups
Improvement Load Local Marked Trails
Mountain Bike Trails Parking Point
Professional Quality Trails Signage Sustainable
Mountain Town Tracks Walk Trails diversity

12.1 Extra Trails

The highest priority was the statement of “more trails”. Comments included.

- “Creating more purpose built mountain bike single-track. The improvements in the past 2 years are just phenomenal, but there is potential to make the Perth Hills a mountain bike mecca. Working together between councils, DEC, clubs and users etc. could set the standard for how trails can be legally built, well designed and sustained so that everyone benefits. The planned additions (new black line, pump track etc.) at the Kalamunda circuit are a great start”.
- “**More** trails, more diversity, more options”.
- “Mountain Bike Trails - **Diversity**, Total Kilometres increased, user training”.
- “Increase to the amount of mountain bike trail Quantity and diversity of trail”.
- “Creation of new, sustainable mountain biking trails to keep up with the growth in the sport.
- “Opening more trails, existing and new to mountain bikers”.
- “Building more quality, **sustainable** mountain (bike) trails”.
- “Longer walks/overnight bush camping”.
- “We need more! Especially mtb trails. Current ones being built seem to be black graded trails. Can we have more blue trails? And longer circuits e.g. > 20km loops”.

- *“Construction of more MTB trails & parking areas”.*
- *“Build sustainable trails for all levels of users”.*
- *“Legitimise/legalise existing MTB tracks where possible to ensure longevity of trails (minimise erosion)”.*
- *“Upgrading some of the older MTB trails and developing some new ones”.*
- *“There are many unsanctioned trails that attempt to cater for these riders, but it is high time to create a trail network for a sport that has seen an enormous boom of late”.*
- *“More downhill trails with the ability to shuttle without getting in trouble”.*
- *“Need more sanctioned trails for the whole spectrum of trail users.*
- *“More Mtb trails would be good, but clearly, more people who use the trails need to volunteer”.*
- *“Additional **quality** trails / downhill trail with more diversity”.*
- *“Lots of riders out there and the trails are getting crowded and won’t hold up to their current load.”*
- *“Managing increasing demands and maintaining mountain bike trails with high traffic levels”.*
- *“Expansion of high quality trails(**increasing/upgrading** the quality of the trails)”.*
- *“More trails with greater difficulty (black diamond)”.*
- *“Would want much harder trails with cooler features such as big north shores, 30 ft. gaps, big wooden kickers on trails. Bigger drops. Simply more trails like that. I understand that other countries may have better facilities and government help and so they can build things like I mentioned but surely we can get some things like this built on new trails?”.*
- *“Increased signage on the track. A greater network of diverse single track”.*

12.2 Signage

A common theme in the comments from respondents was that they needed additional signage and directional trails. It was also stated that the signage needed to be standardised or consistent, with one respondent stating International Mountain Bicycling Association (IMBA) standard signage should be adopted. This is where the Easiest Trail is noted with a white circle, Easy green circle, More Difficult blue square, Very Difficult black diamond and Extremely Difficult double black diamond.

- *“Signs at the **beginning** of the walk with a map of the walk”.*
- *“Trail markers are sparse and sometimes misleading, there needs to be more markers”.*
- *“**More** Signage & Cordoning Tapes e.g. Directions & Distance from Point A-Point B signage’s”.*
- *“Consistent and **accurate** signage as is done on the Bibbulmun”.*
- *“Signage and mapping and then extending (and repeat)”.*
- *“Signage that **states the difficulty** of a track. The use of 'FIXED' trails results in crowding and deterioration. The open, legal trails I ride have been around for well over 20 years and I haven't seen an MTB or walker on the vast majority for years”.*
- *“A far **clearer** picture of what areas and tracks are open and closed, and better signage for closed, 'no go' areas. I can ride down a track that is clearly marked on maps as a 'go' area only to meet a sign saying it is a 'no go' area”.*
- *“Keeping existing trails maintained, well-marked and encourage more people to use them”.*
- *“Always had trouble to follow the Track sign's/ Post sign, like always had to look out and search them!!! Think that's the main issue of all!!! Also may be bit more advertising and information about the trails, like where exactly they are, like road names to join in or so or just the exactly name what they called. Besides that, just keep them as they are. Thank you”.*
- *“Signage and awareness needs to be improved. Look at the **Rotorua Bike Park** for good signage at the start and end of each trail section”.*
- *“I only mainly use Kalamunda circuit, the goat farm is confusing, too many branching tracks and **not enough** signage. Kalamunda is great. added facilities would make it more enjoyable, such as BBQ's and better toilets..”.*
- *“Signage is an issue. IMBA standard signage should be adopted”.*

12.3 Information

Respondents regularly stated that they require more information relating to the Perth Hills trails. Users of the trails are looking for additional and quality

- Maps
- Booklet Guides
- Expanded websites

Ideas people raised were

- *“Get all trails on one website - expansion of Top Trails website idea”*
- *“Better information on websites.....”*
- *“Provide better gps, Google earth, and Google maps resources for people using the trails. Walkgps*”

Comments

- *“Maybe some **more public information** regarding some different loops/trails. Many of the surrounding trails I only know about because others have shown me - I'd be missing out on some awesome trails if relying only on the official maps & sign posts that are available”.*
- *“Knowledge of trails can result in many being used far more provided the user has information from signage about the standard (blue; black; double black) they will face”.*
- *“In your list of trails there are some I haven't really heard of as I'm fairly new to walking in the hills. Not all these are listed in top trails as far as I can see”.*
- *“More **readily available information**. Many of the trails listed on this survey I have never heard of, will now seek them out”.*

It was also noted by a number of respondents that more advertising, marketing and promotion of trails was required. Comments around this included:

- *“Allowing and educating about harmonious shared use of trails”.*
- *“More readily **accessible information** about trail availability”.*
- *“Increased awareness, maybe around schools, to encourage more people out there, which in turn will generate more visitors and volunteers”.*
- *“Encourage..... Schools..... to spend a day in the outdoors on these trails”.*
- *“More advertisement of tracks and trails for people to use to disperse the numbers”.*
- *“We need to get support from the tourism industry. We need to appear more often in the news, in the magazines... we need more recognition as a unified.”*
- *“Educating trail users.... Like explaining to mountain bikers that they aren't doing themselves any favours by riding trails after heavy rain”.*
- *“**Promotion**, people just don't know how to find the trails”.*
- *“Provide better cross referencing to local Perth businesses ... for gear for bushwalking etc.”*

12.4 Maintenance

Effective maintenance of existing trails was noted as a collective concern for respondents, along with the frequency of maintenance.

Comments included:

- *“More **frequent** maintenance of existing MTB trails”.*
- *“Maintenance of a capacity for **ongoing maintenance of existing trails**”.*
- *“Trail maintenance is a big issue. Money is available for new trails; however no funding is available for trail maintenance. Unfortunately volunteers do not particularly wish to do maintenance so trails can quickly fall into disrepair.”*

Specific issues that were raised included:

- *“Keeping the paths clear”.*
- *“Trails need to be regularly maintained to prevent plants from over growing, especially on the Lewis Road Walk’.*
- *“Steep sections of trails need to be better designed, either with stairs or a new alignment. See Lewis Road Walk and Lions Lookout Walk.”*
- *“Maintenance on vegetation notably where crossing roads to improve visibility and clearing fallen trees from tracks”.*
- *“Repair of erosion”.*
- *“Maintenance of high standards and removal of rubbish”.*
- *“Maintenance of the tracks will make the trails more appealing and available for all the public. Good maintenance may lead to more trails being supported when shown that their impacts on the environment are minor”.*
- *“DEC needs to have more staff to manage the Perth Hills”.*
- *“Managing weeds”.*
- *“What is considered 'Improvement' is a judgement value laden concept. Clearing a trail may NOT be improvement for those that like the challenge of a 'natural' trail”.*

12.5 Water Catchment Areas and Disease Risk Areas

- *“The talk of die back is the major issue for closure of old tracks, but we still have die back grids on the New Kalamunda circuit.”*
- *“More education to prevent dieback spread”.*
- *“Ensuring that the trails stay open to the public, particularly those inside water catchments”.*
- *“Making it clear where the die back zones are so they can be avoided; maybe need a fence rather than the occasional sign?”*
- **“dieback information and prevention”**
- *“Remove Dept. of water access restrictions to water catchment for trails - ridiculous to restrict use in outer catchment areas”.*
- *“Access to more areas, including outer water catchment areas”.*
- *“Re-evaluate the disease risk area around Mundaring Weir/Lockwood Road”.*

12.6 Environment

- **“Conserve the environment** and make people aware of environmental impacts”.
- *“In general I think the trails are great and I certainly value the work already done. I guess if it came down to prioritising improvement, I think that recognising the benefits of people coming in from other areas to utilise the Hills area and subsequently gearing up to deal with them effectively is the highest priority. I don't just mean in terms of facilities like car parks or picnic tables but things like effective policing, presence of rangers etc. such that you provide a deterrent for people to do the wrong thing and ensure the area stays in **great condition for future generations**”.*
- *“Environmentally friendly community”.*
- *“Educating users on **sustainability** measures for trails.”*
- *“Sustainability and the ability to handle ever increasing demand whilst catering for all trail users such as Mountain bikers, walkers and horse riders”.*
- **“More education** regarding rubbish left along tracks - carry out what you carry in”.

12.7 Planning/Funding

Key comments in this category related to the procurement of additional funding for the development of new trails and the maintenance of trails, professional planning and trail building along with the involvement of key stakeholders in this process.

Comments such as:

- **“Professional Body with paid roles directing and building trails”**
- *“Co-ordination and definition of roles and responsibilities”.*
- *“Providing a method of commercialising these activities (through cafe's or through managed trails fee's)”.*
- *“Maintain and increase backing and **funding** from the Local Authorities”.*
- *“funding for trail countenance”.*
- *“Speed up the processes that enable new trails to be constructed, and (if appropriate) current non-sanctioned trails to be up-graded as necessary and fully opened”.*
- *“More funding, more of a professional trail building input”.*
- *“Easier procedure to gain access to the right authorities to get permission to build and maintain mtb trails and better funding to produce these trails”.*
- *“Demand study - match trail supply to demand”.*
- *“A minimum of 100kms of single track trail would be adequate to service a population of a major city.”*
- *“Make sure that this planning process **integrates** or consults with other processes currently underway - e.g. State Mountain Bike Strategy and SW MTB trail planning”.*
- *“City of Canning is I think the benchmark for recreational paths and trails”.*
- *“Maintenance funding!!! the gov does not fund maintenance of existing trails with so little MTB trails the high volume of traffic wears the trail down quickly”.*

12.8 Car Park Security

Car parking security was noted as a major concern of respondents with people noting:

- *"Security of Parking at Existing parking areas is the biggest issue..."*
- *"Car parks need **better security**, CCTV cameras could be installed. Smashed glass is a common sight in car parks and makes me think twice about leaving my car there".*
- *"Security for vehicles. WAMBA need to foot the bill for some security".*
- *"There needs to be more (secure) car-parking opened up that is centrally located to where the trails actually are, i.e. don't put large car parks in places that limit the scope of a ride to one particular loop, place them centrally where there can be a number of different rides emanating so that it isn't always one piece of trail that gets the lion's share of the use and is subsequently damaged".*
- *"Secure parking visible from main road. The Dell is covered in broken glass from thieves breaking into parked car".*

12.9 User Conflict

User conflict usually related to the use of motorised vehicles and trail bikes on the trails. However there were a few comments implying that other users such as walkers and mountain bike riders were the source of user conflict. A number of comments such as:

- *"Ban all trail bikes and 4wd, provide suitable areas for these activities away from mtb trails, horse riding and walk trails".*
- *"Keep them well maintained and keep the trail bikes and 4WDs out because they cause so much damage and erosion.*
- *"Areas designated for motorised vehicles to keep them off of walk/cycle trails".*
- *"Ban Mountain Bikes - send them to Greenmount NP where the bush is already ruined".*

12.10 Catering for all Abilities

A number of responses centred on catering for all abilities, with comments including:

- *"A large, varied, integrated, well designed and professionally managed network of mountain biking trails to service the massive growth in the sport of mountain biking and the demand of a city of 2 million people. This is, obviously, a massive economic opportunity for the area with most mountain bikers being affluent people".*
- *"Speaking purely from a mountain biker's perspective - having enough marked trails to satisfy demand, and that these trails **cater to all levels of ability**".*

- *“From a mountain bike perspective some multiple line trail features that allow for natural progression, so a trail feature that has multiple lines of different difficulties but a similar skill set / style e.g. a series of drops, ranging from a rollover (green) through to a 6' drop (double black) that all utilise the same landing, allowing people to progress as skills & confidence increases”.*
- *“Smaller tracks closer together with variations of skill and fitness on them”.*
- *“Further development of a sustainable mountain bike trail network to cater for the growth in the sport and the population of metropolitan Perth. The network must encompass trails suitable for all levels of participants to **encourage active participation in recreational activity**”.*
- *“More variety of MTB trails to suit all levels of ability”.*
- *“Targeting the whole community not just walkers Establishing a good network of Mountain Bike trails for the whole family to enjoy encourages a younger generation of user to enjoy the Perth Hills”.*
- ***“More technical trails”***
- *“Mountain biking! There is only 22 km of legal 'single-track' to ride. It is only for an intermediate level of rider”.*
- ***“More intermediate MTB circuit”.***

12.11 Location for New Mountain Bike Trail

- *“Develop a MTB and walkers trail network in the **Roleystone/Kelmscott** area. The trail networks in the Kalamunda area are top class in my opinion and have attracted a many new MTB riders to the area. There is no reason why a similar trail network would not be as successful further to the South of this area which would help to draw in tourists and local recreation seekers alike”.*
- *“I feel that we have some great trails, but linking them up, spreading them out over the hills and having better access is what is needed as well as better signage. There is very little for cyclists on the **northern side** of the hills”.*
- *“More and better Mountain Biking trails; there is an opportunity to turn the Perth Hills into a major centre for this activity with tourists coming from the Eastern States to use them. A dedicated Mountain Bike parks that offers a lot more than the Goat Farm would attract people from all over Australia, you can look at **The Victorian Alps and Melrose in S.A** for examples of this”.*
- *“More well marked trails closer to the city with more features such as jumps/gaps and downhill sections for more fun and aggressive trail riding”.*
- *“**Opening up** more trails for mountain biking so that riders can be spread out over more trails. This will result in less congestion and less trail wear”.*
- *“Spread the load on MTB riders from Kalamunda circuit by building MTB trails at either **JFNP or Lake Leschenaultia**”.*
- *“**JFNP** could be a prime location for riding due to proximity to Goat farm (link the two), facilities, parking and terrain”*
- *“Increase number of quality single track trails for mountain bike riders of varying abilities - there are limited trails in **close proximity to Perth CBD**”.*
- *“Building more trails away from Kalamunda, developing areas along the Munda Biddi between Kalamunda and Jarrahdale, South West of Jarrahdale (Gooralong Park), Mount Dale, Mount Cuthbert”.*
- *“More mountain bike trails closer to the metro area”.*
- *“There is the opportunity to develop a world class mountain bike trail network within close proximity to a significant population. Every week the number of people up there is growing significantly”.*
- *“More trails in Northern suburbs”.*

12.12 Linkages and Loop Trails

A number of respondents stated that their highest priority was linking trails and increasing the number of loop trails.

- *“Linking of trails”.*
- *“An expanded and ideally **linked network** of different trails for all abilities”.*
- *“More trails linking off existing trails”*
- *“**Linkage** to local centre to reduce car usage”.*
- *“Clear strategy for linking MTB trails in the region to have either point to point rides or a series to loop trails that can ensure rides of around 1hr to long all day epics (i.e. 6+ hrs.)”.*
- *“Further development of trails. Improving transport links to trails”.*
- *“Link town centres”.*
- *“The majority of people visiting the hills are looking for **loop** circuits or trails from a good central location. Often good facilities for families are wanted nearby too. I strongly feel the railway reserves heritage trail can be improved and developed to access local attractions and other trails. Use the RRHT as the linking piece in the trails master plan puzzle”.*
- *“More single tracks, a whole collection of them. Short, long, **all interconnected** to provide different loops option”.*

12.13 Amenities/Facilities

- *“**Better facilities**”.*
- *“Restrooms along Trail”.*
- *“Vehicle access and parking toilets”.*
- *“It would be good if there were a few more campsites adjacent to national parks maybe?”.*
- *“Facilities - it would be nice if there were BBQ's, picnic tables around. would keep me coming back and in the area longer”.*
- *“Some water stations would be nice, but not totally necessary Access to drinking water”.*
- *“Facilities at a lot of popular sites are poor”.*
- *“I would love to see designated camp grounds associated with the single track trail network. I love mountain biking and camping down south in Dwellingup for this very reason. Plus this could possibly help see a 24hr bike race close to Perth”.*
- *“Fires....what is it with DEC getting rid of woods fires/BBQ's around the place. Please stop this. Fire pits add so much more than a sterile electric or gas BBQ. At least give the option of the 2”.*
- *“I don't think we need more trails in the forests, and I don't think we need **more facilities**. Keep the forest and trails as wild and untouched as possible”.*

12.14 Trail Specific

Outlined below are the comments that relate specifically to the individual trails of Camel Farm, Kalamunda Circuit, Goat Farm and Mundaring and Forsyth's Mill.

12.14.1 Kalamunda Circuit and Camel Farm

Suggestions and comments relating to the Kalamunda Circuit included:

- *"The new Kalamunda circuit is great, so more of that please".*
- *"I've certainly seen many a beginner rider on the Kalamunda circuit leave intimidated and scared witless. There isn't anything in between the rail type tracks and the blue circuits."*
- *"More trail options. Many of the trails used for Mtb or shared Mtb/walk trails are very busy and congested on weekends. Heavy use of Kalamunda circuit has led to trail condition deteriorating however given the high volume of use it is amazing how well it is holding up!"*
- *"The number of trails in the Kalamunda/ Mundaring area needs to increase as the current usage on the Kalamunda Circuit trail is excessive and is resulting in increased wear on the trail. If additional trails are available then the load would be shared resulting in reduced wear & maintenance".*
- *"Build onto the Kalamunda Circuit Mountain Bike Trail and create a network of 200 kilometres of trails to suit all types of rider's skills".*
- *"More mountain bike trails with links to Kalamunda along with better signage and more trails (much more) of all levels of difficulty, green, blue and black in order to assist riders in progressing to the more challenging riding while also facilitating the demand that currently exists and is growing every day".*
- *"Kalamunda Circuit is great, but there's lots of opportunity in the area to extend this. Riding two laps of the same 18km trail each week gets a little dull."*
- *"The existing trails are quite extensive and well maintained, however it would be nice to have more options for mountain biking other than Kalamunda Circuit and Forsyth's Mill".*
- *"Harder Obstacles and Bigger Jumps for the more skilled riders on the MTB trails through Kalamunda".*
- *"More MTB trails to reduce overuse of existing ones. Kalamunda Circuit has attracted more and more people but the trail is wearing away rapidly".*

Suggestions and comments relating to the Camel Farm Trail included:

- *“Add more loops from camel farm”.*
- *“Reduced technical nature. Easier for my age and ability. Like the Camel Farm is too technical and dangerous to attempt without company for safety”.*
- *“More Single tracks like the Camel farm/Kalamunda circuit”.*
- *“More variety of loop XC blue diamond trails from Camel farm area including a variety of terrain/DH. Variable length loops/more single track. Maintenance of existing trails - also a problem”.*
- *“Expansion of the current mountain-biking trails in the Camel Farm / Dell / Farrell Grove area”.*
- *“The owners of the Camel farm do a great job in promoting use of the area. There should be a gold coin donation for parking and use that goes to the operators of the camel farm and to fund trail building and maintenance”.*
- *“I really like the 'blue trails' around the camel farm and Forsyth's”.*
- *“I only park at the camel farm now as there are always people around”.*

12.14.2 Goat Farm

- *“Improvement to the Goat Farm trails would be a good place to start - trails are short, signage is poor and there seems to be lots of ""unofficial"" trails which confuse things. The skills park was a great initiative but it would be nice to be able to go to the Goat Farm and ride for 1-2hrs on quality trails like Kalamunda Circuit and Forsyth's Mill”.*
- *“Skills parks like at the goat farm”.*

12.14.3 Mundaring and Forsyth's Mill

- *“There are places in the hills between Mundaring and Forsyth's Mill that have single track in them already. These are slowly becoming overgrown as they are virtually unused nowadays. So how about widening the focus and maybe doing some form of audit of what is available in the open and legal trails. You won't identify them from aerial photos or Google Earth pics as many tracks don't show up. However, I doubt we will get away from the overly bureaucratic development and assessment of trails, but we can but hope :)”.*

12.15 Trail Users

Outlined below are the comments that relate specifically to a particular user group.

12.15.1 Variety of Mountain Bike Disciplines

- *It would be very interesting to see some sort of slope style type riding area in the hills as the majority of freestyle riders (BMX and MTB) have to put up with unforgiving, repetitive, scooter ridden skate parks.*
- *This includes more trails being built across all disciplines and ability levels (cross country, all mountain, down-hill, skills development).*

12.15.2 Walk Trails

- *“Substantial walk trails such as Eagle View Trail (versus very short 'trails' which don't offer any real 'wilderness' experience and disappoint visitors who may have travelled significant distance to visit them and won't come back for more). Plus good trail information and signage maintenance”.*
- *“Cut new foot tracks - single file tracks are better to walk on than 2 metre firebreak trails”.*
- *“Limit steps being placed onto walk trails - they make the going harder, not easier”.*
- *“From a walking perspective, some lengths of the Bibbulmun between Kalamunda and Camel Farm are incredibly poorly designed from a conservation perspective with the trail running straight down hills and as a result eroding”.*
- *“Many of the existing short, family-type walk trails are not particularly interesting and do not offer the public the best of the potential walk opportunities that could be developed and made available and would encourage families to come back for more. Brochures that make short walks sound more exciting than they really are do not ultimately. For a good example of how one family has made the most of walk opportunities in the region see <http://nationalparktrips.blogspot.com.au/2008/01/bells-rapids.html>*
- *“There are many opportunities for a greater range of interesting walk trails in the Perth Hills which have not been pursued. Many walk routes for experienced bushwalkers are already included in comprehensive info on www.walkgps.com which is widely used by the public but ignored by Shire of Mundaring, DEC, etc. Most of these are probably best left undeveloped, but some could be developed into outstanding formal trails and take pressure off the Bibbulmun Track which is being used a lot now by day walkers. In particular, areas such as the extensive wandoo woodlands under DEC management east of Mundaring (e.g. Wandoo National Park along Yarra Rd) could provide some great walking opportunities that are currently largely unknown to the general public except via www.walkgps.com. Unfortunately DEC has not yet developed a National Park Management Plan for Wandoo*

NP which may be necessary before any trail development could proceed. We belong to the walking group which has remapped and produced the trail notes for the 20 or so walks in the Kalamunda region. We would like to be included in any future planning, and would be pleased to contribute whatever we can to the project.

12.15.3 Bridle Trail

- *“Where horses use the trails as galloping tracks, such as in Darlington then maintenance more often”.*
- *“Don't have change speed up zones where trails cross roads. eg in Darlington and in Chidlow the speed limit in changed up from 50 to 70 or 80 just before the trail crossing points”.*

12.15.4 Trail Bikes

- *“More trails for trail bikes! and trails or ORV areas for kids that are unregistered where families can go for the day eg Pinjar ORV area where one trails are being constructed for Peeweews, families, intermediates and advanced. There is so much room in the hills and the ground is much firmer than along the coast where it is too sandy”.*
- *“Purpose built MTB trails, provide somewhere for off road motorbikes so that they don't use (and damage / destroy) other tracks i.e. Kalamunda circuit”.*
- *“..... many illegal motorcycle riders in the Hills area and I wonder if this is because of a lack of legitimate trails for them to ride, whether as a collective they are not organised enough for advocacy or whether most just don't care. I suspect it is the latter point and hence my thoughts on priority”.*
- *“Currently I can ride (or walk) on 100km+ of trails within 5km radius of Mundaring and not meet another MTB rider, walker, horse rider or human! I don't include the heritage or Munda Biddi in that number. I may run into a 4wd exploring or a motorcycle rider but these are so few as to be very rare. Incidentally I've never experienced any problems with these 4wd, MX, Horse riders or walkers in the years I've been on the trails. The focus on the KC has, IMO, led to overcrowding or overuse there”.*

13. Further comments

13.1 General Positive

- *“**Really happy** the mountain bike trails that have been built recently and the momentum to keep building seem to be to keep building which is really encouraging”.*
- *“Keep up the good work!”*
- *“The **volunteer** work for trail building and trail maintenance is **exemplary**. The background volunteers who attend meeting and plan works in their own time should be recognized for their hard effort by the trail using community. If the full support of local authority and sufficient funding is raised there are no reasons why the Perth Hills cannot become the main hub for trail riding in Western Australia”.*
- *“The recent trail building (Mercury St, Muffin Tops etc.) has been a **HUGE improvement** on the quality of MTB trails in the Perth Hills - this is a huge step forward. The funding and co-operation of Government Dept.’s is fantastic and the planned new trails etc. that are under construction will be another fantastic addition to the Perth Hills mountain bike scene”.*
- *“Keep up the good work. We love exploring the Perth hills! :-)”*
- *“**Great work** by WAMBA and PMBC and the numerous volunteers to build the mtb trails network”.*
- *“Well done for looking into these types of things please let us know the results, it would be good to see actions or results which might encourage more people to complete the survey”.*
- *“I would like to **thank** the **Ratepayers** of Kalamunda and Mundaring for agreeing to foot the bill so that folks like myself and my friends can go walking in the bushlands that are so close to the city of Perth. Also to thank **Trans Perth** for providing the buses that transport us so easily and cheaply to a lot of the places that we love to go walking, as most of us no longer choose to use private vehicles. I think Trans Perth, along with the local councils could make a lot of improvements in selling the BIG idea that buses are best ways in which to visit these walking areas. For example, catch the bus from Midland Station to John Forrest, walk through John Forrest to Pechy Road via the tunnel and then catch a bus back to Midland Station.....”*
- *“I came here from Noosa QLD to ride your trails and holiday, have **loved it**. Sadly will only be here for two weeks this time, but will be back. keep up the good work and there will be lots more following me”.*
- *“We have some awesome trails for MTB around Perth and the **Govt. Depts.** should be **congratulated** for allowing the citizens to use our land instead of locking it away as they do in National Parks. The sport is low impact on the environment and has massive public health benefits, and should be encouraged”.*
- *“Thanks for taking the time to ask our opinions =)”*

- *“Volunteers are doing a good job to help maintain the trails. Without them there will not be a place for MTB riders to enjoy the sport. Everyone who is passionate about MTB should take ownership and help make the trails last for many years to come”.*
- *“As a mountain biker, I would like to thank the people that have assisted the maintenance and building of mountain bike trails in Perth. however I think a lot more can be done, I volunteer time to work on trails such as the Kalamunda circuit, but we need more trails for downhill mountain bikers, like myself. I know there a some downhill trails planned for Mt Gungin this year, but there is so much potential for quality downhill trails all over the Perth hills region. it would be great to see some fresh downhill mountain bike tracks in new areas in Perth hills, because we have so much potential. the more downhill trails we have, the better!”*
- *“It's got much better, but we still have work to do”.*

13.2 Unsanctioned Trails

- *“This survey only focuses on a few trails and does not bring into the limelight illegal trails that are heavily used. If we are going to be realistic about trail use in the Perth hills then assessing use of ALL trails must be done. I feel this survey can miss the true picture of what is going on and lead to skewed results”.*
- *“The question asking about what trails have you used misses many current unsanctioned trails that are used by mountain bikers”.*
- *“The only way to stop mtb riders using illegal trails is to build better trails that are legal - which is currently being done!”*

13.3 Trail Hubs

- *“There is a good opportunity to create a trails hub. I have seen the success it brings to Canada and New Zealand”.*
- *“I believe by building a 400+ kilometre network of sign posted mountain bike trails in the Perth hills of which some could be dual use it would establish the Perth Hills as an Icon trail network that will attract visitors from throughout the world”.*

13.4 Other Issues

- *“The focus on, and demand for, maintained trails has resulted in expectations of smooth trails with no obstacles and, to the detriment of etiquette, a focus on speed and 'strava loutish behaviour'. Like some others, I tend to avoid those circuits now. This focus has also made it difficult for the various stakeholders to open more trails as the "how do we maintain the trails and what's it cost" stops further development. For example, the Mundaring Loop was closed as*

the cost to maintain it could not be met. I use some of that loop and it is better (more interesting and challenging) than the maintained trails. We don't need maintained trails as long as the info is there that this trail is of X standard. rough surface and expect obstacles”.

- *“Mountain biking is one of the most popular sports in Perth but it receives little or no attention by the state and local government. The Kalamunda Shire has the opportunity to develop a really strong mountain biking identity which would be a significant benefit for the local economy. Over 400 riders travel to the Kalamunda Circuit every weekend to ride. There are two mountain bike races run by Single Track Minds in the Shire each year (Jorgensen Park four-hour and the Kalamunda 50/50). They have more than 400 riders attending each. The Shire should be getting behind the sport and its peak body (WAMBA) to realise the massive potential that mountain biking could bring to shire. With the right support, it would be possible to build trails linking Pickering Brook, Kalamunda Circuit, Jorgensen Park, the Rail Trail and Mundaring with Kalamunda being the epicentre”.*