A Priority Project for the Albany Trails Hub Strategy

ALBANY HERITAGE PARK TRAIL NETWORK CONCEPT PLAN

COMMON GROUND

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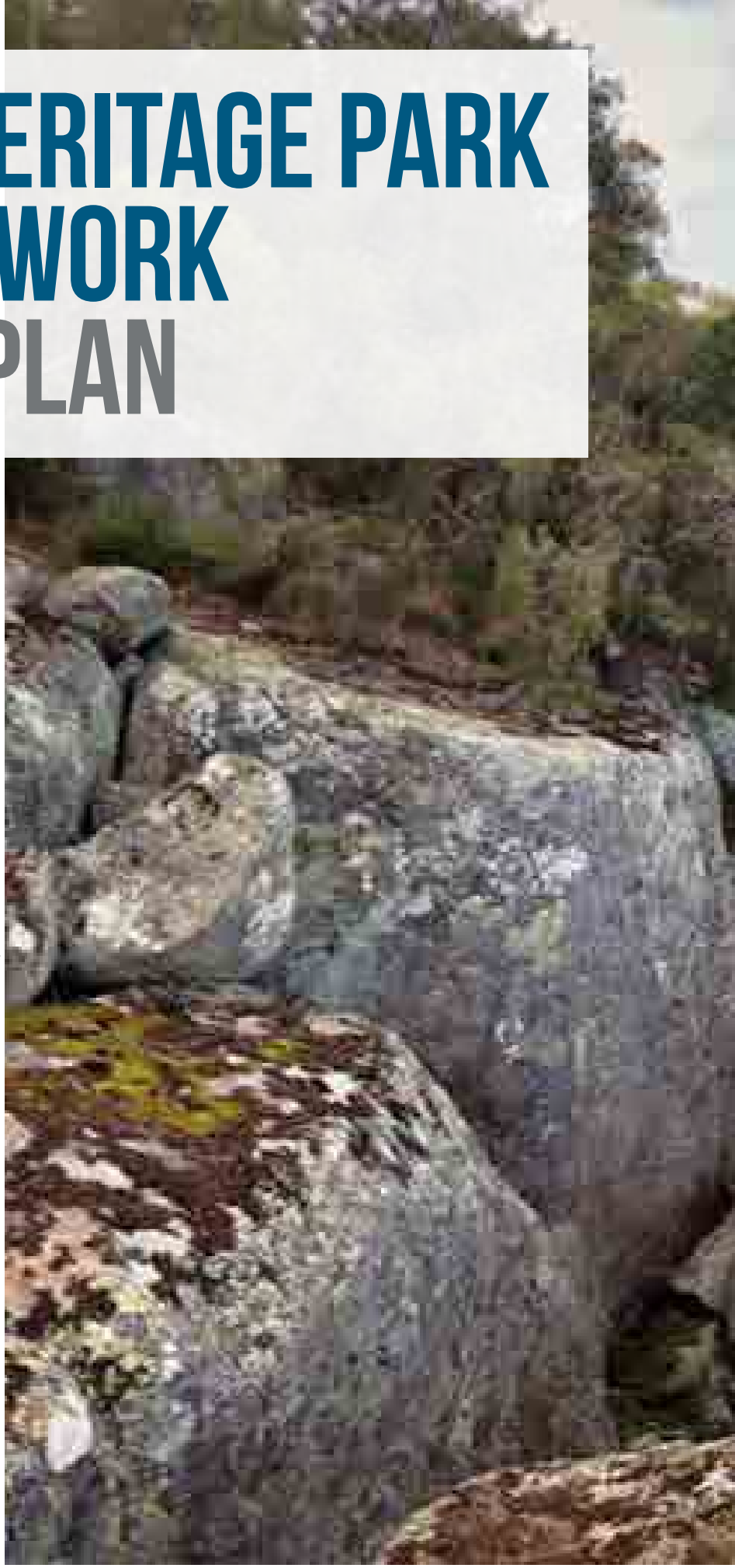

Prepared by Common Ground Trails Pty Ltd for
City of Albany
www.albany.wa.gov.au

ACKNOWLEDGEMENTS:
The authors of this Albany Heritage Park Trail Network Concept Plan acknowledge that this land on which we live and work is Noongar country, and we pay our respects to Elders past and present.

Common Ground Trails wishes to acknowledge the significant contribution of the project steering committee as well as the valuable input from community interest groups, stakeholders, organisation representatives, users and individuals.

PHOTOGRAPHY:
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EXECUTIVE SUMMARY

The Albany Trails Hub Strategy 2015-2015 was developed to provide strategic guidance to assist the City of Albany to become a World Class Trail Tourism Hub. The first priority project identified from the Strategy was the Albany Heritage Park Trail Network Project (the project).

The project will result in a network of world class walking, mountain biking and interpretive trails that will provide sustainable benefits to the Albany community. The consolidation and rationalisation of existing trails, creation of new high quality trails and links, and the closure and rehabilitation of unsustainable trails, will result in better accessibility and utilisation of the trail network.

The project aims to achieve a cohesive, high quality network of trails that will provide recreation users and visitors with an enjoyable and safe experience.

The Albany Heritage Park is a parcel of native bushland representing one of the City's most important biodiversity, heritage, recreation and tourism assets. The protection of these values is a cornerstone of the proposed trail network development.

The park is located centrally to the City, offering a highly accessible facility and introduction to the trail opportunities in the region. The peaks of Mt Clarence and Mt Adelaide, the connecting ridge line and the surrounding oceanic interface provide highly desirable terrain and stunning viewsheds for trail users.

The concept plan within this document was developed in consultation with the local community and potential user markets, to identify a suitable mix of experiences that capitalise on the area's unique attributes.

The concept planning process, undertaken in accordance with the recommendations of the Albany Trails Hub Strategy and the Western Australian Mountain Bike Management Guidelines, involved detailed site inspections, trail auditing and broad ecological assessments of the project area. The outcomes of the planning process identified opportunities to enhance existing infrastructure and establish the area as a world class trail facility, while protecting the important biodiversity and heritage values.

The proposed trail network comprises a variety of trail experiences to achieve the desired outcomes as detailed in the Albany Trails Hub Strategy. The network provides the full spectrum of nature experiences, from peaceful contemplation and wildlife watching, to recreational walking, bushwalking and adventurous mountain biking that caters for existing local demand. Additionally, the network captures new markets, catering for a range of user types and abilities.

The composition of the proposed trail network is provided below:

TRAIL	TRAIL QUANTITY (M)
Existing alignment (singletrack or fire break)	13,572
New trail construction	25,398

TRAIL TYPE	TRAIL QUANTITY (M)
Dual use	20,207
MTB	13,265
Walk	5,498

The total cost of the project is estimated at approximately $3.2 Million, which includes design and construction of the trails. Capital costs have been estimated on the basis of a very high quality finish, including landscaped elements.

Trail management and maintenance will require resourcing beyond the current capacity of the City, and recommendations have been made to establish an appropriate supporting management model.

Adoption of the recommendations of this concept plan will establish the Albany Heritage Park as a new benchmark for sustainable trail facilities in Western Australia.

OVERVIEW

ALBANY TRAILS HUB STRATEGY

The City of Albany Trails Hub Strategy was developed to provide strategic guidance to enable the City to become one of Australia's primary trails destinations. The Trails Hub Strategy was endorsed by Council in 2015. Seven key projects were identified for the City of Albany, with the first priority project being the Albany Heritage Park (AHP).

The Vision for the Trails Hub Strategy is: A World Class Trail Tourism Hub situated around high quality trail systems, supported by a complete package of hospitality and visitor services set within our unique natural landscapes. The Albany Trails Hub Strategy reviewed the entire supply and demand of trails and user groups, and significant gaps in all areas were identified. The Trails Hub Strategy identified suitable locations for trail development, and further recommended the most appropriate development for each location, including which user types and trail styles should be catered for.

PRIORITY PROJECT – ALBANY HERITAGE PARK TRAIL NETWORK

The Albany Trails Hub Strategy identified nine priority projects to be implemented with the aim of developed Albany as a Trails Tourism Hub. The Albany 'Mounts Precinct', or the Albany Heritage Park, where Mt Clarence and Mt Adelaide are located, was identified as the highest priority project.

The existing social network of trails has very high demand for mountain bike trails as well as walk and interpretive trails. The mountain bike trail supply in this area is less than 1km of advanced classification trail, which caters for a limited market. The demand for lower classification mountain bike trails is evidenced by mountain bikers riding on many of the existing walk trails.

The Albany Heritage Parks' proximity to the city centre presents excellent potential for visitors. The Trails Hub Strategy identified the excellent opportunity to address ongoing management issues and user conflict while promoting formal recreation and tourism utilisation, through provision of a logical, well signposted trail network.

PURPOSE OF THIS PLAN

This plan was commissioned by the City of Albany, to progress the Albany Heritage Park (AHP) trail network through the Trails Hub Strategy development process, from Feasibility to Concept Plan. The Plan documents the processes and outcomes of:

Community and stakeholder engagement

- Review of legislative requirements, land use and management practices
- Evaluation of impacts on landscape, environment and heritage values
- Review of location, access, ground conditions, recreational use, visitor risk management, constraints, conflicts and sensitivities

The concept plan includes key locations of trail heads, configurations of trails, alignments of corridors, estimates of development costs and recommended construction staging. Trails and associated infrastructure have been planned to enable improved protection of the natural and cultural values of the AHP.

Where appropriate, the retention and upgrade of existing alignments has been recommended. However, the focus of the development has been on rationalising and consolidating trails to transform the network into a cohesive, high quality, desirable and sustainable facility for a wide range of users.

The network has been designed with consideration to existing demand, management issues and potential opportunities. The introduction of shared use trails will maximise the quantity of trail available to users, whilst minimising impact on the extremely valuable flora and fauna. Conflict management techniques, including a code of conduct and yield hierarchy have been recommended to improve all trail experiences.

Community and stakeholder input was sought at various stages to identify, discuss and address broad issues and opportunities influencing the design of the network.

Further stages of development, including detailed on-ground corridor evaluations, detailed design, further community

engagement and construction, have been recommended to allow for investment from the land manager and potential funding partners.

PROJECT AREA

The project area encompasses a total area of approximately 242 Hectares, bound by the city centre, Princess Royal Harbour and Middleton Beach.

The area is made up of a number of reserves located on Crown land, with management responsibilities held primarily by the City of Albany and a number of other significant stakeholders. Water storage and reticulation and power line easements occur within the reserve. A number of Aboriginal Heritage sites exist within the reserve and are protected under the Aboriginal Heritage Act 1972.

PROJECT OBJECTIVES

The following objectives for the project were developed in collaboration with the Project Control Group, in consultation with potential project partners, and in response to feedback from the Albany community.

Create a high quality, accessible, cohesive and sustainable network of trails that:

- Provides the full spectrum of nature experiences, from peaceful contemplation and wildlife watching, to recreational walking, bushwalking and adventurous mountain biking that caters for existing local demand
- Attracts new visitors to Albany, and invites visitors to explore and experience the natural beauty that reflects the whole region, right in the middle of town
- Encourages visitors to extend their visit or return again
- Consolidates and rationalises opportunities to enhance the amenity and stories unique to Albany
- Connects key areas of Albany, such as the City Centre and Middleton Beach
- Features and interprets the natural landscape of the Mounts, and the wider region
- Creates new business, training and employment opportunities
- Captures the adventure sport market (walking, running, mountain biking, multi-sport events)
- Creates a legacy and community resource including facilitating opportunities through schools and other educational institutions
- Reduces user conflict and development of unsanctioned trail

Through

- Undertaking best practice, sustainable design and construction practices
- Upgrading, realigning, improving or rehabilitating where existing trails and access tracks are unsustainable
- Creating new trails, links and connections
- Providing event facilities to host high quality events that attract adventure sport market (for whom events are a primary driver)
- Creating a code of conduct for all trail users to clarify and promote good trail etiquette

While

- Recognising and considering front of mind the AHP's underlying conservation, ecological and cultural heritage (Indigenous and non-Indigenous) importance
- Maintaining diversity of flora and areas protectable from Phytophthora cinnamomi (dieback), and protecting species of significance
- Considering the potential impacts on surrounding residents
- Considering future maintenance and management requirements

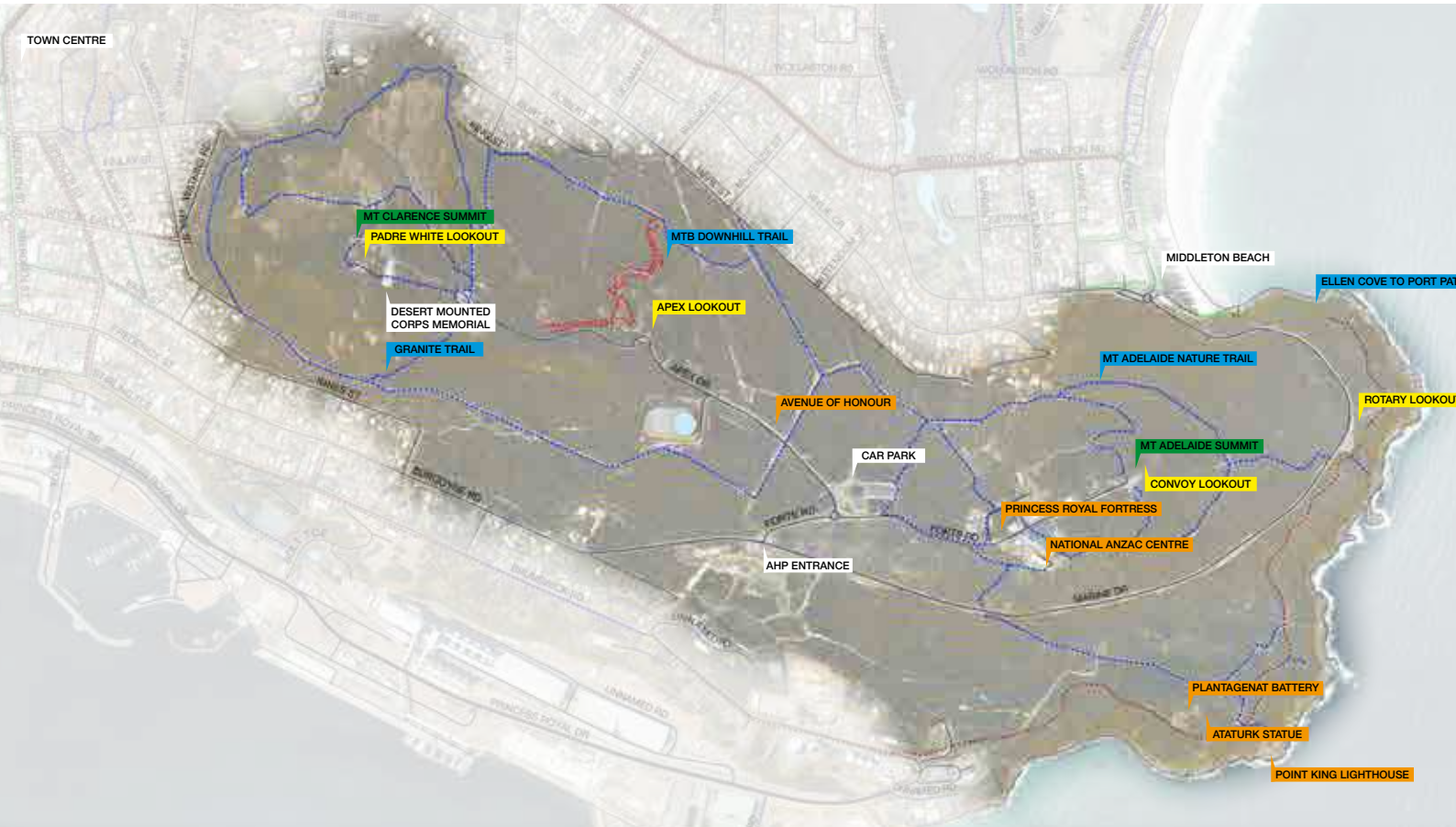


Figure 1: Project Area

POLICY & PLANNING REVIEW

SURROUNDING TRAILS AND REGIONAL CONTEXT

The following strategies, policies, guidelines and plans have been reviewed in the preparation of this plan.

WESTERN AUSTRALIAN STATE TRAILS STRATEGY

The State Trails Strategy (Department of Sport & Recreation, 2008) outlines the strategic direction for the Western Australian trails sector for the period 2009-2015. The Strategy was under review at the time of writing this plan. It supports and complements trail based initiatives, and embraces the various sectors by articulating high-level principles, directions and outcomes rather than prescriptive action. It outlines the purpose, guiding principles, vision, opportunities, strategies and suggests implementation roles for developing trails. The Albany Trails Hub Strategy as well as this concept plan are aligned with several of the strategy's objectives.

WESTERN AUSTRALIAN MOUNTAIN BIKE STRATEGY

The Western Australian Mountain Bike Strategy (WestCycle, 2015) provides the over arching framework and hierarchy of planning and development for mountain biking in WA, and it identifies the Great Southern as a mountain bike hot spot requiring regional level master planning to provide guidance for prioritising more detailed levels of site planning.

WA MOUNTAIN BIKE MANAGEMENT GUIDELINES

The Draft Western Australian Mountain Bike Management Guidelines (Parks and Wildlife, 2015) were developed by Parks and Wildlife to provide a development and management process for sustainable mountain bike trails, using world's best practice planning, design and construction principles. Protection of Western Australia's unique and significant biodiversity and prevention of environmental impact is the key consideration of the guidelines.

ALBANY TRAILS HUB STRATEGY (2015)

The City of Albany Trails Hub Strategy 2015-2025 was developed to provide strategic guidance to assist the City of become one of Australian's primary trails destinations situated around a high quality trail system, supported by a complete package of hospitality and visitor services. The Strategy identified broad objectives and trails initiatives, including the Albany Heritage Park Trail Network as a priority project.

SITE SPECIFIC PLANNING DOCUMENTS AND RELATED LITERATURE

The following existing government documents providing policy direction, guidance or support for the project as well as site and technical information were reviewed as part of the development of the concept design:

- Albany Regional Vegetation Survey (2010)
- Fuel Management Strategies and Works Program for Specific Areas of Land Managed by the City of Albany (2015)
- Age-Friendly Albany (2016-2020)
- Access and Inclusion Plan (2012-2017)
- City Mounts Management Plan (2006)
- Mount Clarence and Mount Adelaide Bush Reserve Fauna Survey (2002-2011)
- Distribution and Fire Response of Threatened and Significant Fauna Species within the Mount Clarence / Mount Adelaide Bush Reserves (2012)
- City of Albany Aboriginal Accord (2003)

OPPORTUNITIES

Understanding current trends in community participation and provision of trail facilities in Australia and worldwide is important to determine the type and scale of development appropriate to the AHP. There are many examples of established facilities that successfully cater for and attract sufficient recreation and tourism visitation to enable sustainable facility management.

The demand for trails in the AHP is driven by the size of the target market, the frequency of participation and their proximity to similar existing facilities.

DEMAND AND MARKET ANALYSIS

The proposed development will create a tourism and recreation resource for visitors to and residents of Albany. The Albany Trails Hub Strategy identified that connections to the Albany Harbour Path and the City Centre would promote formal recreation and tourism utilisation of the trail network.

The objectives of the development include attracting new visitors to Albany and encouraging visitors to extend their visit or return again. It also aims to capture the adventure sport market through events. The network aims to provide for a wide range of user types, from those seeking peace and quiet contemplation in nature, to the more extreme style of downhill mountain bike racing.

This will be achieved by providing a range of high quality single and shared use, and single and dual direction trails. The trail system will need to cater for:

- Existing users of the AHP
- Growing recreation based mountain bike community
- Predicted increase in mountain bike destination travellers
- Increasing number of local and travelling school groups
- Increased interest in ANZAC / Military and Noongar history
- Tourism market seeking additional activities and opportunities
- The needs of people of all abilities and the ageing population, in alignment with the City of Albany's Access and Inclusion Plan 2012 - 2017 (City of Albany, 2014) and Age Friendly Albany Plan 2016 – 2020 (City of Albany, 2016)

TARGET USER GROUP DEMOGRAPHICS

Determining the target market and demand for trail facilities in the AHP has involved exploring local demographics as well as the demand from the existing local enthusiast markets. The Albany Trails Hub Strategy identified the existing demand and market potential for the AHP trail network.

A primary focus is catering for the leisure cohort via strategic connections and dual use trails. Leisure users include general trail users of all ages and abilities and is potentially the largest market. Typically they use trails infrequently, have limited experience on trails and require very accessible experiences. They are not members of clubs and they are more likely to use highly accessible routes close to home or key destinations. They will make the journey to trail facilities with amenities and services such as bike hire, cafes and toilets. This group will generally seek the easiest classification trail.

Due to its location and proximity to the Albany city centre, high level of accessibility and its regional significance as an urban trail network, it is likely to be popular with the typical leisure and enthusiast demographics.

TARGET USER GROUP - WALKERS

The Albany Trails Hub Strategy identified walking as the most popular trail activity in Albany, and concluded that Albany has a sufficient quantity of walk trails overall. However, the supporting elements are inadequate to meet the requirements of a world class destination. Subsequently, a secondary focus of the AHP Trail Network is on improving walking trail quality, safety and promotion.

Older walkers are currently overrepresented in this user group, which could be attributed to the ageing population in Albany and its current brand positioning attracting the older demographic.

The objective of the network is to provide grade 1-3 bushwalking trails to cater for new and existing user groups, including nature watchers and appreciators, recreational walkers, dog walkers, bushwalkers and trail runners. The natural values and historical use of the site dictate that bushwalking style trails are appropriate.

TARGET USER GROUP - MOUNTAIN BIKERS

The Albany Trails Hub Strategy identified the opportunity for more

mountain biking in Albany, as well as the potential to attract the younger demographic and new user markets.

In order to achieve this, a secondary focus of the network is catering for the enthusiast mountain bike cohort with a single use trail network. Enthusiasts are purely recreational mountain bikers with moderate skills and variable fitness, and ride weekly. They are typically aged 29-49 and form the existing market majority. They typically don't compete in events and they possess limited outdoors experience. They prefer trails with good trail signage and seek technical but not too challenging trails. Enthusiast mountain bikers are the most likely to take short breaks to different areas. This group will generally seek easy and moderate classification trails. As they progress, they will start to ride difficult classification trails.

A tertiary focus is on catering for the sport and gravity cohorts within the greater trail network and event-specific facilities. Topography and value of landscape, and historical use of the site dictate that both cross country and gravity mountain bike styles are appropriate. Park trail styles including skills park will be provided for in a limited capacity.

The primary use of the trail network will be for recreation. Trails should be linked appropriately to potential event staging areas, spectator access and facilities to allow for ongoing use of the area for mountain bike and other events. Spectator based events (such as downhill mountain bike racing) infrastructure may be developed in areas of less environmental value where appropriate, and impacts of viewing areas for spectators must be considered. Non spectator based events (such as long distance events) may be appropriate where it can be demonstrated they will not have a negative effect on the landscape.

ACCESS AND INCLUSION

In accordance with the Albany Trails Hub Strategy's vision to establish the City of Albany as one of Australia's primary trails destinations, the trails will need to be supported by appropriate infrastructure, services, experiences and management to meet the needs of all users.

PEOPLE WITH DISABILITY

It is estimated that over 20 percent of Western Australians have a disability, and this number is expected to increase due to the ageing population. People with disability face barriers with everyday activities, such as climbing stairs, hearing or understanding what is said and reading and understanding signage.

AGEING POPULATION

Recognised as an attractive retirement destination, Albany has a significant number of aged and retirement accommodation. Older residents desire outdoor spaces with well maintained amenities, paths and clear directional signage.

The City of Albany Plan, Age-Friendly Albany 2016-2020, identifies the importance of public spaces in encouraging active living. With the aim of improving inclusiveness, safety, comfort and accessibility of these facilities for seniors, the plan identifies ongoing management actions.

INTERNATIONAL VISITORS

While the intent is to provide a facility that attracts international visitors, this group is very diverse, and has a wide range of requirements. Many visitors to Australia are seeking highly accessible outdoor nature experiences, while not necessarily seeking the adventurous element.

The Albany Trails Hub Strategy identified a key tourism market, the 'Experience Seekers', who are highly likely to undertake trails and outdoor activity, like to stay longer and spend more in regional areas. They constitute around 30 to 50% of all potential long haul travellers from Australia's key source markets.

A significant number of tourists visit the AHP from cruise ships. There is potential to increase this visitation with the provision of highly accessible, high quality experiences that can be completed in a short duration and do not require specialised clothing or equipment.

PARTICIPATION

In 2009, 52% of the Western Australia population participated in walking for recreation, while 9% participated in cycling for recreation. Overall, a higher proportion of females compared to males walked for recreation (65% vs 53%), while a higher proportion of males compared to females cycled for recreation (12.4% vs 7.9%). (Be Active WA Physical Activity Taskforce, 2009).

Recreational participation in mountain biking has been rapidly increasing in WA. According to the Western Australian Mountain Bike Strategy (WestCycle, 2015), around 405,000 people ride at least once a week and one million people ride at least once a year. Almost 120,000 mountain bikes are purchased every year in WA and nearly one of five people in WA owns a mountain bike. Popular existing trails in the Perth Hills attract up to 50,000 rides per year (based on wheel counts).

Trail users who responded to the user survey (Refer Appendix 4 – Fully Survey Report) indicated that of the total estimated visits to the AHP each year:

- 30% were for walking trails or dog walking
- 14% were for mountain biking
- 12% were for the lookouts
- 12% were for running trails
- A small percentage were for historical, interpretive or culturally significant sites

Survey respondents indicated that if walk trails were improved on the AHP:

- 74% would use the walk trails
- 43% said they would use grade 5 walking trail (the highest grade recommended for very experienced bushwalkers)

Survey respondents indicated that if mountain bike trails were developed on the AHP:

- 52% would use them
- 82% of users would prefer a network catering for all skills levels and a range of trail styles

WORLD CLASS TRAILS DESTINATIONS

TRAIL DESTINATION SIGNIFICANCE

The Albany Trails Hub Strategy identified the proven potential for mountain bike trails to bring a new user group and associated economic benefits to the City, and have identified mountain bike trails as the highest priority on the AHP site.

The strategy recommended development of the mountain bike network to local / regional significance. In accordance with the Western Australian Mountain Bike Management Guidelines (Parks and Wildlife, 2015).

LOCALLY SIGNIFICANT LOCATIONS

Locally significant locations cater for community based trail use with tourism demand limited to day visits. Facilities are developed within a 10-15km zone from population centres unless servicing existing recreation and camp sites, or significant population centres where alternate opportunities do not exist. Locally significant locations can develop around the trail hub and trail centre models, but can also be stand-alone individual and networked trail systems.

They contain limited services and infrastructure but can still host events. Excluding long distance trails, up to 20km of trail may be developed with the majority being single track forming at least two loops. Locations of local significance may develop limited trail types and classifications and can expect demand from surrounding regional and national locations.

REGIONALLY SIGNIFICANT LOCATIONS

Regionally significant locations cater for small population centres or large communities and/or tourism resources that cater for short breaks or weekend trips. Facilities should be developed within a 15-20km zone, and be focused around a primary trail centre or trail hub model.

They provide a minimum level of services and infrastructure and can host national and regional events. Excluding long distance trails, regionally significant locations contain at least 30km of trail with the majority being single track, forming at least two major loops. Locations of regional significance should encompass broad trail types and classifications.

MOUNTAIN BIKE TRAIL NETWORK MODEL

Various trail models and trail types provide different user experiences, which should guide how a location is developed. Simplistically, trail hubs suit small tourism-focused towns, and trail centres serve larger population centres and more remote but iconic locations.

The Albany Trails Hub Strategy recommended development of the AHP as a mountain bike trail network. A trail network is typically a single site with multiple signed and mapped trails of varying type and classification with no visitor centre and limited facilities. A trail network may be standalone within a population centre or individual location and can form part of a trail centre or hub.

If not incorporated as part of a trail hub they are typically located away from population centres, or in a location that does not provide essential mountain bike services. Trail networks suit locations where demand does not exist for significant development and there is no supporting population centre.

Trail networks also suit locations close to residential population centres as passive recreation facilities for community use. With good planning, trail networks can be designed to accommodate staged development towards becoming a trail centre as demand increases.

Each trail model possesses advantages and disadvantages, which guide the management, governance structures and model choice. Table 1 provides an overview of best practice mountain bike trail network model requirements, and a comparison to the current provision at the AHP.

	BEST PRACTICE MOUNTAIN BIKE TRAIL NETWORK MODEL	CURRENT PROVISION AT THE AHP
QUANTITY OF TRAIL	• Sufficient quantity of trail for up to 1 day of unique trail experiences, 20km – 30km of mountain bike trail	• <1km mountain bike trail
SERVICES	• Toilets, parking, trail information	• Toilets & Parking provided
MARKET	• Typically day trip markets only	• Caters for local recreation market
COHORT	• Can be user friendly and can serve all cohorts including leisure, enthusiast, sport, and gravity	• Currently only services gravity cohort
POTENTIAL FOR REVENUE GENERATION AND ECONOMIC IMPACT	• Clearly identifiable recreation product that can attract sponsorship for ongoing management and maintenance • Scale manageable by volunteer and not for profit organisations • Potential for concessions to commercial operators with revenue being returned to trail management	• Limited funds raised by volunteers of mountain bike clubs to maintain track. • Standard of work performed limited by capabilities of volunteers.
ADVANTAGES	• Can cater for a range of abilities • Accessibility can be greatly enhanced • Single trailhead makes it easier to manage visitors and trail users • A number of loops can be focused on one trailhead • Can be consolidated in a single location with minimal external influences • Ability to manage trail quality and standards, user experience	• Only caters for advanced level riders • Start of track is at least 200m uphill from the trailhead • Trailhead has limited parking and is shared with a popular visitor lookout and carpark
DISADVANTAGES	• Lack of visitor services and facilities deter market majority • Very hard to generate income for management • Can limit overnight stay and limit community economic benefit • Typically less accessible to users • More remote trail networks can lack community development, activation and stewardship	

Table 1: Trail Network Model Requirements and Considerations

MOUNTAIN BIKE TRAIL TYPES

There are seven trail types used for mountain biking. Each type is generally suited to a particular style of riding and can consist of varying classifications.

CROSS COUNTRY (XC)
Primarily single-track, with a combination of climbing and descending trails and natural trail features of varying technicality. They appeal to the majority market and are suitable for timed competitive events. Cross country trails can include cyclo-cross tracks.

ALL MOUNTAIN (AM)
Similar to cross country, primarily single-track with greater emphasis on technical descents and non-technical climbs. All mountain trails are suitable for timed competitive events.

DOWNHILL (DH)
Descent only trails with an emphasis on speed and technical challenge. They appeal to more experienced riders; however lower-classification trails are emerging to cater for all experience levels. Downhill trails usually require uplift to the trailhead via chairlift or vehicle shuttle. These trails are suitable for timed competitive racing.

FREERIDE (FR)
Descent focused trails with an emphasis on technical challenge and skill development. Trails feature both built and natural technical features with a focus on drops and jumps. Appeals to more experienced riders and caters for competitions judging manoeuvres and skills.

PARK (PK)
Built feature environment with emphasis on manoeuvres, skills and progression. Appeals to wide market including youth and can cater for competitions judging aerial manoeuvres. Can include jump and pump tracks and skills parks. Typically dirt surfaced but can include hardened surfaces.

TOURING (TO)
Long distance riding on reasonably uniform surface conditions and lower grades. Touring trails are dual direction linear trails or long distance circuits with a focus on reaching a destination. Touring trails can include rail trails, access/fire roads and single-track. While there is a limited market, touring trails can be ridden in sections making them accessible to all.

ADAPTIVE MOUNTAIN BIKE (AMTB)
This is not a formally recognised trail type in itself however other trail types may be suitable for adaptive mountain biking, which caters to riders who require adapted equipment to suit their physical, intellectual, neurological and sensory abilities. In WA many sanctioned mountain bike trails have been assessed for their suitability to cater for off-road hand cycles. Break the Boundary is a not for profit volunteer-based community group that advocates for accessibility and inclusion for off-road hand cyclists and people with mobility challenges.

MOUNTAIN BIKE USER COHORTS

Mountain bike users are a diverse user group, inclusive of people of all ages, skills and abilities. For management purposes, mountain bikers can be divided into five user cohorts, based on trail requirements and expectations (Parks and Wildlife, 2015).

LEISURE (LS)
Cyclists of all ages and abilities who ride infrequently, often have limited appropriate skills and require very accessible trails. They are not members of clubs and they are more likely to use accessible routes close to home, or make the journey to trail facilities with amenities and services such as bike hire, cafes and toilets.

ENTHUSIAST (EN)
Recreational riders with moderate skills and variable fitness who ride weekly. Typically aged 29-49, they form the existing market majority (WestCycle, 2015), don't compete in events and they possess limited outdoors experience. Enthusiast riders prefer trails with good trail signage, seek technical but not too challenging trails and are the most likely to take short breaks to different areas.

SPORT (SP)
Competitive riders who ride regular routes multiple times a week and are members of clubs. They are a small but influential market who seek less accessible trails, have a high fitness level and are technically proficient, but may have limited outdoor skills. They ride a very wide variety of trails and generally prefer higher classifications.

INDEPENDENT (IN)
Skilled outdoor enthusiasts who ride at least once a week and are technically proficient with good level of fitness. Often involved in other outdoor activities, they are capable of planning rides and prefer a very wide variety of trail classifications. The adventurous aspect is more important than the technical challenge and they seek more remote trails.

GRAVITY (GR)
Highly skilled technical riders who seek very challenging trails, ride at least once a week and are often members of clubs. They represent a small market that requires purpose built trails, which are repeatedly used in a concentrated manner. Gravity riders seek specific trails with the highest classifications.

Table 2 shows the user types and their potential market segments.

USER TYPE	TRAIL TYPE	CLASSIFICATIONS SOUGHT	MARKET POTENTIAL
LEISURE	Touring & Cross Country	White & Green	Large
ENTHUSIAST	Cross Country, All Mountain, Park	Green to Black	Moderate
SPORT	Cross Country & All Mountain	Green to Double Black	Small but influential
INDEPENDENT	Touring, Cross Country & All Mountain	White to Black	Small
GRAVITY	Freeride, Downhill, Park	Blue to Double Black	Small

Table 2 User Types & Potential Market Segments

WALK TRAIL NETWORK MODEL

The Albany Trails Hub Strategy identified the need for formalised walking trails focused around Mt Clarence and interpretive walking trails focused around the NAC, Royal Princess Fortress and Lower Forts enhancing the heritage theme of the area.

The strategy recommended installation of signage and upgrades to various trails, as well as development of several major shared use connections. It was identified that looped, logical and well signposted trail networks will assist with improved visitor safety, reduced user conflict and ongoing management issues. The strategy identified that the site is compatible with a range of walk trail classifications to suit users with mobility impairments through to experienced bush walkers.

Through provision of adequate services as required by the mountain bike trail network model, the AHP will also cater for the day trip walking market.

WALK TRAIL USER TYPES

Walk trails need to cater for a vast range of users with varying needs, including:

- Recreational walking
- Bush walking
- Running
- Dog walking
- Wildlife watching
- Sight seeing
- Contemplation
- Connecting with nature
- Geocaching

SINGLE USE AND SHARED USE TRAILS

Single use trails are designed, constructed and managed to be used by a single user group, for example walkers. Traditionally, single use trails have been developed as the predominant trail type. Many trail destinations worldwide are increasingly incorporating shared use trails into their networks, as they provide a number of opportunities.

Trails may be designed as shared use, depending on the particular circumstances and the purpose and function of the trail within the overall system. Where trails are shared use, it is important to manage user interactions and trail etiquette through a clearly communicated Code of Conduct, which details the rules of the trail and yield hierarchy. Where shared use trails are communicated clearly, users are able to anticipate and prepare for interactions on the trail, and adjust their speed accordingly. When shared use trails are designed and constructed fit for purpose, alignments are selected by the trail designer to ensure lines of sight and slow points are sufficient to allow safe passing.

Single use trails are appropriate for advanced mountain bike trails, as these are generally incompatible with other non-mountain bike trail users due to the nature of the trail, and the speed and actions of riders.

The following provides a summary of advantages and disadvantages of single use and shared use trails.

	SINGLE USE TRAILS	SHARED USE TRAILS
ADVANTAGES	• Can eliminate / avoid conflict with other user groups in high use areas • Can enable construction of technical features (for mountain bikes) that are not suitable for other user types • Provide more predictable experiences as riders are unlikely to encounter other user groups	• Allow families to use together (e.g. parents may walk while their young children ride) • Can make use of available space and reduce environmental impacts and maintenance costs – when compared with providing separate single use trails for each user group • Can mitigate potential for conflict as all users are aware of each-others' presence on the trail • Help to build relationships and cooperation between different user groups through positive interactions and shared interest • Can be more attractive to funding bodies than single use facilities
DISADVANTAGES	• Enforcing single use can be challenging • Can create hostility between different user groups • Can increase demand for single use trails for other user groups • Can concentrate users, resulting in overcrowding	• Can limit the technical difficulty of mountain bike trails, or necessitate multiple lines • Can require a more onerous Code of Conduct

Table 3 Advantages & Disadvantages of Single & Shared Use Trails

POTENTIAL FOR TOURISM

The Albany Trails Hub Strategy identified the potential trail tourism market segments as trail tourists and cycle tourists. The Strategy also recognised Albany's stagnant tourism industry and the need to attract new markets to support the rejuvenation of the City. There is an oversupply of accommodation and the majority of visitors are older and travel as couples.

Iconic and adventurous trail products, particularly mountain bike trails, appeal to a young demographic, and have the potential to attract visitors year round. The trails industry is gaining recognition from the State Government as a key component of Western Australia's tourism offerings.

The high demand for trail experiences presents significant potential for economic development surrounding world class trail destinations. The proposed development has the potential to appeal to the young trails tourism market, which will generate significant economic benefits for Albany.

POTENTIAL FOR EVENTS

Events have the potential to attract large numbers of visitors to Albany for short stays. Albany already hosts significant events, which utilise areas and trails on the AHP, such as the Southern MTB Festival, ANZAC Albany and Adventurethon Albany. Careful planning of event facilities will ensure the trail network is capable of hosting a range of successful competitive and non-competitive events year-round.

FUNDING

The development of the proposed trail network is likely to cost approximately $3.2 million. Funding opportunities have been discussed with the Great Southern Development Commission, government agencies and local stakeholders.

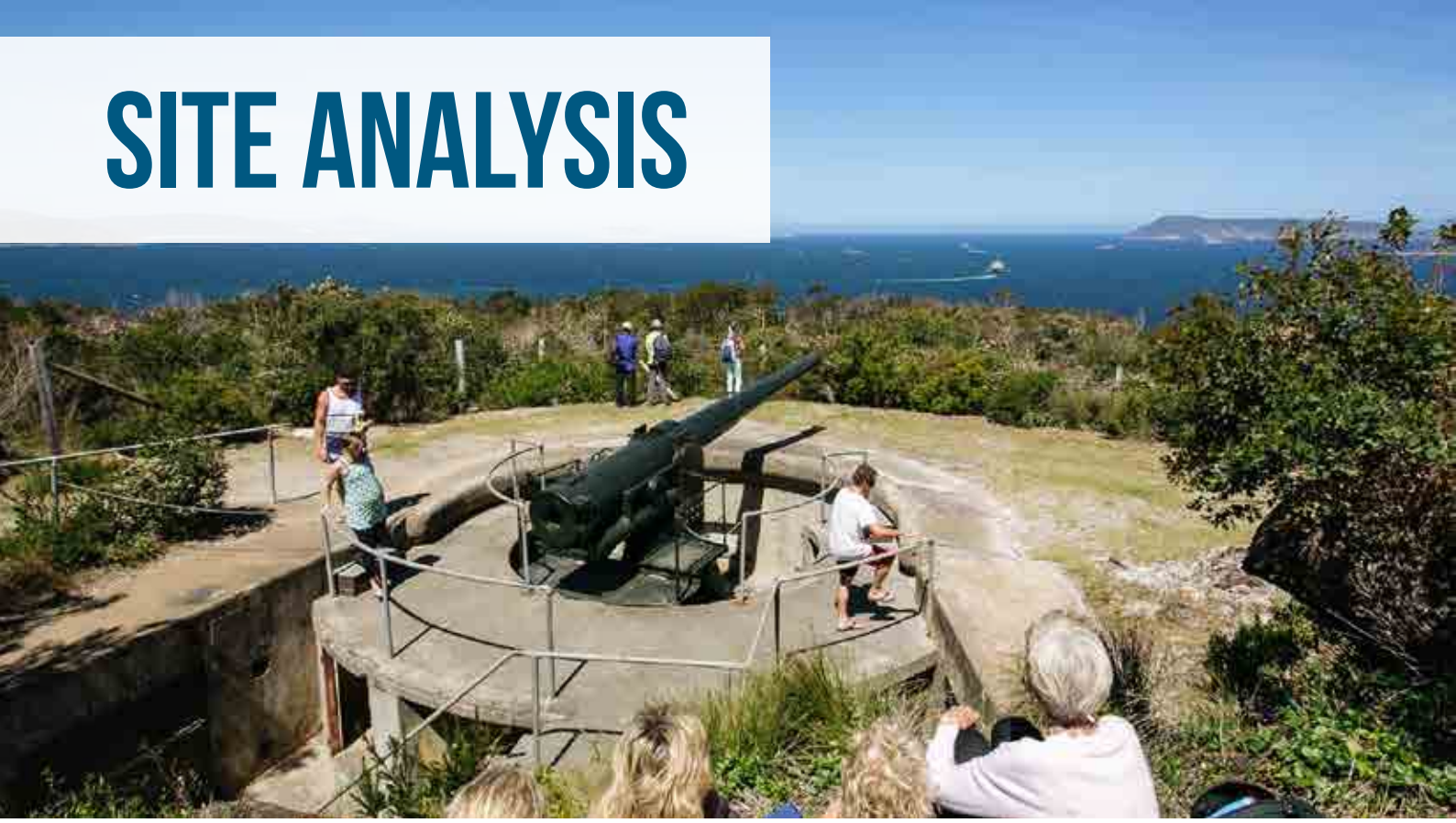
Ongoing maintenance costs (for trail maintenance only) are estimated at $144,000 annually, and a number of revenue generation streams have been identified below, which may assist with these costs.

REVENUE GENERATION

While government funding may be available for the initial capital investment, funding for ongoing maintenance is not usually available through grants. The following potential revenue generation mechanisms should be investigated for ongoing funding of the trail facility:

- Official Albany Heritage Park (or Albany Trails Hub) Providers, Supporters and Events – local businesses and organisations could contribute a fee as a designated official provider, supporter or event for users of the facility. In return for this fee, the entity or event would be promoted officially as part of an official promotional program managed by the CoA.
- Community fundraising events – events with a focus on the outdoors, walking or mountain biking could be run by the CoA or community organisations to raise funds through entries or donations.
- Event permits – events will need to be administered by the CoA, and will impact on trails. Event permits could incur a fee to cover the additional management costs, as well as general ongoing maintenance of the facility.
- Entry and car parking fees – An appropriate fee could be charged to park users, for car parking or park entry.
- Donation collection boxes or online donation portals – Boxes can be located at trail heads or local businesses to collect donations from users. Donations could also be received via online banking, promoted through the CoA or community group websites.
- Corporate sponsorship – Trails and maps can be sponsored by private businesses. In return, the business is promoted via naming and signage on the trail, online media and other opportunities.
- Sale of trail maps and merchandise – A wide variety of goods can be sold in the retail outlets located within the AHP, or at local businesses throughout Albany.
- Shuttle uplift service – A commercial uplift service could be provided to transport users to the summits of Mt Clarence and Mt Adelaide. This could provide a gravity focussed experience for mountain bikers.
- Commercial tenancies and tariffs – New commercial providers located within the AHP, such as bike hire, can contribute tenancy fees.
- Accommodation tariffs – There is potential for bed nights to include a % fee toward recreation, which should be addressed at the Albany Trails Hub level.
- Interpretive visitor experiences – Unique visitor experiences, such as guided tours, self-guided audio tours of interpretive trails and locations can be provided for a small cost. These can be undertaken as organised tours or individual self-guided tours.
- Coin operated binoculars – The existing binoculars on the Convoy Walk are proven examples. They require very low maintenance and management. If combined with interpretive signage and promotion of the trail maintenance program, these have the potential to contribute significantly.

SITE ANALYSIS



SITE OVERVIEW

The AHP is highly accessible, located centrally between the City Centre, Port of Albany and Middleton Beach. The main vehicle entrance to the site is located on Marine Drive, which provides access for motor vehicles to the large car parks located near the National ANZAC Centre on Mt Adelaide and the Desert Mounted Corps Memorial on Mt Clarence. Mounts Clarence and Adelaide cover a total area of approximately 242 Hectares. By comparison, Perth's Kings Park is 400 ha. The AHP is a place of unique recreation, natural and cultural values, with diverse and stunning terrain, vegetation and topography. In order to develop the concept plan with consideration to site sensitivities, these values need to be understood. This will help minimise potential impacts resulting from trail design and construction activities.

LANDSCAPE

The topography of the AHP is dominated by the two prominent granite/gneiss headlands of Mt Clarence and Mt Adelaide, connected by a relatively flat saddle which slightly falls along its axis to the southeast. The southern faces of the reserve are quite different from the northern faces. While the southern faces are characterised by dry, rugged, steeper terrain, the northern faces host dense scrub and woodland. Mt Clarence is a prominent peak characterised by massive, exposed granite outcrops, and rising sharply over the City Centre. The south-easterly face of Mt Clarence slopes to a wide ridge line saddle expanse, which then rises gradually to the lower summit of Mt Adelaide approximately 3km in the southeasterly direction. The vertical relief of the AHP is approximately 185m; the highest point on Mt Clarence reaches an elevation of 185m, while the foot of Mt Adelaide reaches sea level on the shores of King George Sound. The reserve supports a variety of native vegetation types. Fragmented open heaths are present near the fringes of granite outcrops, while dense eucalypt forest/ woodlands, heathland and scrub understory occur on shallow soils.

Where challenges such as steep topography and sandy soils are encountered, careful planning, design and construction techniques will ensure trails are sustainable and protect vegetation from the introduction of disease and weeds where possible.

The AHP has high landscape value, with vistas over King George Sound to the southeast and Stirling Range to the northeast.

NATURAL VALUES AND ENVIRONMENTAL PROTECTION

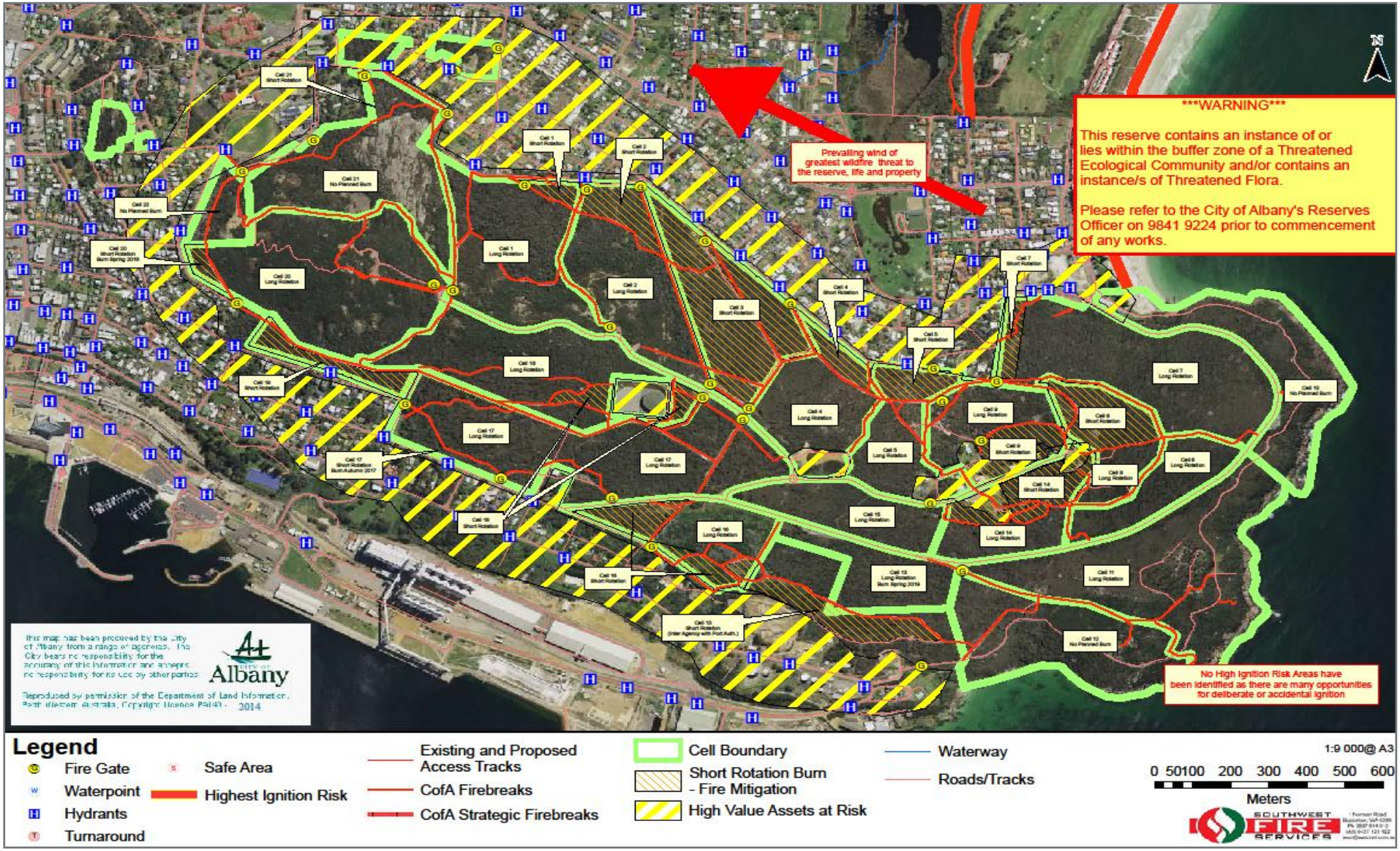
The City Mounts reserve system is a large area of natural bushland and represents part of an internationally significant coastal corridor link with Torndirrup National Park to the south-west and Gull Rock National Park to the east. Threatened flora and fauna have been located and identified within the Mounts reserves.

The Department of Parks and Wildlife monitor and survey the presence and health of threatened ecological communities (TEC) and priority ecological communities (PEC). While initial broad surveys have indicated there are no TECs or PECs present, targeted surveys and assessments are required prior to proceeding to the detailed design of trail alignment corridors. Where environmental sensitivities are found, such as TECs, PECs, weeds or disease, protection measures will be implemented in the detailed design stage. Environmental protection can be achieved through appropriate trail design, which is explained in further detail in Appendix 3. The individual trail summaries provided in the Concept Plan have identified known environmental constraints and protection mechanisms to be applied.

FIRE

Fire management activities include prescribed burning, weed control and improvement of fire breaks and access tracks. The City of Albany Fuel Management Strategies and Works Program (City of Albany, 2015) maps fire breaks and access tracks, and proposes upgrades to some existing tracks. The program identifies specific difficult challenges of the site including steep topography, high aesthetic value and landmarks, and surrounding high value urban development. It also identifies the need for fire vehicle access routes to protect the unique ecosystems of endangered wildlife and threatened plant communities on the Mounts. The fuel management plan, pictured below, has been considered in the development of the concept plan for the AHP trails network.

FIGURE 2: FUEL MANAGEMENT PLAN MAP



FLORA

A desktop assessment was undertaken by Department of Parks and Wildlife to identify potential threatened flora on the Mounts. Specific sensitive areas were identified, as shown in the map below. These sensitive areas will be confirmed in detailed flora assessments, and avoided in the detailed design of trail alignments. The detailed assessments may also inform current maintenance and management activities that may have an impact.

Native flora is characterised as good condition given its proximity to urban development and residential areas. There are four vegetation types mapped by the environmental consultants:

1. Granite outcrop and fringing Taxandria shrub land
2. Tall Gastrolobium shrub land
3. Open Jarrah/Marri woodland, and
4. Coastal heath

Two targeted flora surveys (one during winter and one during spring 2016) were undertaken as part of the development of the Demonstration Trail, which indicated that no threatened flora or threatened ecological communities were present within the proposed alignment to be cleared.

At the detailed design stage, further advice and recommendations should be sought from Department of Parks and Wildlife and specialist environmental consultants to identify and address issues associated with threatened species and management strategies.

HYGIENE

Phytophthora Dieback is a deadly plant disease, which has caused the death of susceptible species in the AHP. Areas identified as most at risk are vehicle access tracks and trails. A broad scale Phytophthora dieback survey was undertaken, focusing on areas of confirmed disease presence and high risk disease vectors. Anticipated protectable and un-protectable areas were identified and mapped. Phytophthroa dieback is distributed across the entire project area, with the exclusion of the small granite shrubland south of Marine Drive, which was considered to be uninterpretable due to the lack of indicator species. There is potential for disease free vegetation to exist on the lower slopes of the reserve, however based on the presence of the disease high on both Mounts, all downslope areas are considered to be either infested or un-protectable. An operational scale, comprehensive transect survey may be completed when trail alignments are confirmed, to enable the development of an effective operational hygiene plan designed to protect any un-infested vegetation that may exist on the lower slopes. However, this was not recommended by the consultant engaged to undertake the broad scale survey, as it is unlikely that significant protectable areas would be located within the alignments. It is recommended that trail development within this area considers mitigaton of the risk of exporting potentially infested soil and tissue material away from the reserve, to external uninfested areas.

Weeds have impacted on disturbed areas, such as roadsides, firebreaks, fire access tracks, car parks and trails. In developing, upgrading and rehabilitating trails it will be important to reduce the presence and impact of weeds.

The targeted flora survey identified:

- Two weeds of concern, Acacia longifolia and Pelargonium capitatum
- Several species known to be susceptible to dieback Phytophthora cinnammomi

Care should be taken during design and construction of trails to prevent spread of disease and weeds and associated impacts on the biodiversity value of the area. In addition to the design and construction provisions, it is recommended that targeted education initiatives are implemented to prevent the spread of dieback and weeds within and beyond the AHP.

FAUNA

Surveys were undertaken between 2002-2010, which determined there are over 165 species of native fauna that reside in the AHP reserve. A number of threatened and significant fauna species occur on the reserve, including possums, bandicoots, black cockatoos, other birds, frogs, reptiles and invertebrates. The Upland Eucalypt Woodlands and Forests create the best habitat for many of the threatened species listed fauna, and as such these features should not be removed or damaged through trail construction. A particular concern is the potential impact on ringtail possums residing in the Mounts. Trail widths will be sufficiently narrow as to allow tree-dwelling fauna to move across the canopy as they currently do. A survey of ringtail possums is to be undertaken one week prior to construction of the Demonstration Trail. Further surveys should be conducted prior to construction works going ahead to gather data on the fauna in the area.

THREATENED HONEY POSSUM ENDEMIC TO THE ALBANY HERITAGE PARK

ABORIGINAL AND EUROPEAN HERITAGE PROTECTION

The Traditional Owners of Kinjarling homelands (Albany), the Minang People, maintain a strong spiritual connection to the AHP, with 40,000 years of ancestral history. The Mounts were used as a base for camping and hunting, and the area of King George Sound around Albany supported a large population for Minang at the time of European settlement. Consultation with Noongar families was undertaken to gain an understanding of the cultural significance and appropriate communication and engagement protocols required for the development. Noongar people identify with the broad area, as well as a number of specific significant heritage sites within and surrounding the AHP that must be protected from disturbance, including gnamma holes, lizard traps, traditional camp sites and rock features. During and for some time following the First World War, the AHP was closed off to members of the public, including Aboriginal people, who were unable to continue cultural practices within the area. As a result, much of the knowledge has not been retained, and significant sites are not well documented. It was agreed that during the detailed design and construction, an Aboriginal Heritage Survey will be undertaken to ensure compliance with the Aboriginal Heritage Act 1972 is observed and no cultural heritage materials are disturbed. The Survey will provide recommendations regarding requirements for Monitors.

In addition to protection of cultural heritage, it is recommended that further consultation be undertaken with local Noongar families to develop an appropriate Noongar Cultural Interpretation plan for the trail network and the Albany Heritage Park generally.

The AHP is culturally and historically significant to Australians and New Zealanders for preservation of the Anzac tradition, with a number of military attractions, including the Princess Royal Fortress, National Anzac Centre, Desert Mounted Corp Memorial, Ataturk Memorial, Padre White Lookout and the Avenue of Honour. The Anzac story is told through the iconic Anzac monuments, the Forts precinct and the exhibits within the National Anzac Centre, which was opened on 1 November 2014 to commemorate the centenary of the departure of over 41,000 Australians and New Zealanders bound for the First World War in 1914.

The Albany Heritage Park is contained on the Heritage List in the City's Local Planning Scheme No 1 and some of the European heritage sites are also contained on the State Register of Heritage Places. The approval processes required by both the Local Planning Scheme No 1 and the Heritage of Western Australia Act 1990 will be observed as required.

The Western Australian Mountain Bike Management Guidelines also advise on the relevant legislation that applies to heritage protection.

SITE CONSTRAINTS MAPPING

Control points, or site constraints, were mapped to identify areas requiring further assessment or consultation prior to developing trails. The following constraints have been mapped in Figure 5:

- Historic, cultural and archaeological sites
- Registered Aboriginal sites (noted as DAA)
- Private properties and residential areas
- Physical barriers, such as ocean and port
- Unpleasant views
- Flat ground
- Sensitive wildlife habitat
- Sensitive plant communities

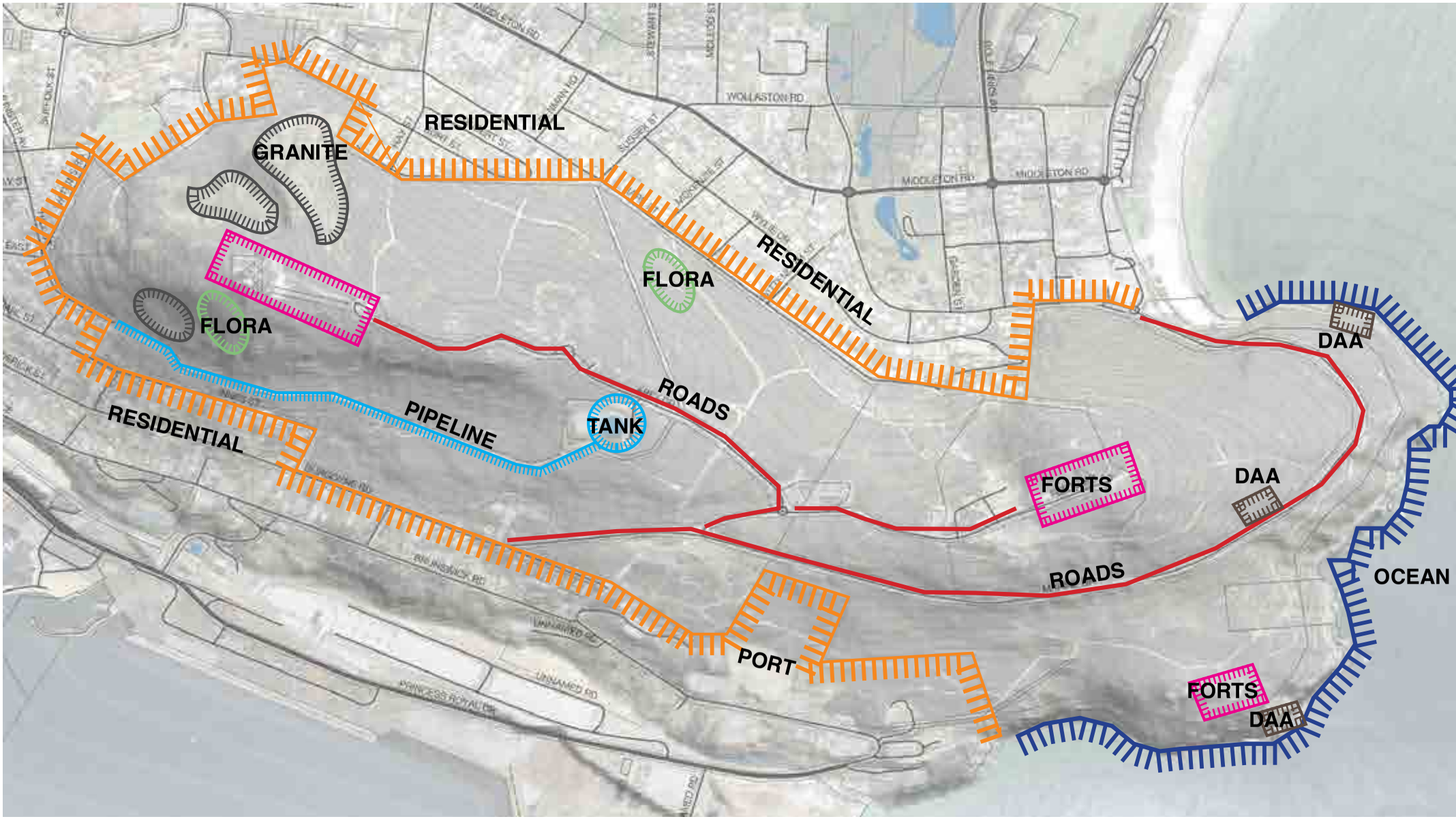
ALBANY HERITAGE PARK TRAIL NETWORK
CONCEPT PLAN

FIGURE 3: SENSITIVE FLORA IDENTIFIED IN DESKTOP SURVEY

FIGURE 4: HYGIENE SURVEY

ALBANY HERITAGE PARK TRAIL NETWORK
CONCEPT PLAN

FIGURE 5: SITE CONSTRAINTS



FACILITIES AND INFRASTRUCTURE

Existing car parks are located within the AHP and at Middleton Beach, however there are no formal trail heads to communicate trail information to users. There are existing amenities on both Mounts, however development has been focused on Mt Adelaide predominantly, which has toilets, visitor services, picnic areas and a café. There is potential for future installation of additional trail supporting infrastructure such as:

- Bike and boot wash facility
- Shelters and picnic furniture
- Bike and outdoor equipment retail and hire facility

LAND USE, TENURE AND MANAGEMENT CONSIDERATIONS

The AHP is managed by the City of Albany. The lack of appropriate trail design and supporting infrastructure, combined with increasing demand for trails by a range of users, has resulted in user conflict and management and safety issues. Events at the site are increasing in popularity, and new types of events have the potential to increase visitor numbers year round. Formal recreation and tourism utilisation of the trail network at the site will introduce the need for a suitable management model, ensuring clarity of roles and responsibilities.

EXISTING RECREATIONAL USE, DEMAND AND CONFLICTS

The AHP has been a popular recreational venue for many years for walkers and more recently, mountain bikers. There are a number of existing trails, facilities, activities, events and associated management issues on the AHP. While areas of the site are disturbed, the majority comprises natural bushland of high ecological and amenity value in the local landscape.

EXISTING TRACKS AND TRAILS

Existing trails on the AHP comprise predominantly informal trails and management access tracks. Formal trails include a number of walk trails: Mt Adelaide Nature Trail, Heritage Loop, Circuit and Granite Trail, Padre White Trail and Summit Trail; and a purpose built downhill mountain bike trail. To gain an understanding of the existing use of the site, all trails were audited and mapped, as shown in Figures 6 & 7. The condition of the existing trails is generally characterised as poor or below average. The main issues and observations of existing trails include:

- Excessive erosion
- Altered and ineffective drainage
- Unauthorised bike use on walk trails
- Unmanaged Dieback risk
- Creation of multiple desire lines through vegetation
- Various trip hazards on trails

These may be indicators of poor trail design or lack of maintenance. The impacts of poorly designed trails are discussed in further detail in Appendix 3. The site is highly permeable and is accessed regularly by local residents and visitors via a number of informal user created and management access tracks. Half of the walkers who responded to the user survey access the site via walking trails, and over 33 different informal access points were identified.

The existing formal network does not connect with popular lookouts and destinations on and surrounding the AHP. Mt Clarence and Mt Adelaide precincts are connected by a road, over which some of the existing informal trails cross. The stairs to the Anzac monument and the coastal boardwalk are heavily used by local and visiting walkers and cyclists.

STRATEGIC CONNECTIONS

Strategic trail connections will ensure a large number of users have good access to the trail network. Figure 8 shows the major points of interest and potential strategic connections. The following links and connections should be developed:

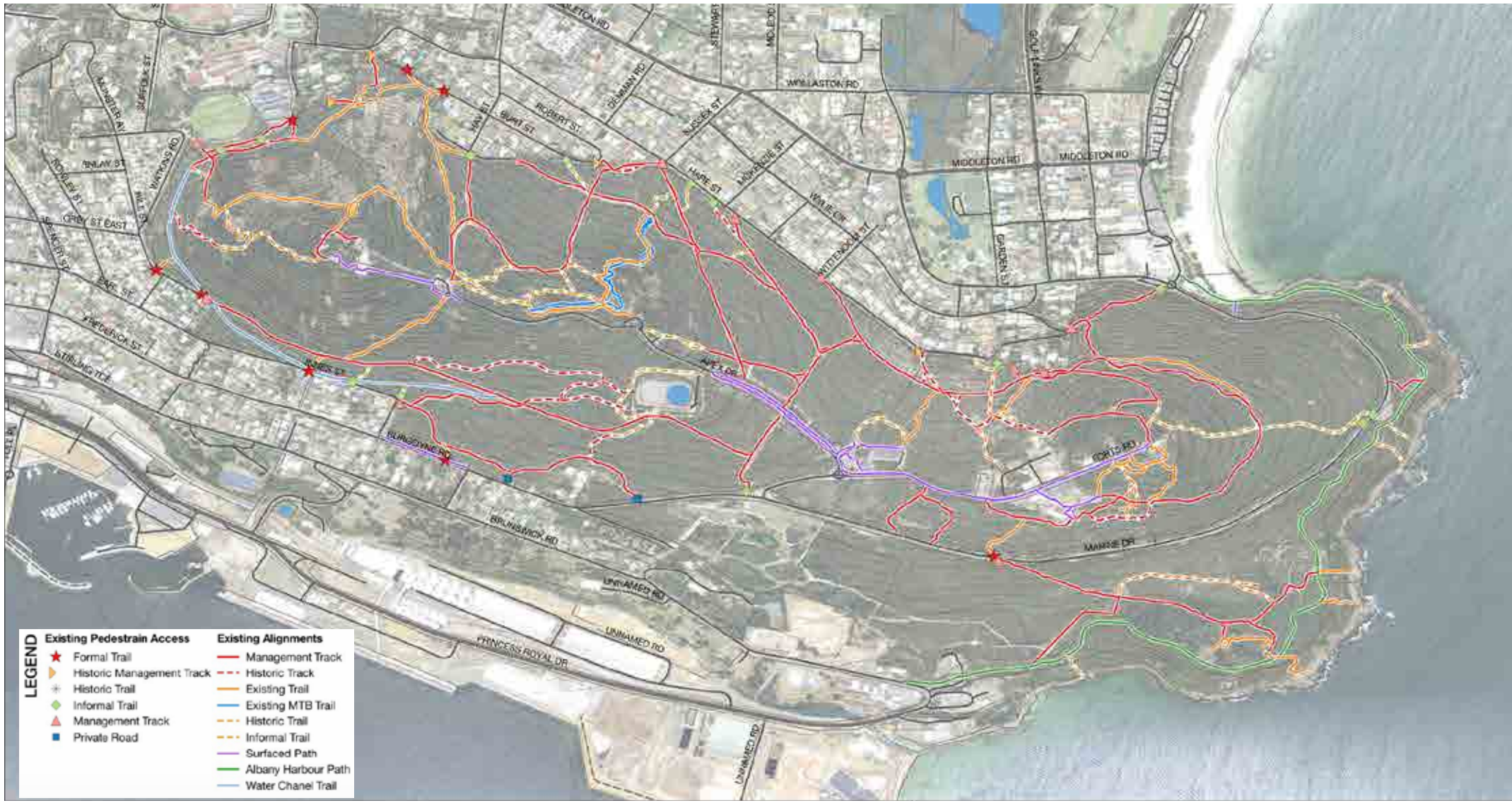
- Mt Clarence
- Middleton Beach
- Albany City Centre
- Mt Adelaide
- Albany Harbour Path
- Lookouts
- Potential recreation and tourism nodes
- Existing bike paths and routes
- Commercial tourism and accommodation precincts in proximity to the AHP
- Albany Senior High School
- Important access points from surrounding residential area

ALBANY HERITAGE PARK TRAIL NETWORK
CONCEPT PLAN

FIGURE 6: EXISTING SITUATION

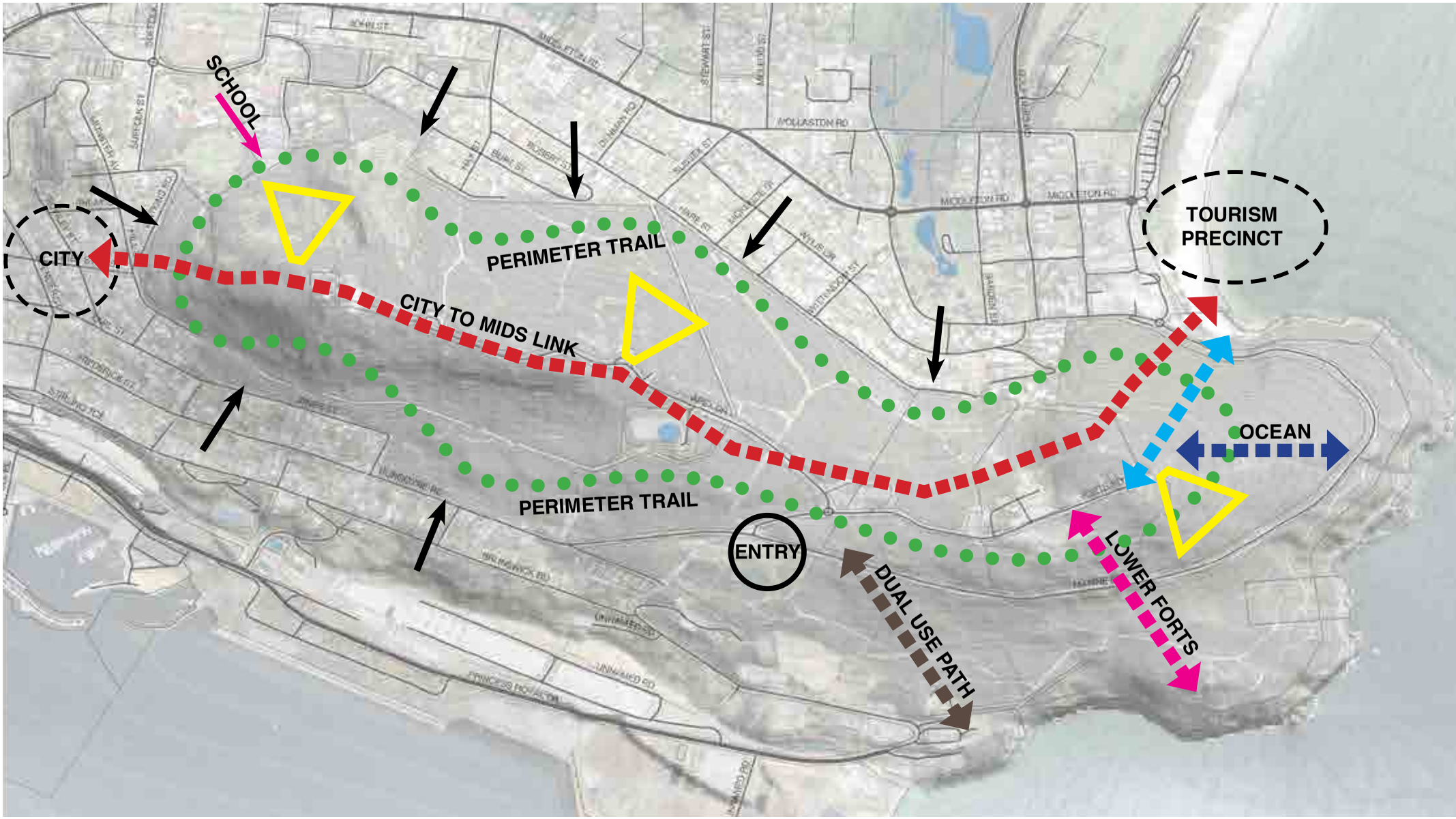
ALBANY HERITAGE PARK TRAIL NETWORK
CONCEPT PLAN

FIGURE 7: EXISTING TRAIL ALIGNMENTS



ALBANY HERITAGE PARK TRAIL NETWORK
CONCEPT PLAN

FIGURE 8: STRATEGIC CONNECTIONS



USER TYPES

A number of recreational walkers, runners and dog walkers utilise the informal and formal walk trails on the AHP.

Many visitors use the interpretive trails surrounding the historical sites, concentrated near the peaks of Mt Clarence and Mt Adelaide and along the ridge between the Mounts. Respondents to the user survey indicated the most popular trails as the Padre White Trail, Mass Rock Trail, Granite Trail and the boardwalk from Middleton Beach. The existing formal mountain bike trail is only suitable for a minority of mountain bikers, being less than 1 km in length and difficult classification. Respondents to the user survey indicated that the majority of mountain bikers are seeking trails of easy to moderate classifications. A number of mountain bikers use the walking and fire access trails, which are somewhat desirable to mountain bikers, on a regular basis. This has resulted in user conflict in some areas, and ongoing management issues due to trails not being designed for this type of use. All mountain bikers who responded to the user survey and who attended the community workshops advised that they would prefer purpose built single track over walk trails or fire access tracks. This is typical of mountain bikers in other trails destinations. For example, in a recent survey conducted in Kamloops, British Columbia (Larose Research & Strategy, 2015), 84% of riders stated that they prefer to ride on trails that were legally sanctioned.

Other users are not permitted in the reserve, including equestrian, motorcycle and 4WD users.

TOURISM

A number of tourism operators provide commercial products, such as guided bus tours, abseiling operations and bike hire.

A significant number of tourists also visit the AHP from the cruise ships (containing from 250 to 3000 passengers) that stop in the Albany Harbour in the warmer seasons (Albany Port Authority , 2016).

Providing new or improved connections through the AHP, for example, to the Albany Harbour, could facilitate additional tourism opportunities.

EVENTS

The ANZAC Day Dawn Service is hosted at the Desert Mounted Corp Memorial, a tradition believed to have been started in 1930. A number of sporting events utilise the AHP trails, including Adventurethon adventure race, athletic cross country, Parkrun, Gallipoli run, City to Surf, Fun runs and walks and the Port to Point run. Downhill mountain bike races are held on the existing purpose built downhill track, and the annual Urban Downhill race uses informal tracks and walk trails originating from the summit of Mt Clarence. Cross country races are also held, using some management access tracks, walk trails and public roads.

CONFLICTS

The user survey highlighted some particular areas of conflict and the related issues, which generally relate to interactions between walkers and mountain bike users on all types of trail. Although 30% of respondents said they'd experienced conflict with other trail users, more than 80% of respondents stated they support shared use trails or mutual trail heads and meeting points. The general safety and environmental concerns include areas where

mountain bike users are travelling downhill and uncertainty or misunderstanding of trail etiquette.

EXISTING MANAGEMENT PRACTICES

There are a number of management challenges associated with the existing trail system on the Mounts. Due to user demand exceeding the capacity of the existing trail system, current management practices are generally limited to reactive, short term solutions and actions. The current practices have led to generally poor or average trail condition, as well as economic, social and environmental impacts which are compounding with the growing demand.

The limited management resources have subsequently been directed toward priority maintenance actions and determining sustainable management strategies to reduce the impacts over the long term. The establishment of strategies will result in a reduction in some, but not all, maintenance and management requirements.

TRAIL MAINTENANCE

Currently there is no dedicated trail inspection and maintenance schedule. Where significant issues are raised that have potential for serious injury, these are addressed with trail modifications, signage, closures or other appropriate actions. The Albany Mountain Bike Club undertakes maintenance of some trails periodically, particularly before or after events as required, in agreement with the City of Albany.

UNSANCTIONED TRAIL USE

Currently there are mountain bike users using trails that have not been formally planned or designed, nor has their construction been in accordance with best practice. As part of this project, in excess of 33km of existing trails were formally assessed for their sustainability and suitability for use by mountain bikers, walkers or both user groups. The concept plan makes recommendations as to the most appropriate user group or groups for the trail, or whether the trail requires upgrades or closure to ensure a sustainable trail system. The trail system will require specific management measures to ensure users remain on the correct trails, and are discouraged from using or creating unsanctioned trails. Recommended management models and practices are detailed in the Development Section.

COMMUNITY ENGAGEMENT AND CONSULTATION

Since decommissioning the military functions of the AHP, the site has grown to be one of the primary recreational destinations for Albany residents. The area provides a quiet, contemplative nature based experience for some, whilst also providing a raw and exposed adventure experience for others. As a result, the park has a wide range of users. In order to ensure the success of the network as a valued and inclusive community asset, it is integral to connect with the users, land owners, key stakeholders and wider community. Through a project steering group, workshops, user surveys and face to face meetings, the consultation process has enabled stakeholders to provide information on local values, issues and opportunities.

PREVIOUS CONSULTATION THROUGH ALBANY TRAILS HUB STRATEGY

During 2013 to 2015, an extensive community consultation process was implemented to gain input from the community into the Albany Trails Hub Strategy. Representatives from a number of stakeholder groups and businesses contributed to the project through the Trails Project Control Group, community engagement workshops and individual meetings. The community was encouraged to provide feedback on specific areas and proposed trail projects. It was apparent from the input and feedback from the community that there is considerable interest in the development of the AHP trail network. The community recognises and shares the values of the park and recognise the importance of balancing the needs of different user groups.

The outcomes of the consultation process regarding the AHP included recognition of:

- The central iconic location and links to World Class Heritage Precinct
- Opportunities to rationalise the existing network to provide a variety of quality trails and infrastructure
- Challenges presented by user conflict, multiple entry points, and unsustainable trails

STAKEHOLDER LIAISON

While extensive stakeholder and community consultation were undertaken during the development of the Albany Trails Hub Strategy, it was important to continue with open and transparent consultation activities throughout the concept planning stage.

Regular updates on the progress of the project were provided to the community via social media, Council website, newsletters and community workshops.

STEERING GROUP

The Project Steering Group comprises representatives from key stakeholders, being the CoA Major Projects, Reserves and Community Engagement Teams, Albany Mountain Bike Club, Albany Bushwalkers and the Consultant, Common Ground Trails. The group informed project objectives, and were consulted on specific interest areas to obtain feedback about ideas, rationale, alternatives and proposals.

KEY STAKEHOLDERS

The following key stakeholders were consulted on specific interest areas to obtain feedback about ideas on rationale, alternatives and proposals to inform decision making:

- City of Albany - Planning Department
- City of Albany – Albany Heritage Park Master Plan Team
- City of Albany - National Anzac Centre
- Proximity residents (within 1km of the Heritage Park)
- Broader Albany residents and community
- Trail user groups (Albany mountain bike club, Albany bushwalkers group)
- Princess Royal Fortress precinct
- Noongar Traditional Owners
- Water Corporation
- Local schools
- Department of Sport and Recreation
- Department of Parks and Wildlife
- Great Southern Development Commission
- Various local residents with historical connection to the site

Many of the stakeholders were involved in further detailed discussions to help identify issues and views to ensure concerns and aspirations were understood and considered in developing the

Concept Plan. The proposed concept plan was released to the public in the form of a map outlining the proposed trails for development in the AHP. The community consultation was promoted through newsletters, social media and Council press release. Members of the public were invited to submit written submissions to the process.

Refer Figure 18 for the Broad Concept Plan Map that was released for public consultation. Written submissions were received from over 20 organisations and individuals. 87% of survey respondents confirmed their support for the concept.

USER SURVEY AND COMMUNITY WORKSHOPS

Formal community engagement activities, including individual detailed discussions, community survey, facilitated workshops and public consultation, were undertaken to gather information and feedback from proximity residents, trail user groups and the general community on the draft concept plan prior to moving to detailed design stages.

An online user survey was conducted as part of the consultation process, to understand the types of trail experiences users and residents desire in the Albany Heritage Park. The survey attracted a large response, with 230 individual respondents, 96% being residents of the City of Albany. The survey consisted of several sections to seek particular feedback from different types of trail users and potential trail users about their habits and preferences. Users were also asked about their experiences with conflicts on the trails.

Information collected from the survey was analysed as part of the concept design preparation, and a copy of the survey analysis is provided in Appendix 4.

In addition to the survey, three face to face community workshops were held to present details and progress of site assessments and community engagement at various stages of the concept plan development. The workshops were opportunities for interested residents to comment on and ask questions about the plan.

BROAD CONCEPT

BROAD CONCEPT DEVELOPMENT PROCESS

The first stage of the concept planning involved a detailed assessment of the following attributes of the site, as illustrated in the Figures 9 to 13 on the following pages:

- Topographic Relief (Figure 9)
- Slope (Figure 10)
- Ruggedness (Figure 11)
- Aspect (Figure 12)
- Elevation Loss (Figure 13)

Following further ground-truthing on site, a project framework and broad concept were developed and presented to the community in a workshop format.

The purpose of the broad concept was to illustrate what the overall trail network and configuration look like. It proposed locations of trail heads, trail types and indicative corridors as well as integration and links with existing or proposed facilities and infrastructure.

Feedback from the community on the broad concept informed decisions regarding suitability of trail classifications, linkages, direction, trails intended for shared use and the level of importance of particular trails. The overall configuration and layout of the network were modified to meet the needs of stakeholders prior to advancing to the final concept.

The following Figures describe the broad concept that was presented to the community.

FIGURE 9: TOPOGRAPHIC RELIEF ANALYSIS

A tophographic relief analysis was performed to assess the shapes and features of the area's surface, in order to determine the most desirable areas of terrain for trail users.

BROAD CONCEPT

FIGURE 10: SLOPE ANALYSIS

A slope analysis was performed to identify the gradient of different areas of the site, to determine desirable areas for certain types of trail, for example descending mountain bike trails. The darker areas indicate steeper slopes.

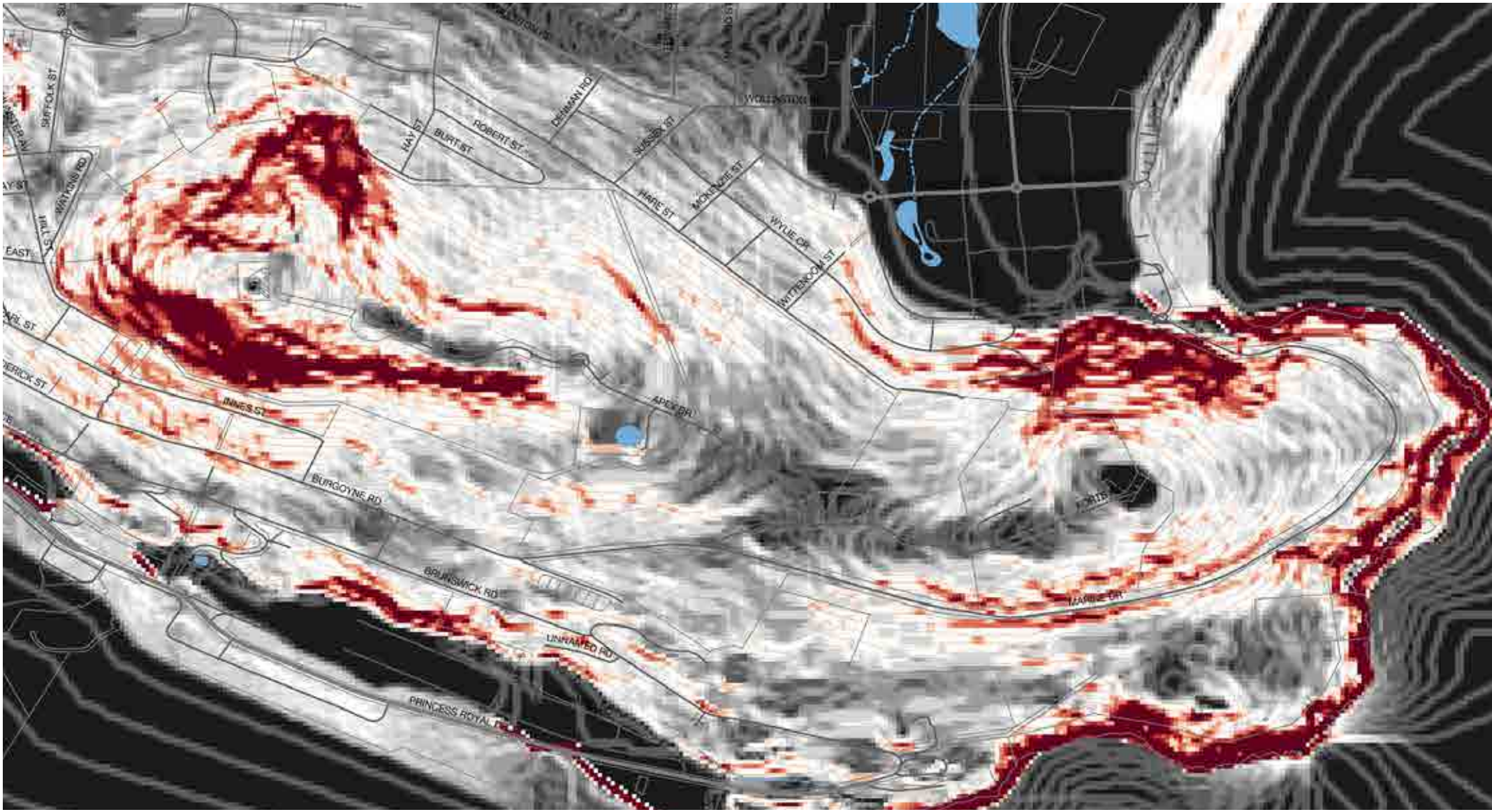
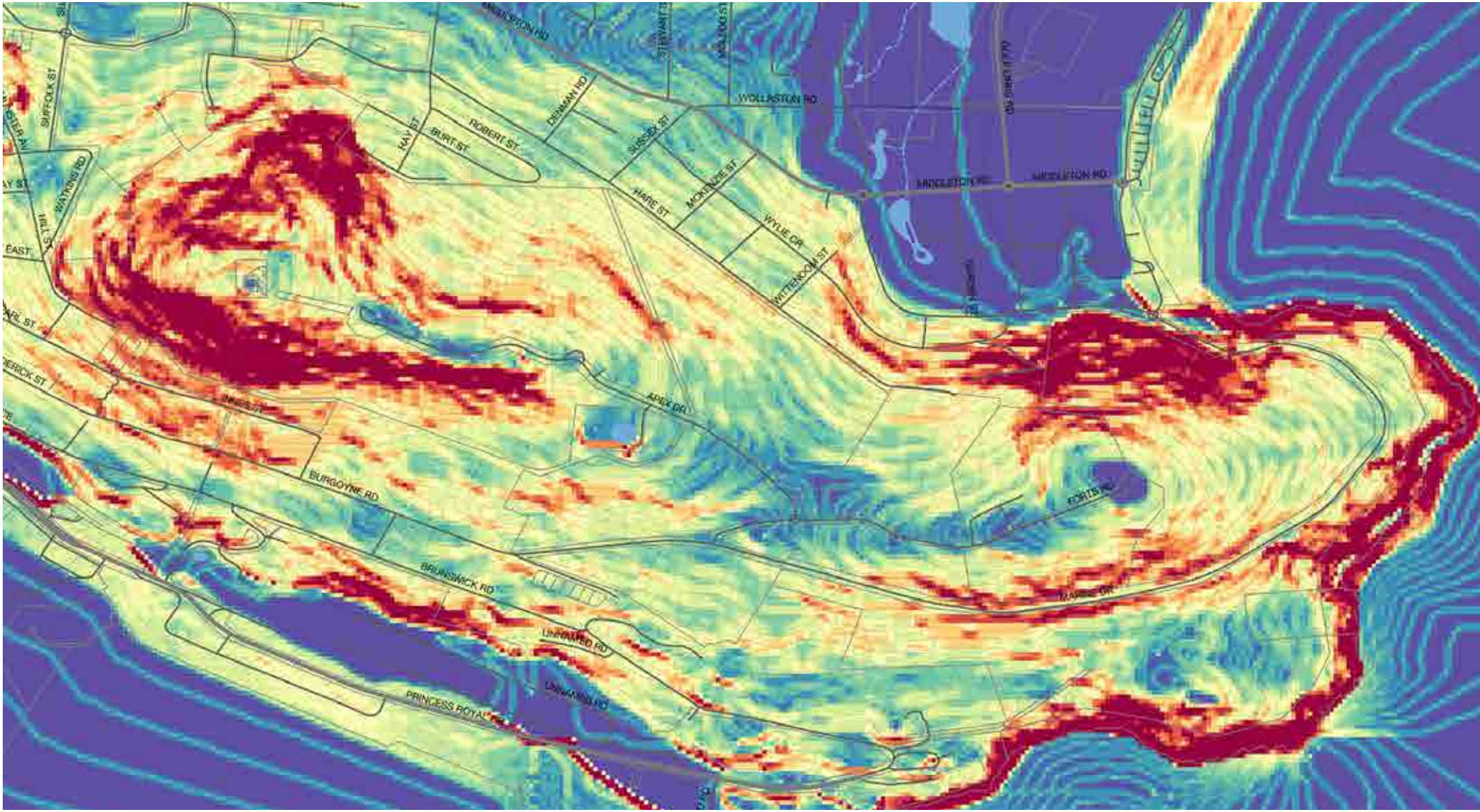


FIGURE 11: RUGGEDNESS ANALYSIS

A ruggedness analysis was performed to identify the 'roughness' of the terain across the site. The red areas indicate more rugged and variable terrain, while the blue, green and yellow areas indicate smoother, more stable surfaces.



BROAD CONCEPT

FIGURE 12: ASPECT ANALYSIS

An aspect analysis was performed to identify the orientation of all slopes on the site. Grey indicates a flat surface. The organge shading indciates north-facing slopes, yellow is east-facing, green is south-facing and blue is west-facing. There was a correlation noted between soil and vegetation types and the aspect of the slope on which they were located.

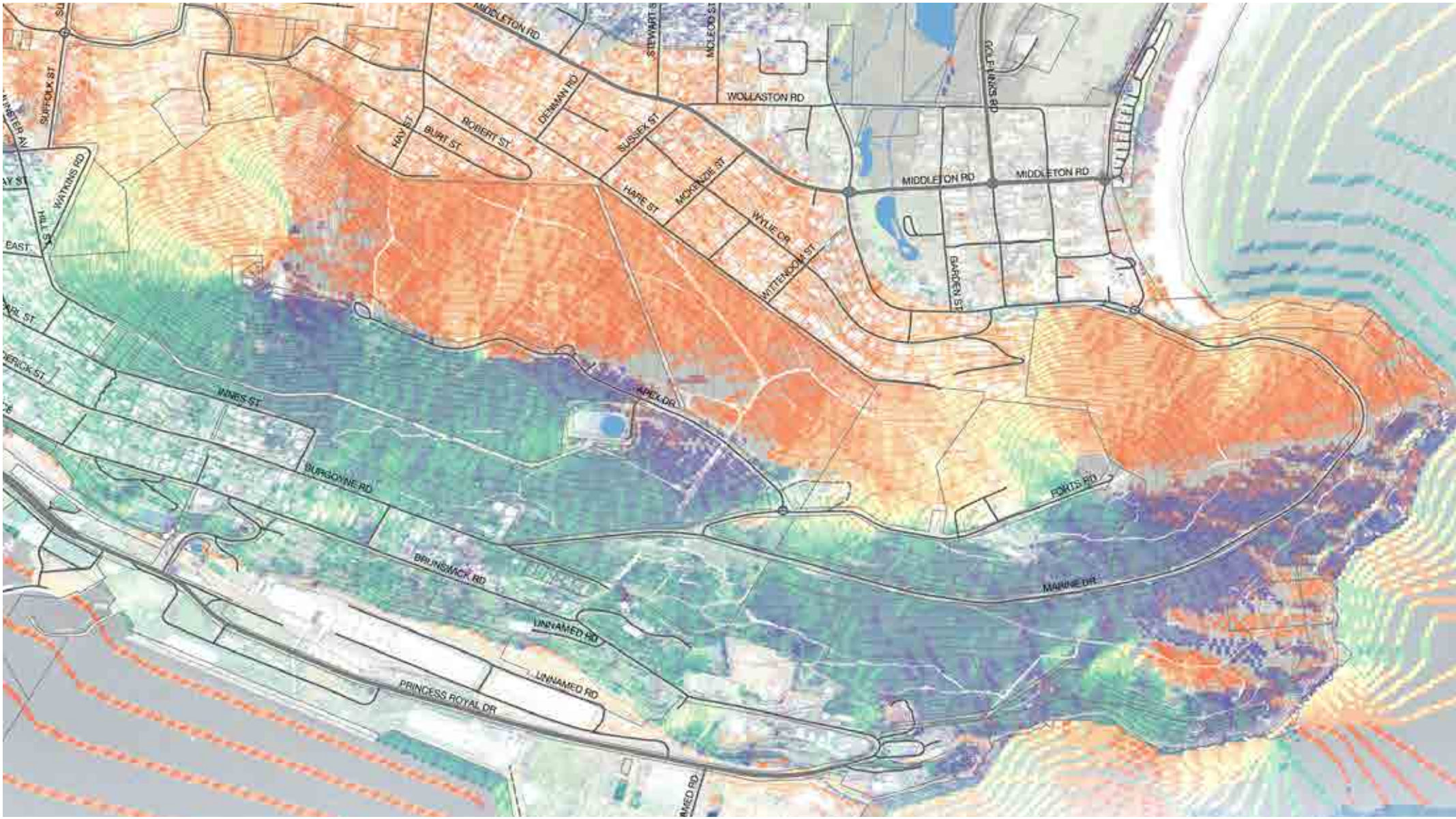
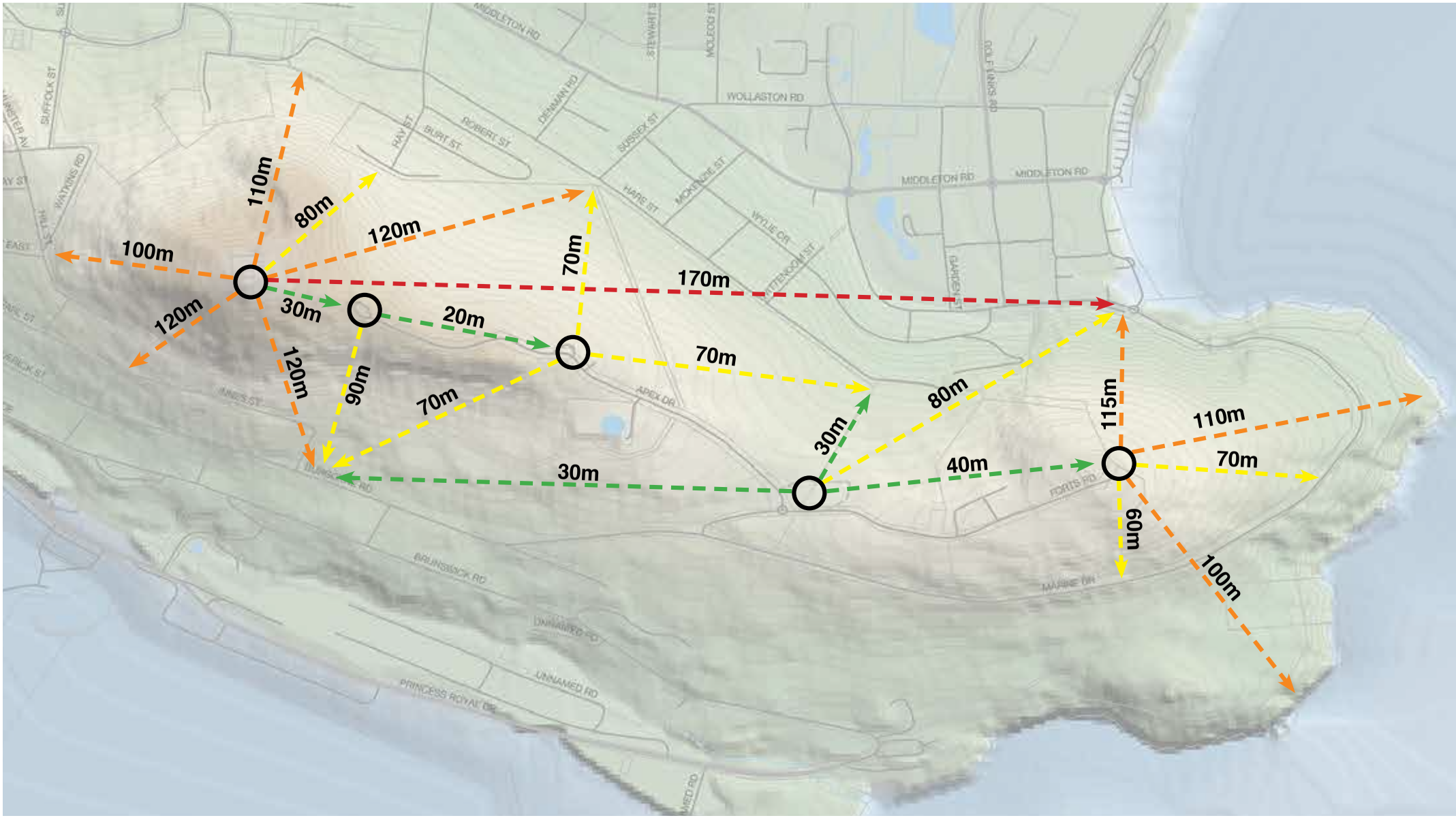


FIGURE 13: ELEVATION LOSS ANALYSIS

The elevation loss analysis identified the fall across areas of the site, which was used to determine desirable alignments for certain trail types.



BROAD CONCEPT

FIGURE 14: BROAD CONCEPT - OVERALL TRAIL SYSTEM

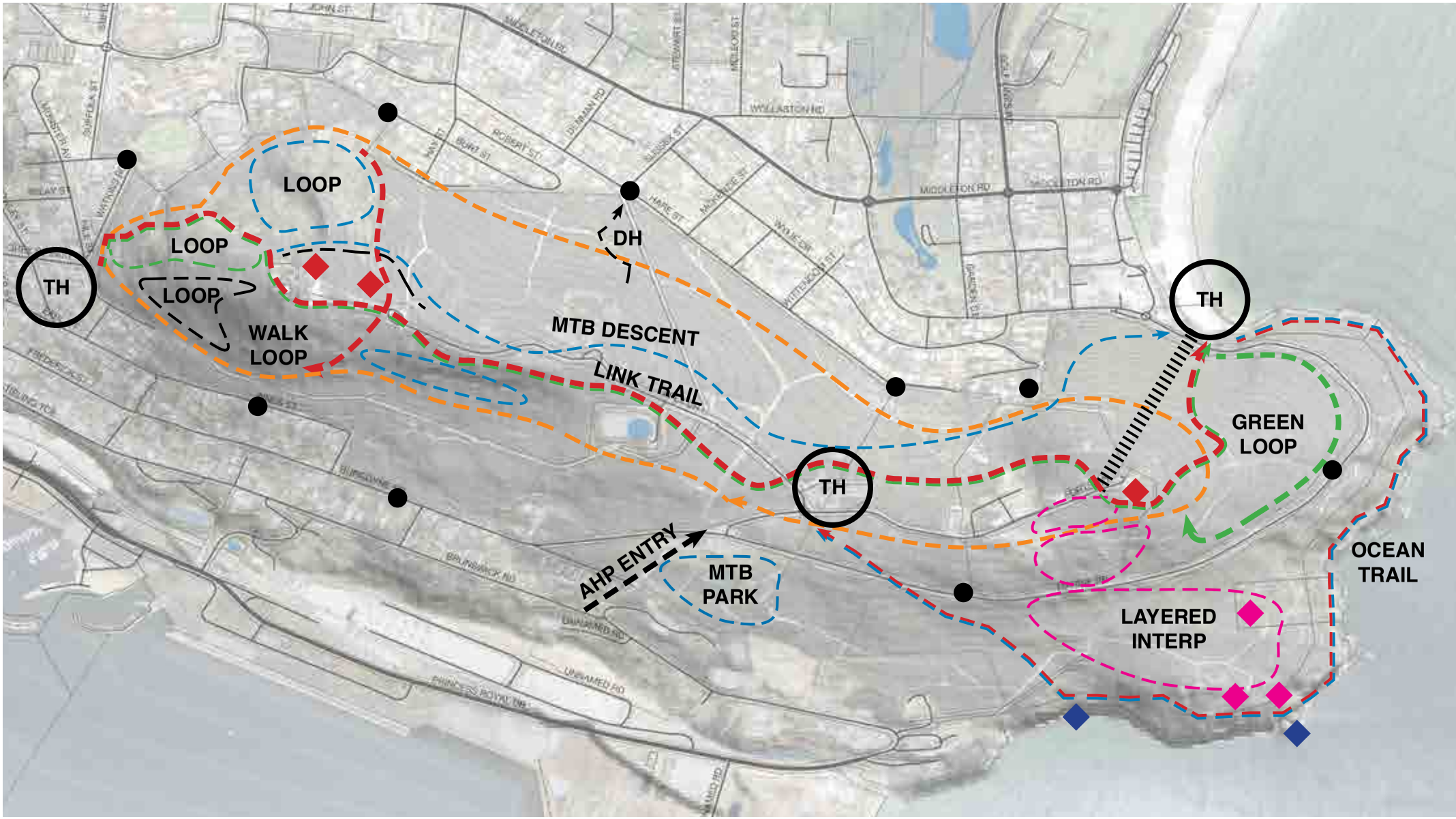
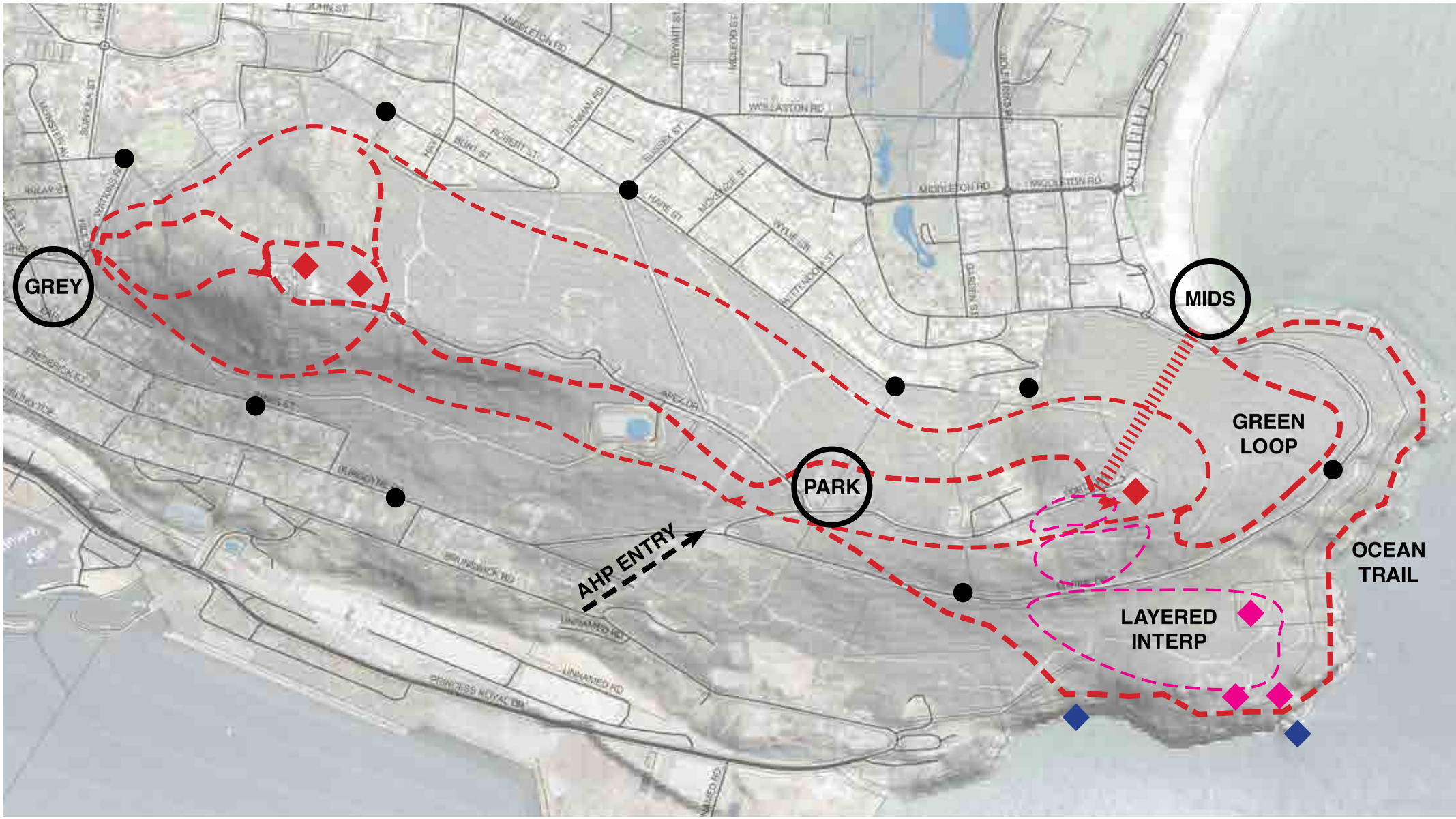


FIGURE 15: BROAD CONCEPT - WALK TRAIL SYSTEM



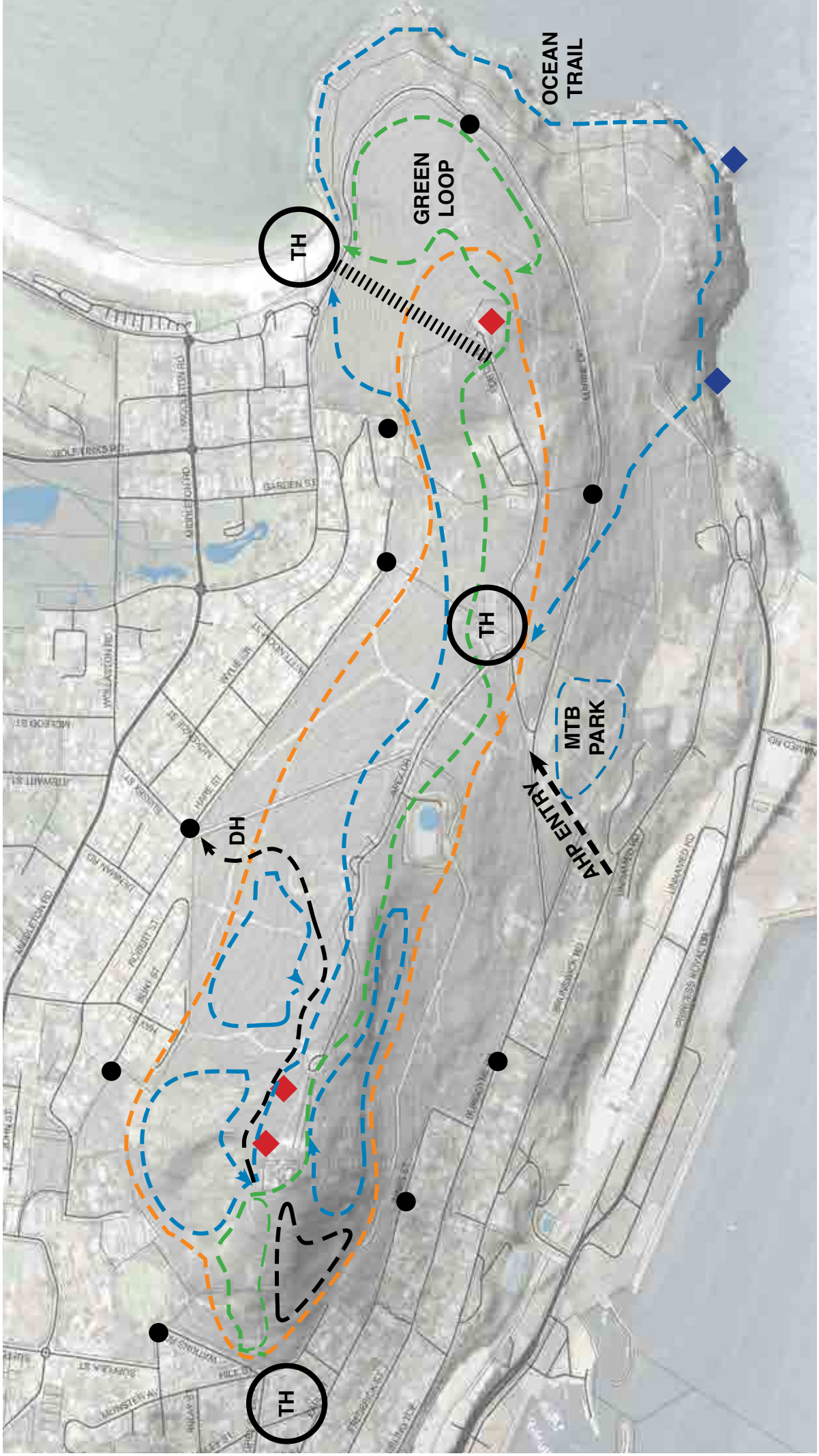
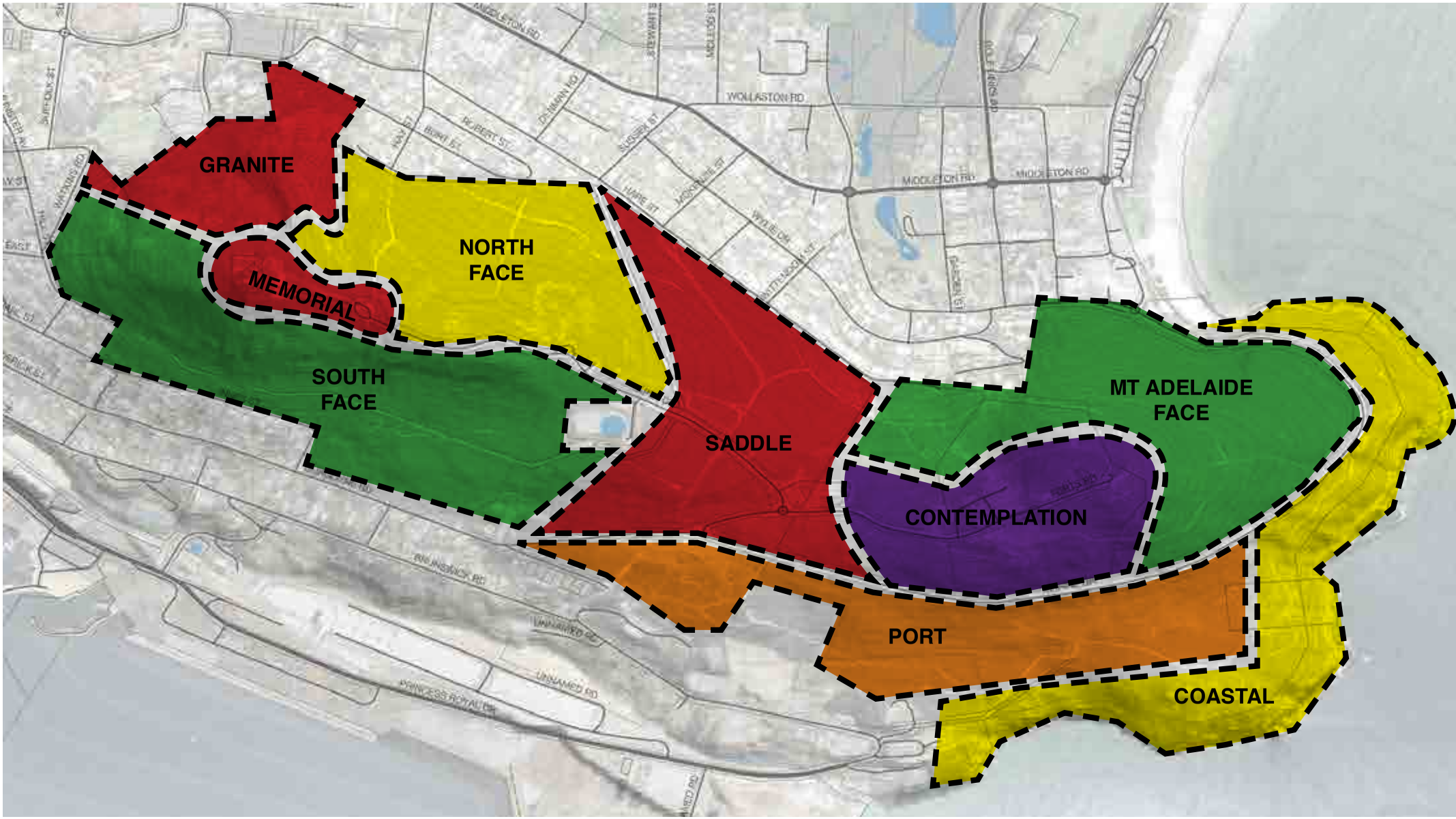


FIGURE 16: BROAD CONCEPT - MOUNTAIN BIKE TRAIL SYSTEM

FIGURE 17: BROAD CONCEPT - DEVELOPMENT ZONES

The combination of features determined through the various analyses perfomed enabled categorisation and develoomment of 'zones'. These zones provide guidance on the types of trails that should be developed in different areas. For example, the 'Contemplation' zone should be developed as a slow pace, interpretive area, and descending mountian bike trails should be developed outside of this zone.



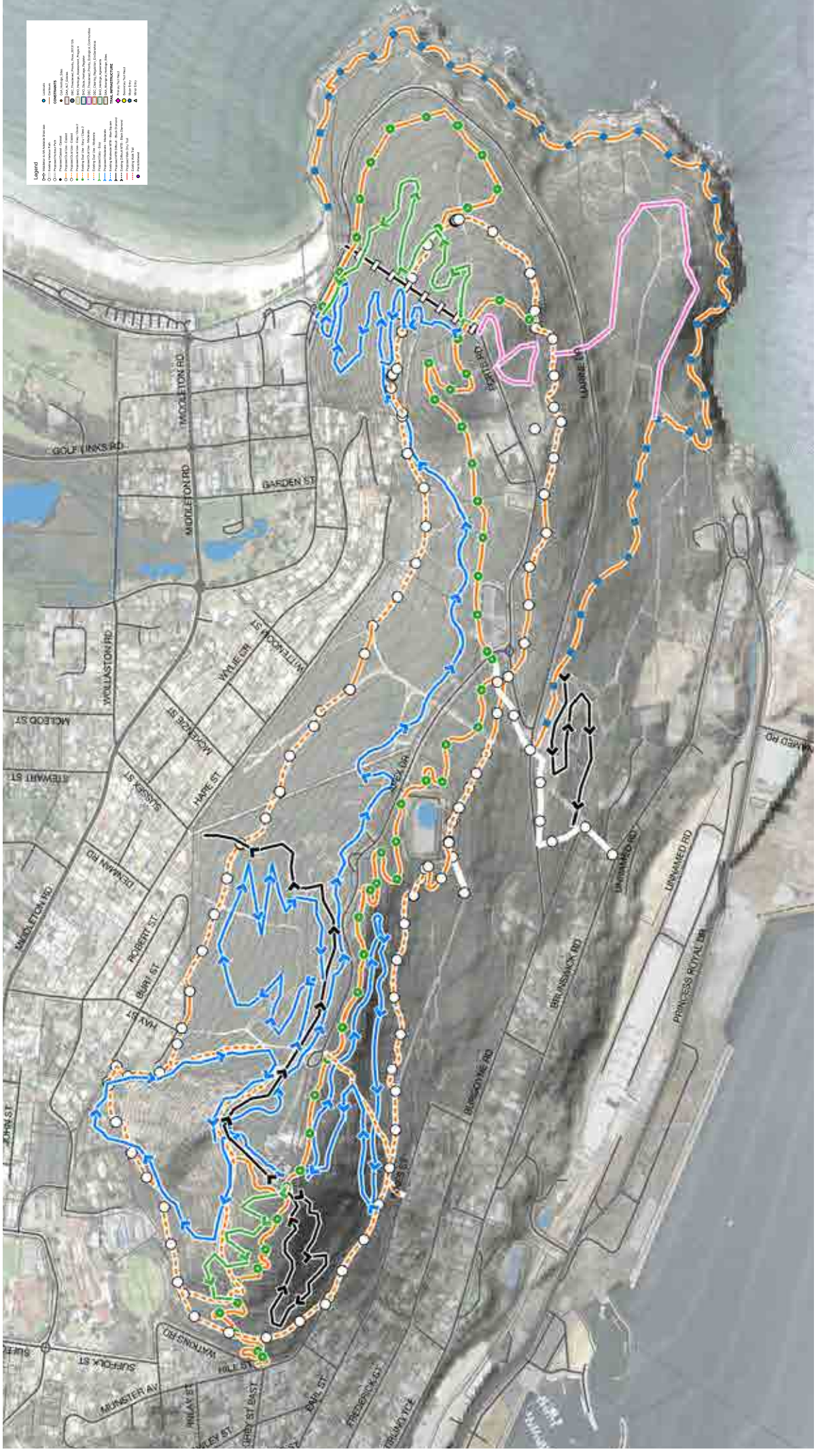
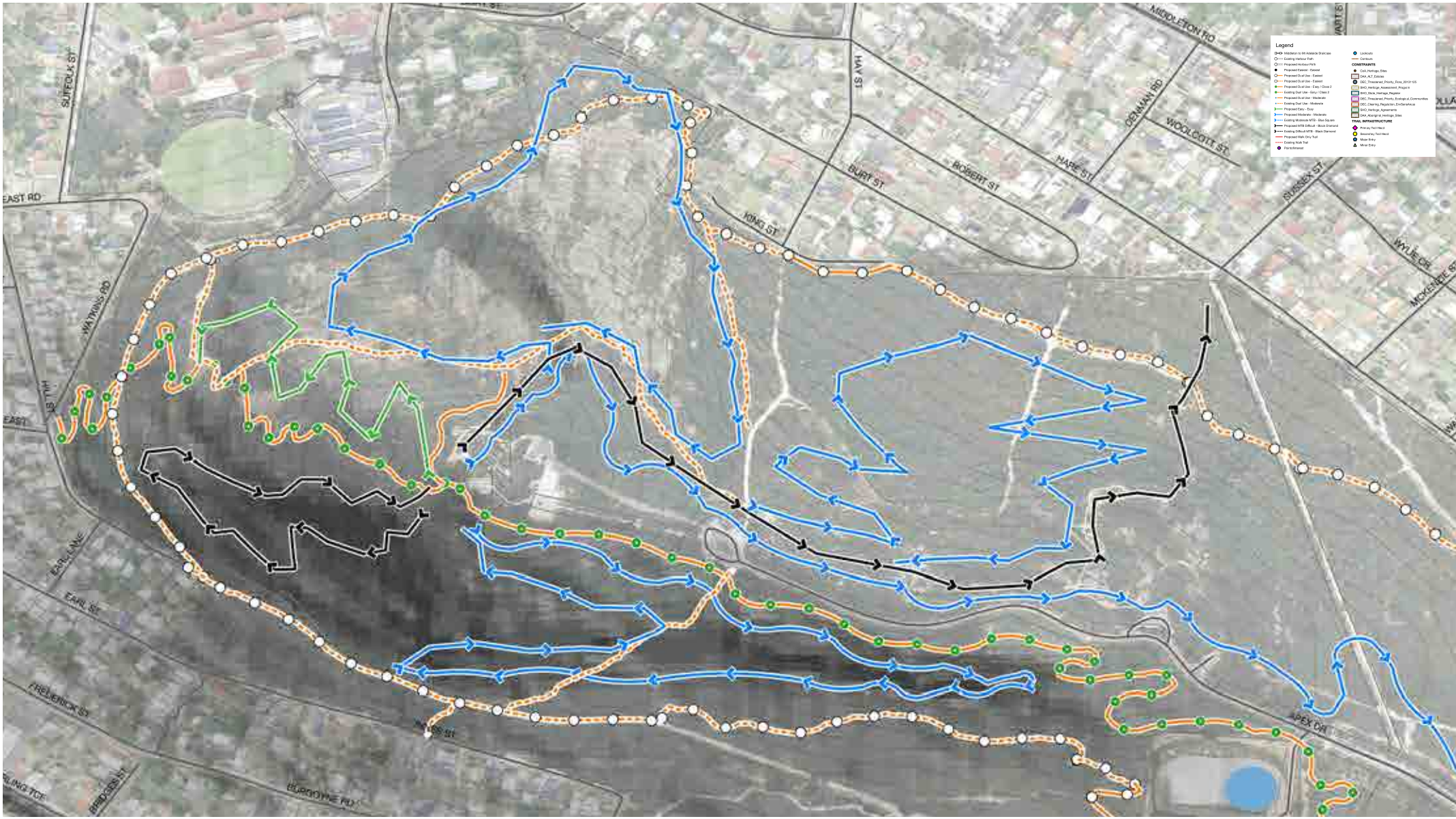


FIGURE 18: BROAD CONCEPT - OVERALL PLAN

FIGURE 19: BROAD CONCEPT - MOUNT CLARENCE DETAIL



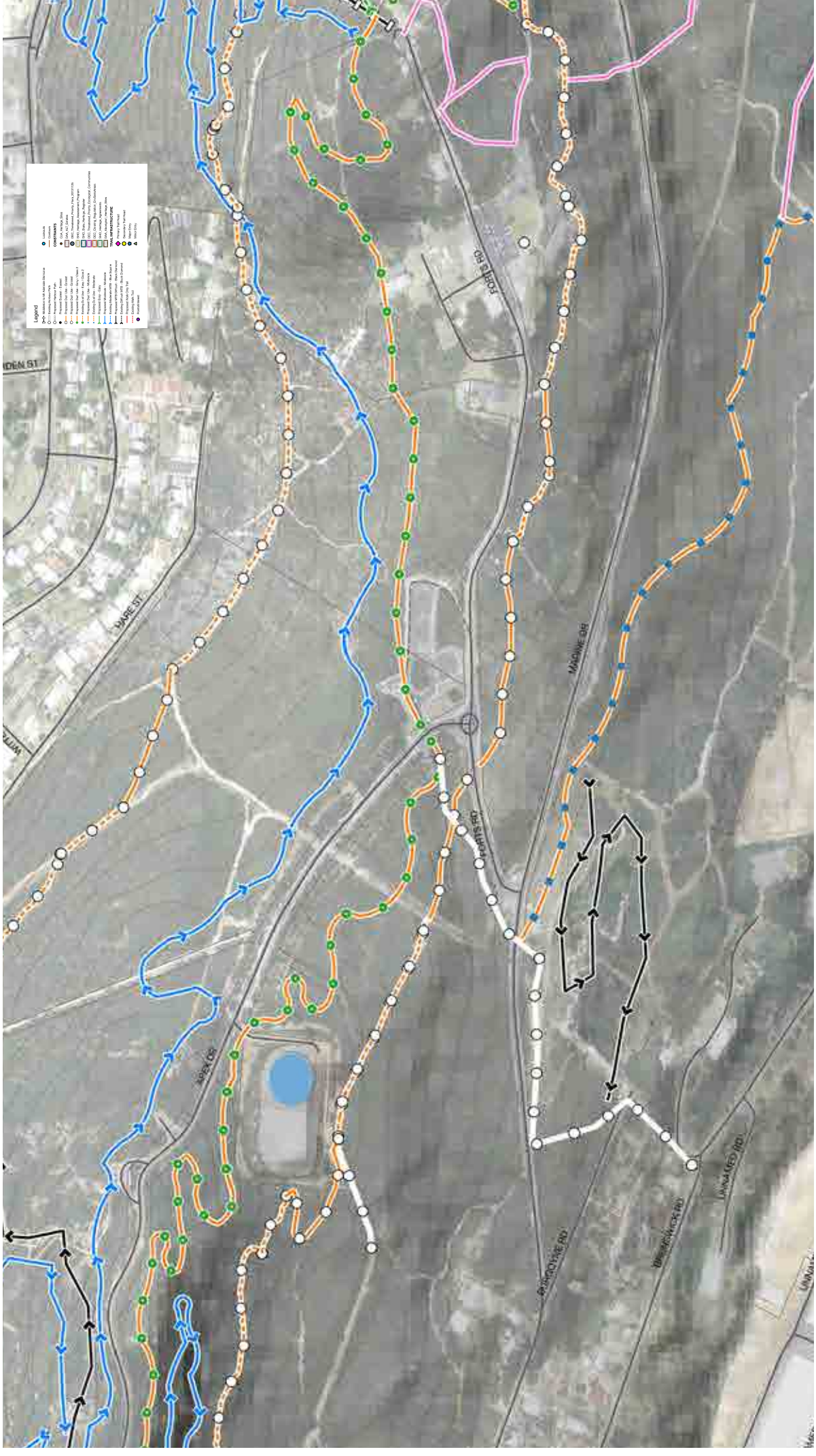


FIGURE 20: BROAD CONCEPT - SADDLE DETAIL

FIGURE 21: CONCEPT PLAN - MOUNT ADELAIDE DETAIL

CONCEPT PLAN

PROPOSED TRAIL SYSTEM OVERVIEW

The AHP Trail System comprises a number of trail heads and combination of trail styles, difficulty levels and designs, which are sympathetic to the local character and values. The system features a core trail, the Ridge Link Trail, connecting the city centre to Middleton Beach, via the summits of Mount Clarence and Mount Adelaide. The system is based on a linked loop design, which includes a series of loop trails radiating from the trail heads and the Ridge Link Trail, to enable users to try different trails without having to return to a single trailhead. Existing alignments and well used routes have been reviewed, consolidated and enhanced to provide an accessible and desirable network that promotes positive multi-user nature experiences. Adoption of this Concept Plan does not preclude development of other trails, linkages and connections in future, should there be demand, stakeholder support and the appropriate development process is adhered to. The proposed trail system offers the following breakdown of existing and new trails.

TRAIL	TRAIL QUANTITY (M)
Existing alignment (singletrack or fire break)	13,572
New trail construction	25,398

OVERALL NETWORK TRAIL TYPE SUMMARY

The network offers the following breakdown of types.

TRAIL TYPE	TRAIL QUANTITY (M)
Dual use	20,207
MTB	13,265
Walk	5,498
Total	38,970

TRAIL CLASSIFICATION SUMMARY

The network offers the following breakdown of classifications.

WALK TRAILS INCLUDING DUAL USE

CLASSIFICATION	TRAIL QUANTITY (M)	CLASSIFICATION % OF TOTAL
Walk - Grade 1	1,045	4%
Walk - Grade 2	18,385	73%
Walk - Grade 3	5,799	23%
TOTAL	25,229	

WALK ONLY SINGLE USE TRAILS

CLASSIFICATION	TRAIL QUANTITY (M)	CLASSIFICATION % OF TOTAL
Walk - Grade 2	2,630	52%
Walk - Grade 3	2,392	48%
TOTAL	5,022	

MOUNTAIN BIKE TRAILS INCLUDING DUAL USE

CLASSIFICATION	TRAIL QUANTITY (M)	CLASSIFICATION % OF TOTAL
Mountain Bike - Very Easy	8,962	35%
Mountain Bike - Easy	3,580	14%
Mountain Bike - Moderate	10,292	40%
Mountain Bike - Advanced	2,800	11%
TOTAL	25,634	

MOUNTAIN BIKE ONLY SINGLE USE TRAILS

CLASSIFICATION	TRAIL QUANTITY (M)	CLASSIFICATION % OF TOTAL
Mountain Bike - Very Easy		
Mountain Bike - Easy	3,580	27%
Mountain Bike - Moderate	6,885	52%
Mountain Bike - Difficult	2,800	21%
TOTAL	13,265	

The network has been designed to offer a total trail experience of over 38km. The Development section of this plan provides guidance on the next steps for corridor evaluation, detailed design and construction staging. Broad hygiene, flora and fauna and heritage (Aboriginal and Non-Aboriginal) assessments have been undertaken to inform the concept plan development. The topography, slope, ruggedness and aspect of the area have been analysed to identify significant features conducive to high quality trail experiences. The elevation losses across various cross-sections of the area, as well as opportunities for scenic vistas have been considered to identify appropriate links between points of interest and desirable locations.

Trails are situated in zones conducive to varying levels of construction intensity. Generally, walk trail corridors have been designed to enable and encourage passage between the City Centre, Middleton Beach and the interpretive opportunities surrounding the Mounts. Mountain bike trail corridors have been designed to maximise the available fall on the site. Walking and mountain biking experiences have been either combined or separated to allow safe and harmonious interactions between both user types. The types of trail surrounding Mount Clarence and Mount Adelaide are reflective of the site's topographical, cultural and historical values. The two Mounts are connected by a perimeter trail which follows the lower contours, as well as ridge line trails offering a number of contemplative and adventurous options. Trail continuation is accounted for through non-compounding loops, allowing for multiple visitor experiences including short circuits, half and full day walks, and half day rides without repeating significant sections of trail.

TRAIL HEAD LOCATIONS

The main access points and infrastructure were evaluated to determine appropriate locations for formal trail heads that would achieve the following objectives:

- To maintain important access points from surrounding residential area, consolidating the large number of existing informal access tracks and rehabilitate where needed
- To restrict access to the greater trail system via formal trail heads
- To maintain a primary tourism access point via the National ANZAC Centre
- To improve the link between Marine Drive, Albany Harbour Path, City centre and the trail network for walkers and mountain bikers

Consideration was given to how the recreation and tourism user markets would be likely to access the site, consolidating the number of primary trail heads and integrating with existing infrastructure. Consultation with the community via the survey and workshops identified common user behaviours, which also influenced placement of trail heads. All trail heads are identified on the Concept Plan Maps.

Secondary trail heads are located in areas where people are likely to find them incidentally while using the network or accessing the AHP for non-trail related activities.

Minor entries are located at various points on surrounding streets, primarily to cater for local residents.

PRIMARY TRAIL HEADS

Primary trail head locations were selected where it is expected most trail users will access the AHP. Table 4 provides a summary of the proposed Primary Trail Heads, the existing and proposed amenities and facilities.

CITY TRAIL HEAD

A primary trail head is proposed on the intersection of Grey St East and Watkins Rd at the base of Mount Clarence, for users accessing the AHP from the City centre. Directional signage from key locations and meeting points in the City Centre, such as the town hall and York St, should be provided to encourage visitors to walk to the AHP. There is limited car parking space available at the trail head location, but there is a good quality 600m walking path directly linked to York St. From this trail head, iconic trails, such as the scenic walk to the summit of Mount Clarence and the Urban Downhill mountain bike descent will be accessible. The location of this trail head allows event spectators to access the trails easily from the City, and it also provides the starting point for full day trail experiences.

SADDLE TRAIL HEAD

A primary trail head is proposed on the saddle between the Mounts, nearby the main AHP vehicle entry. There is significant car parking available in the area, and feedback from community consultation indicated that this is a popular access point for trail users. The trail head has the potential to encourage visitors to use the associated car parking and access the Mount Adelaide historical precinct via the trails, as an alternative.

MIDDLETON BEACH TRAIL HEAD

A primary trail head is proposed at the car park adjacent to Mount Adelaide near the Middleton Beach tourism precinct. A number of highly utilised existing informal trails originate from this location, indicating demand for this access point. As the end point for a number of descending mountain bike trails, including the Icon Descent, a shuttle pick up point is likely to be located at or near this trail head.

PRIMARY TRAIL HEAD	EXISTING AMENITIES AND FACILITIES	PROPOSED AMENITIES AND FACILITIES
City Trail Head	Walk path access, link to public transport, proximity to City Centre	Signage, shelter, cycle network integration, equipment wash station, drinking water
Saddle Trail Head (Corner of Forts Road and Apex Drive)	Car parking, signage (minimal)	Signage, shelter, toilet, cycle network integration, drinking water, equipment wash station
Middleton Beach Trail Head	Proximity to Middleton Beach tourism precinct	Signage, shelter, additional parking, cycle network integration, equipment wash station, drinking water

Table 4: Primary Trail Heads Amenities & Facilities

SECONDARY TRAIL HEADS

Secondary trail head locations were selected where several trails intersect or branch in the network, forming a node. Table 4 provides a summary of the proposed Primary Trail Heads, the existing and proposed amenities and facilities.

MOUNT CLARENCE CAR PARK TRAIL HEAD

A secondary trail head is proposed at the Mount Clarence Car Park on Apex Drive, due to its existing infrastructure, associated lookouts and points of interest. There is limited opportunity for car park expansion, and the location is not well connected with any major roads or precincts, therefore it has not been recommended as a primary trail head. This location provides a rest point for users of the Ridge Link Trail.

MOUNT ADELAIDE TRAIL HEAD

A secondary trail head is proposed at the summit of Mount Adelaide close to the Wesfarmers lookout. Several proposed descending mountain bike trails originate at this location. It is also the summit of several walk trails that originate at the Middleton Beach Trail Head, including the proposed iconic Mt Adelaide stairs. It is intended that walkers and mountain bikers will interact harmoniously in this area, as both users will want to access the views and photographic opportunities provided at the Wesfarmers lookout. The placement of the trail head and trails will achieve separation of mountain bikers from walkers in the busy historic precinct.

NATIONAL ANZAC CENTRE TRAIL HEAD

A secondary trail head is proposed at the National Anzac Centre, which will predominantly cater for the tourism market. It will provide information for people visiting the historic precinct and its associated interpretive trails, which provide links to sites and trails in the vicinity of Marine Drive.

MINOR ENTRIES

Minor entries are proposed along the perimeter of the AHP boundary to maintain historic community access points. Due to the proximity of these entries to neighbouring residences it is recommended that some of these entries remain unsigned, 'locals only' routes.

SECONDARY TRAIL HEAD	EXISTING AMENITIES AND FACILITIES	PROPOSED AMENITIES AND FACILITIES
Mount Clarence Car Park Trail Head	Car parking, toilets, shelters as well as a number of lookouts and points of interest	Signage
Mount Adelaide Trail Head	Bike parking, lookout	Signage
National Anzac Centre Trail Head	Restaurant, interpretive centre, visitor services, open parkland, toilets and large car park	Signage

Table 5: Secondary Trail Heads Amenities & Facilities

TRAILS, CONNECTIONS, LINKS AND INFRASTRUCTURE TO BE RETAINED

The existing trail network includes a number of walk trails, and fire management tracks, totalling over 33km. Many of these tracks and trails are used by walkers and increasingly by mountain bikers. While none of the existing trails are considered high quality or sustainable, sections of them are suitable for use in the proposed development, with some improvements and modifications.

While many of the walk trails are desirable to the community, feedback indicated that they are not considered highly desirable by mountain bike users. Over 13km of existing trails are recommended to be formalised as walk, mountain bike or dual use trails. Detailed reasoning for retaining particular trails or sections of trails is provided in the individual Trail Summaries. An audit and assessment of all existing trails was undertaken as part of the site investigation, and the broad outcomes of this process are provided in the Site Analysis Section. The broad-scale assessment of the site identified a range of issues to be addressed through a review of the entire trail system.

Where the proposed trail system can make use of existing trail alignments, to avoid creating new trails, it has been recommended that those individual trails are reviewed in further detail to ensure suitable alignments, classifications and appropriate trail features can be achieved sustainably. Where an existing trail was found to be superfluous to the intent and objectives of the trail system, actions such as closure and rehabilitation have been recommended.

SHUTTLE ROAD ACCESS

Shuttles may be used to transport trail users from the surrounding lower street levels up to the primary trail heads. Shuttle users may include elderly residents and visitors using the walking or interpretive trails, or mountain bike riders using the gravity-focussed trails. The existing public roads enable suitable pick up and drop off points for shuttle vehicles and trailers. Proposed locations have been identified in the map provided in the Final Concept Plan.

EMERGENCY & MANAGEMENT VEHICLE ACCESS

The emergency and management vehicle access plans were reviewed as part of the development of the trail network. A number of access tracks will be closed and some of the proposed trails, for example sections of the dual use Perimeter Trail, will be used for emergency and management access. It will be important to maintain corrals and sufficient clearance above the trail corridor to ensure vehicle access is possible. A balance will be achieved to ensure the trail provides a natural feel for users, and meanders through the alignment, rather than travelling in a straight line.

The emergency and management vehicle access tracks proposed to be closed and retained are identified in the Final Concept Plan.

TRAIL CLOSURE AND REHABILITATION

Many of the existing trails or sections of trails have not been planned, designed or constructed appropriately for use by walkers or mountain bikers. Some trails are unnecessary duplicate trails or are impacting on the environmental, cultural and landscape values of the reserve. The planning process has provided the opportunity to review sustainability of all trails and rationalise the existing system, resulting in broad recommendations for trail closures. It is recommended that the detailed design include specifications for all individual trail closures. Where trails are to be closed, the alignment will be rehabilitated to allow vegetation to regenerate. Further to this, upgraded and new trails will be designed so that they do not connect with the closed trails physically or visually, to further discourage use. A summary of the trails to be closed is provided in the Concept Plan Section.

TRAIL NAMES

All proposed trails have been designated identification numbers. Once constructed, trail naming is important for navigation and promotion. The community should be engaged in the naming of trails, which should reflect the local values and character of the area. Where existing trails have been incorporated into the concept design, e.g. Granite Trail, it is recommended the existing name be retained.

TRAIL SYSTEM

The trail system (Figure 22) has been designed to cater for the needs of all user groups and demographics identified in this plan. Building on the character and usage of the existing network, a primary focus has been placed on the leisure cohort, who seek very accessible trail experiences. The proposed trail network includes a walk trail system and mountain bike trail system, comprising dual use and single use trails. Individual trail summaries are provided in the following sections, to describe how the trail systems are intended to be used. A variety of user groups, with recreation as a primary motivator. The primary use of the trail network will be for recreation, while the secondary use will be for tourism, and the network is linked appropriately to potential event staging areas, spectator access and facilities to allow for ongoing use of the area for mountain bike and other events. Spectator based event (such as downhill mountain biking) infrastructure is recommended to be developed in areas of less environmental value where appropriate, to limit the impact of spectators. A range of mountain bike events, including long distance, cross country and gravity formats will be catered for through provision of a range of suitable trails within the network. Walking and trail running events are also catered for.

The individual trail summaries include provisions for concurrent recreation and tourism use while events are in operation in the area. The primary focus of the trail system is the leisure cohort, through provision of strategic connections and dual use trails.

WALK TRAIL SYSTEM

A secondary focus is on improvements to walking trails to provide grade 1-3 bushwalking trails for nature watchers and appreciators, recreational walkers, dog walkers, bushwalkers and trail runners. The natural values and historical use of the site dictate that bushwalking style trails are appropriate. Natural looking trails are desirable to users, who will primarily use the network for recreation. The walk trail system (Figure 27) comprises walking and interpretive trails to cater for local residents and visitors to the AHP. Walking trails are focused around Mount Clarence, capitalising on the unique landform and connection to the city centre, while the interpretive walking trails are focused around the National Anzac Centre, Royal Princess Fortress and Lower Forts enhancing the heritage theme of the area.

MOUNTAIN BIKE TRAIL SYSTEM

A secondary focus of the trail system is on the enthusiast mountain bike cohort, through provision of a single use trail network, potentially accessed via dual use trails and strategic connections. There is a tertiary focus on the sport and gravity cohorts, through provision of event-specific facilities and connections to appropriate trails. Topography and value of landscape, and historical use of

the site dictate that both cross country and gravity mountain bike styles are appropriate. The mountain bike trail system (Figure 28) caters for a range of skill levels and up to a full day of unique riding experiences.

ICONIC TRAIL EXPERIENCES

Two iconic trail experiences will be developed to showcase Albany's iconic landscapes and attract a range of markets. These trails will be highly accessible experiences and present the opportunity for development of transport and tour services. These trails are:

- The Green Dual Use Ridge Link Trail, which connects the Albany City Centre with Middleton Beach. This trail will cater for a range of walkers and mountain bikers seeking a range of trail experiences. It features a scenic route traversing both Mt Clarence and Mt Adelaide to provide stunning vistas of the Albany surrounds. It can be accessed from a number of locations, and sections of this trail are suitable for wheelchair users. Two steep sections of trail originating at each trail head are dual use in the uphill direction, but only walkers will be permitted to descend on these sections. Separate single direction descents are provided for mountain bikes to return to the trail heads.
- The Blue Dual Use Coastal Trail showcases the rugged and exposed coastline, starting at Middleton Beach and climbing toward the Saddle Trail Head within the AHP. Traversing the rocky headland, the trail is intended to provide an adventurous alternative to the wide and even surface of the boardwalk. The trail caters for more experienced users, including enthusiast mountain bikers and experienced bushwalkers, offering a technical challenge in changing terrain.

DEMONSTRATION TRAIL

The existing trail supply is not representative of world's best practice or 'World Class' quality trails. It is understandable that people may be concerned that new trails will result in a greater quantity of visually undesirable trail. It is intended that some of these concerns will be addressed through the implementation of the 'demonstration trail' project. The intent of the Demonstration Trail is to demonstrate to the community and prospective funding bodies:

- Quality of trail to be constructed
- Low level of disturbance and impact on the environment that can be achieved by using modern trail construction techniques
- Different techniques that can be utilised to develop sustainable trails on different ground conditions
- How trail design can address safety issues
- How effective signage can help prevent user conflict

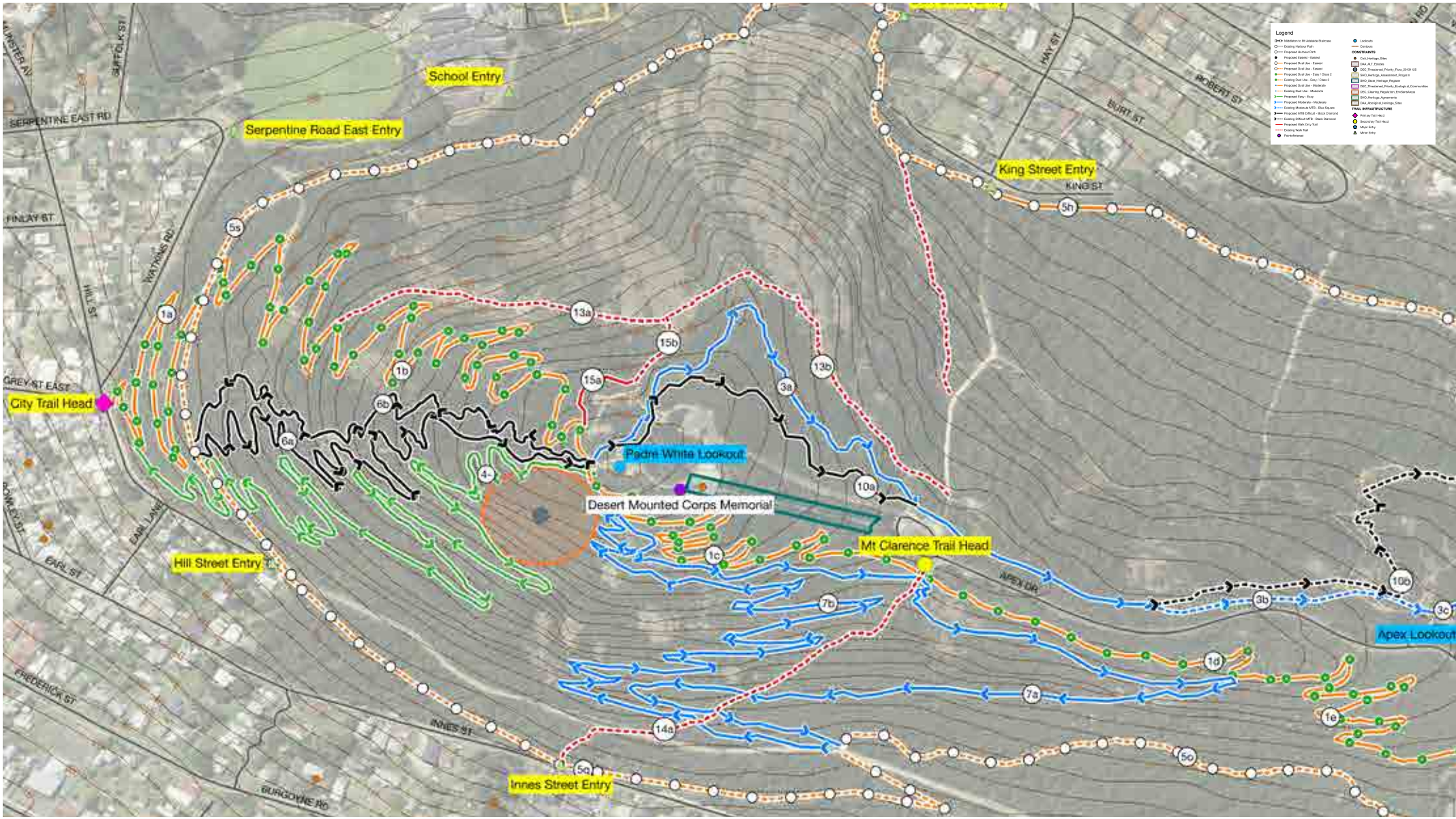
The Demonstration Trail was approved for construction at the time of writing this report. Prior to construction, the trail alignment underwent detailed flora and fauna assessments. A clearing permit was obtained, and Aboriginal monitors were present on site for the clearing works.

CONCEPT PLAN & TRAIL SUMMARIES

Figures 23 to 28 represent the final concept plan for the proposed trail network. The following pages provide summaries of the individual trails within the network.

FIGURE 22: FINAL CONCEPT - OVERALL PLAN

FIGURE 23: FINAL CONCEPT - MOUNT CLARENCE DETAIL



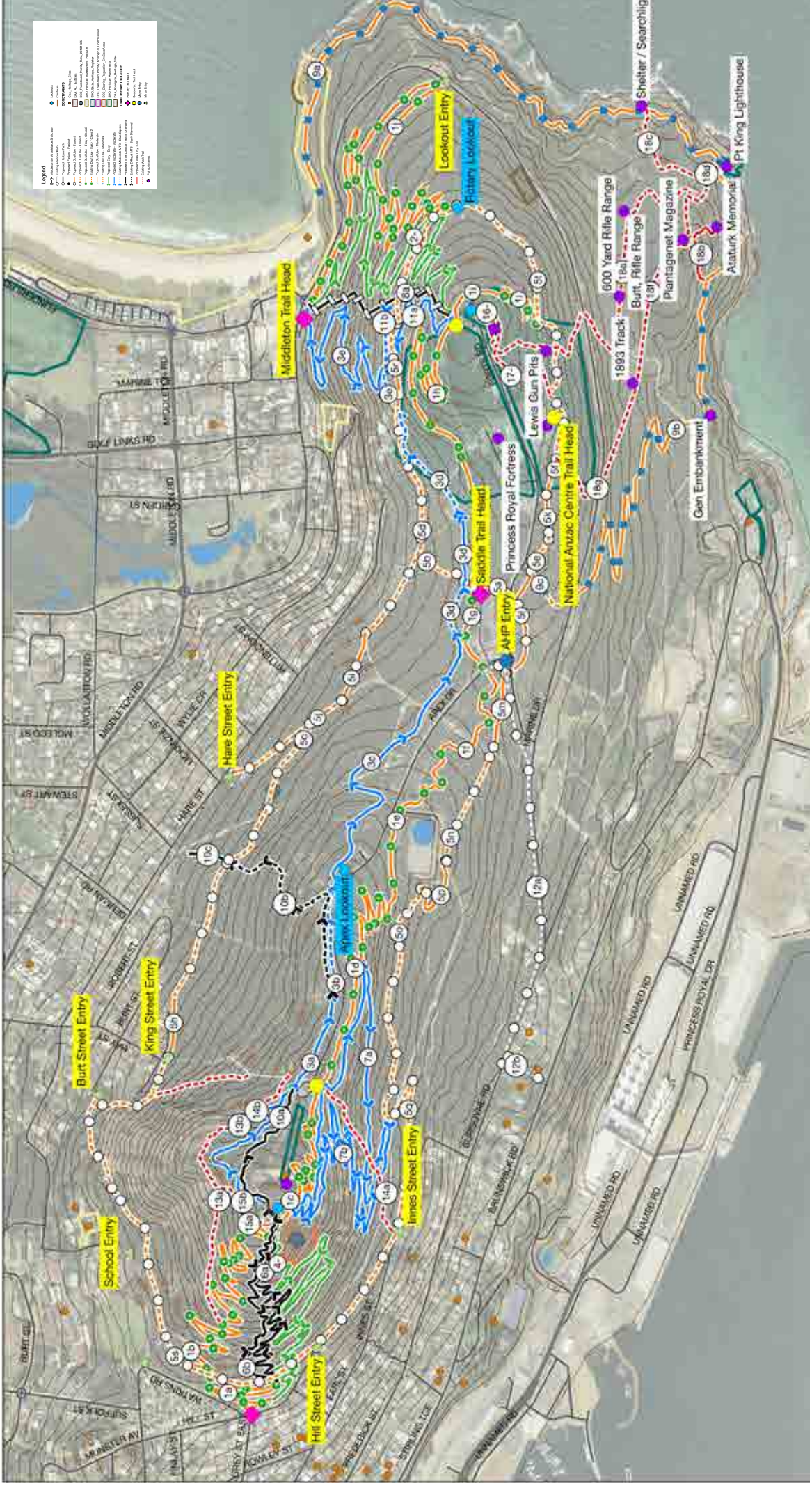
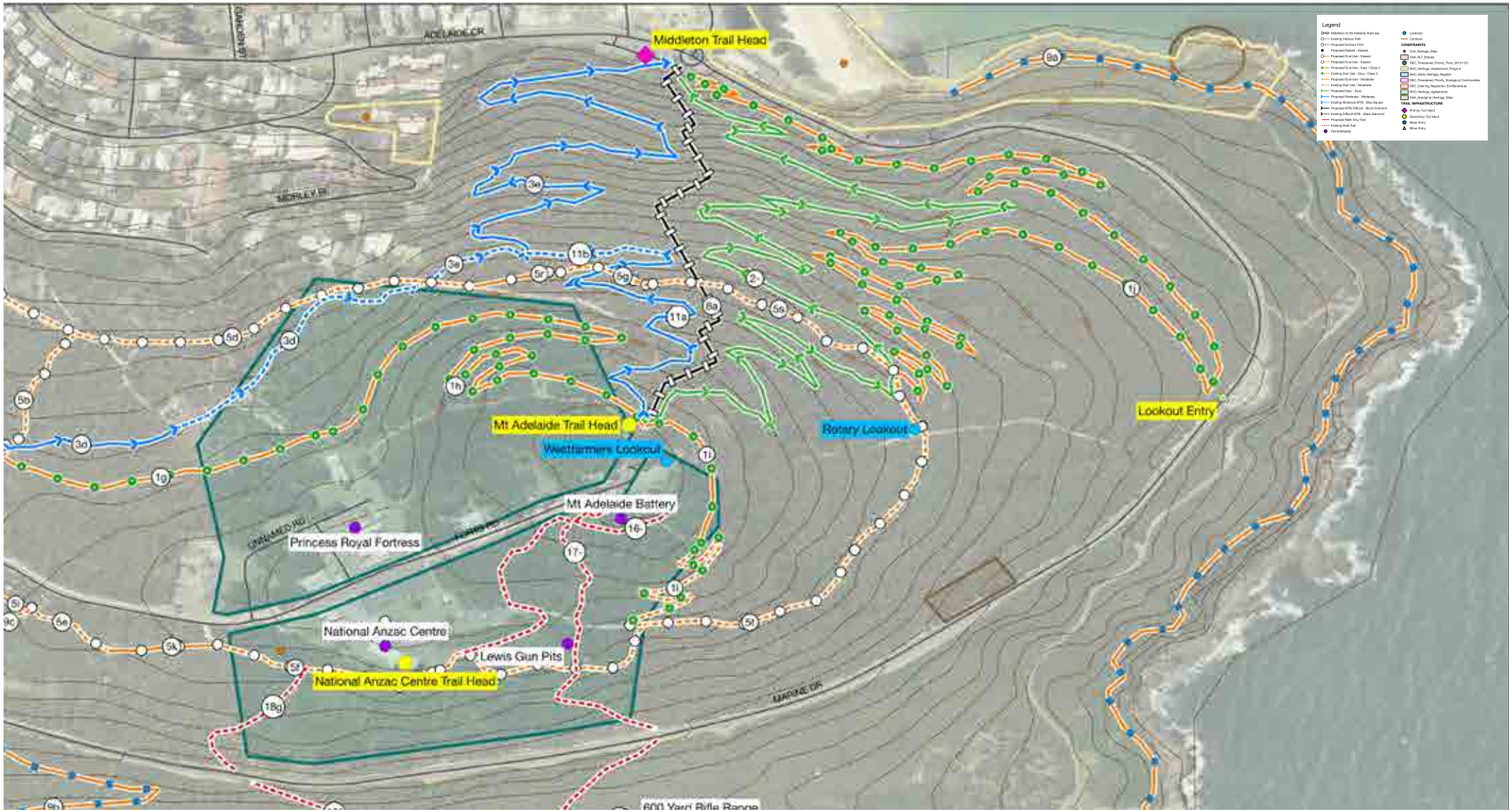


FIGURE 24: FINAL CONCEPT - SADDLE DETAIL

FIGURE 25: FINAL CONCEPT - MOUNT ADELAIDE DETAIL



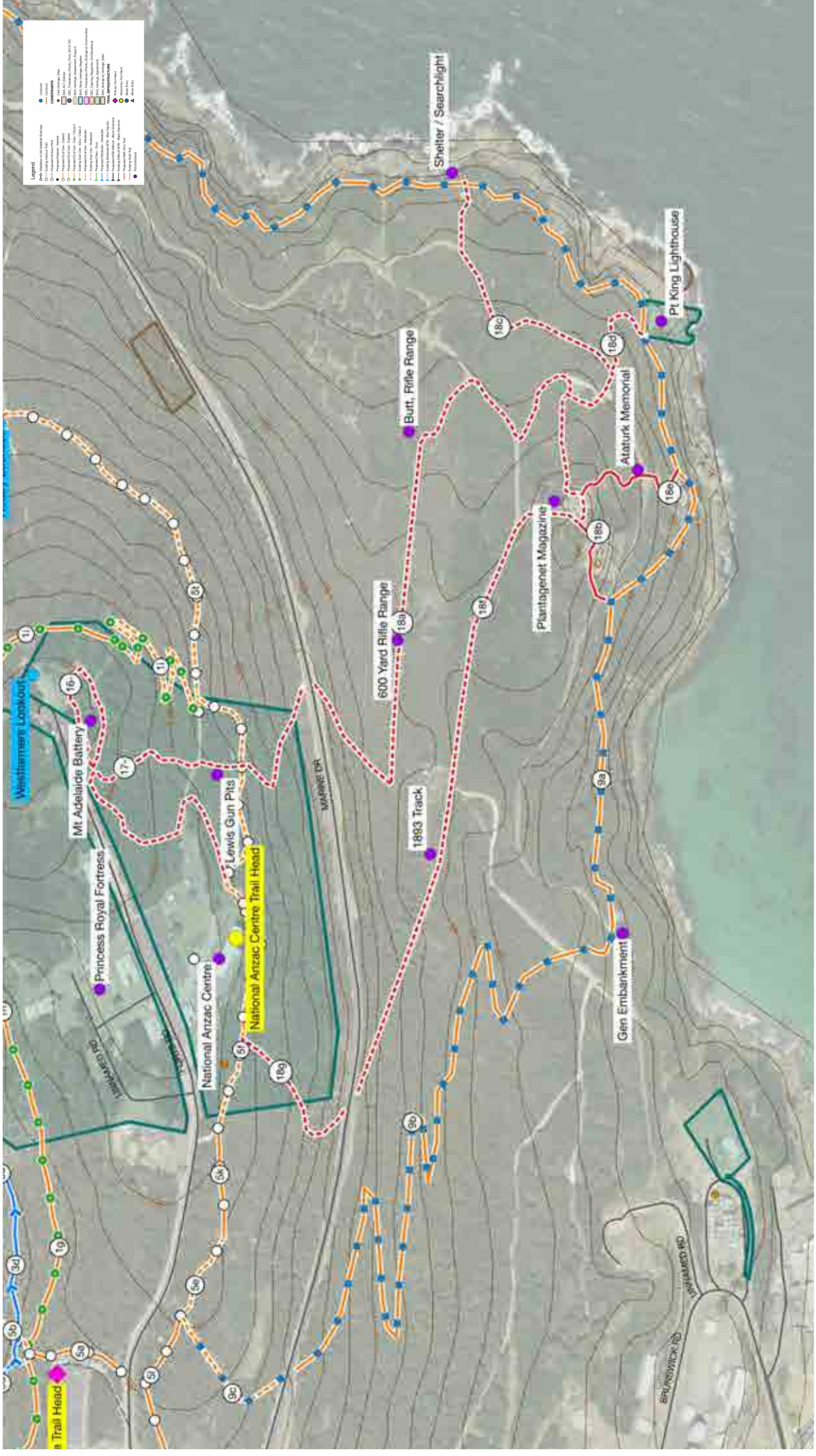


FIGURE 26: FINAL CONCEPT - COASTAL AREA DETAIL

FIGURE 267 FINAL CONCEPT - WALK TRAIL SYSTEM

FINAL CONCEPT

FIGURE 28: FINAL CONCEPT - MOUNTAIN BIKE TRAIL SYSTEM

GREEN DUAL USE RIDGE LINK CORRIDOR

TRAIL ID **1**

WALK

BASIC / MODERATE
GRADE 2

MOUNTAIN BIKE

EASY
GREEN CIRCLE

OVERVIEW

The Ridge Link trail is proposed to provide a unique and iconic Albany trail experience, providing a low gradient (2% average) spine connecting users to Middleton Beach from the City Centre via a scenic route traversing both Mt Clarence and Mt Adelaide. This trail provides a vital connection and access to multiple trails and route opportunities within the network and is therefore of high strategic value. As the primary access and egress to and from the City Centre and Middleton Beach, it is anticipated that this section of trail will see a very high relative level of use.

OPPORTUNITIES

USER MARKETS

It is anticipated that this trail will be desirable to a range of mountain bikers and walkers seeking a range of trail experiences. The trail is therefore proposed as an easy classification dual use trail, focused primarily on providing access to the Mounts from trail heads at both the City Centre and Middleton Beach. Sections will be utilised for shorter experiences for walkers and mountain bikers when commencing at any trail head, and the link between the Mounts is suitable for wheelchair users.

OPTIONAL LINES TO CATER FOR MULTIPLE CLASSIFICATIONS

Designed to be an open flowing trail with minimal features it allows users to view the surrounding scenery. As this trail is shared use, optional lines and features for higher classifications for mountain bikes are not appropriate. Optional steps may be used to provide quicker alternatives for walkers.

USE OF EXISTING TRAIL

To minimise the need to construct new trail, construction can utilise several existing disturbed alignments. Further assessment during the detailed design stage will determine how much can be utilised, upgrades required and quantity of new trail required.

CONFLICT MANAGEMENT

There is a need to manage potential conflict between user types on two particular sections of this trail. The proposed strategy is to duplicate two sections; the sections of trail originating at each trail head are dual use in the uphill direction, but only walkers will be permitted to descend on these sections. Trail 2 and 4 will provide single direction descents for mountain bikes back to the trail heads.

CONSTRAINTS

- Environmental, hygiene and heritage constraints have been assessed broadly in the context of the AHP.
- The trail is primarily located on rock, with some sandy soil in the eastern sections. Through the detailed design of the trail, areas of sensitive vegetation will be identified prior to confirming the most appropriate alignment.
- The dieback assessment identified potential for disease free vegetation to exist within this proposed alignment. Further investigations may be undertaken prior to confirming the detailed design to prevent impact on potentially protectable downslope areas.
- There are no heritage issues associated with the broad alignment of this trail.

TRAIL CORRIDOR DETAILS

Corridor ID	1a, 1b, 1a, 1b, 1c, 1d, 1e, 1f, 1g, 1h, 1i, 1j, 1k
Name	Ridge Link Trail
Strategic Value	High
Use	Dual - Walk & Mountain Bike
Classifications	Grade 2 / Easy - Green Circle
Trail Type	Walk / Cross Country
Trail Style	Open
Direction: 1c - 1h - Dual Direction All Users; 1a, b, i & j - Dual Direction Walkers Only, Single Direction uphill for MTB Only	
Ascending / Descending	Ascending & Descending
Options: Optional Blue Features & Lines on Mountain Bike Descents Only; Optional Grade 3 Lines and steps on Walk Trail	
Corridor Width	100m
Trail Length	9000m
Vertical Range	180m
Elevation Variation	360m
Prevailing Cross Slopes	Flat to Very Steep
Average Trail Gradient	2%
Maximum Trail Gradient	10% Walk 15% < 20m Mountain Bike
Minimum Line of Sight	10m
Tread Width	1500mm - 1800mm
Qualifier / Filter	Nil

DEVELOPMENT STAGING & COSTING

Development Stage	STAGE 1
Construction Type	Upgraded & New
Est. Design Cost	$26,886.00
Est. Construction Cost	$640,960.00
Est. Signage & Ancillary Cost	$12,819.20
Est. Total Trail Cost	$969,666.20
Est. Maintenance p/year	$28,843.20

RECOMMENDED CONSTRUCTION METHODOLOGY

Proposed Construction Methodology	Sections of full bench, partial bench and lifted surface construction.
Proposed Construction Materials	Combined imported and natural material trail surface over natural & imported subsurface.

TECHNICAL TRAIL FEATURES

TURNS	VERTICAL CHANGE	OBSTACLES
Turns	Rollers	Chicane
Berm	Grade Reversal	Choke
Climbing Turn	Steps - Optional	
Technical Inside Line	Walk Line	

MIDDLETON BEACH DESCENT CORRIDOR

TRAIL ID 2

MOUNTAIN BIKE

EASY
GREEN CIRCLE

OVERVIEW

The Middleton Beach Descent is proposed to provide an easy classification mountain bike descent from the dual use Ridge Link trail, down to Middleton Beach. It can be used as part of the full iconic Ridge Link trail experience, or as a short mountain bike loop from the Middleton Beach Trail Head comprising a climb via the Ridge Link trail and subsequent descent. The Middelton Beach Descent trail intersects the Ridge Link trail approximately halfway uphill form the trail head, where it links to the Rotary lookout via a short walk trail, providing a shorter option again for mountain bikers. This trail forms part of the easy classifiation iconic Ridge Link trail, which is suitable for the majority of mountain bike users, and is therefore of high strategic value. It is anticipated that this section of trail will see a high relative level of use.

OPPORTUNITIES

USER MARKETS

It is anticipated that this trail will be desirable to a the largest market of mountain bike users, the leisure market, due to its opportunities to complete short loops. The trail is likely to be a popular with many riders who finish a ride at the Middleton Beach Trail Head.

OPTIONAL LINES TO CATER FOR MULTIPLE CLASSIFICATIONS

Designed to be an open cross country style trail, optional lines and features can be placed in appropriate locations to cater for more advanced riders.

USE OF EXISTING TRAIL

The descending trail is composed of a new benched alignment, primarily traversing sand and granite rock. It passes through low lying coastal shrubbery and over sections of granite vegetation and no existing alignments are available to be used.

CONFLICT MANAGEMENT

The purpose of this trail is to provide a duplicate descent that is desirable to beginner to intermediate mountain bike users, which will allow walkers to safely descend the Ridge Link Trail. Where the trail links to the Rotary and Wesfarmers lookouts via a short walk trail, signage and other measures will be installed to instruct riders to dismount and walk to the lookout.

CONSTRAINTS

Environmental, hygiene and heritage constraints have been assessed broadly in the context of the AHP.

- The trail is primarily located on sand and granite rock. Through the detailed design stage, areas of sensitive vegetation will be identified prior to confirming the most appropriate alignment.
- The dieback assessment identified potential for disease free vegetation to exist within this proposed alignment. Further investigations may be undertaken prior to confirming the detailed design to prevent impact on potentially protectable downslope areas.
- There are no heritage issues associated with the broad alignment of this trail.

TRAIL CORRIDOR DETAILS

Corridor ID	2
Name	Green Middleton Beach (Mids) Mountain Bike Descent
Strategic Value	High
Use	Single - Mountain Bike Only
Classifications	Easy - Green Circle
Trail Type	Cross Country
Trail Style	Open
Direction	Single Direction
Ascending / Descending	Descending
Options	Optional Blue Features & Lines
Corridor Width	100m
Trail Length	1900m
Vertical Range	110m
Elevation Variation	110m
Prevailing Cross Slopes	Moderate to Steep
Average Trail Gradient	6%
Maximum Trail Gradient	15% < 20m
Minimum Line of Sight	10m
Tread Width	1000mm - 1500mm
Qualifier / Filter	Nil

DEVELOPMENT STAGING & COSTING

Development Stage	STAGE 1
Construction Type	New
Est. Design Cost	$5,556.00
Est. Construction Cost	$74,080.00
Est. Signage & Ancillary Cost	$1,481.60
Est. Total Trail Cost	$93,155.60
Est. Maintenance p/year	$3,333.60

RECOMMENDED CONSTRUCTION METHODOLOGY

Proposed Construction Methodology	Predominantly full / partial bench construction with minor sections of lifted surface.
Proposed Construction Materials	Imported and natural trail tread and subsurface with TTF construction from imported and local materials.

TECHNICAL TRAIL FEATURES

TURNS	VERTICAL CHANGE	OBSTACLES
Berm Insloped Descending Turn Technical Inside Line	Roll In Rollers Tabletop Grade Reversal	Nil

BLUE ICON DESCENT CORRIDOR

TRAIL ID 3

MOUNTAIN BIKE

MODERATE
BLUE SQUARE

OVERVIEW

The Blue Icon Descent is a proposed moderate classification, open flowing all mountain style trail focused on providing a fun and challenging descent from the summit of Mt Clarence to the trail head at Middleton Beach. The single direction descending trail starts with viewsheds from the summit, and provides a number of rest points for views and photo opportunities. After traversing a strong prevailing cross slope via a short technical descent from Mount Clarence, the trail gradient becomes flat for 1,400m, before making the final challenging descent with a range of constructed technical trail features, to the Middleton Beach trail head. The Icon Descent Trail forms an integral component and introduces a new and unique trail type to the mountain bike trail network. It is therefore of high strategic value. As the iconic mountain bike trail within the network it is anticipated that this section of trail will see a high relative level of use.

OPPORTUNITIES

USER MARKETS

This trail is targetted at the intermediate to advanced enthusaist market, taking advantage of scenic vsitas and providing an iconic Albany experience that riders will photograph and promote to their social networks. The trail will be a primary drawcard for the this market, who will be enticed to travel to Albany for this experience.

OPTIONAL LINES TO CATER FOR MULTIPLE CLASSIFICATIONS

While the trail is aimed primarily at intermediate riders, due to its wide market appeal, there should be optional technical alternate features and lines of advanced classification to allow progression and to cater for more advanced riders.

USE OF EXISTING TRAIL

The trail makes use of the existing alignments. Where informal lines pass through granite vegetation, formalising the alignment will allow these lines to revegetate. It is predominantly located in open terrain, free of trees & shrubs, traversing granite rock.

CONFLICT MANAGEMENT

While there are proposed walk and easy descent trail options descending from Mt Adelaide, it is apporpriate to provide a duplicate descent of the intermediate (blue square) classification specifically for this Icon Descent Trail. The purpose of the easy (green circle) Middleton Beach Descent trail is to cater for beginner riders, including families and children. Introducing users of the Icon Descent trail onto the Middleton Beach Descent trail is likely to cause conflict between the different levels of riders. The topography of this segment of trail also provides the greatest elevation relief and has the opportunity to provide the most challenging features of the Icon Descent trail. Therefore it is vital that the trail be duplicated in this location.

CONSTRAINTS

Environmental, hygiene and heritage constraints have been assessed broadly in the context of the AHP.

- The trail is primarily located open terrain, free of trees and shrubs, traversing granite rock and granite vegetation. Through the detailed design stage, areas of sensitive vegetation will be identified prior to confirming the most appropriate alignment.
- The dieback assessment identified potential for disease free vegetation to exist within this proposed alignment. Further investigations may be undertaken prior to confirming the detailed design to prevent impact on potentially protectable downslope areas.
- There are no heritage issues associated with the indicative alignment of this trail.

TRAIL CORRIDOR DETAILS

Corridor ID	3a, 3b, 3c, 3d, 3e, 3f, 3g, 3h
Name	Iconic Descent
Strategic Value	High
Use	Single - Mountain Bike Only
Classifications	Moderate - Blue Square
Trail Type	All Mountain
Trail Style	Technical
Direction	Single Direction
Ascending / Descending	Descending
Options	Optional Black Features & Lines
Corridor Width	100m
Trail Length	3500m
Vertical Range	180m
Elevation Variation	180m
Prevailing Cross Slopes	Flat to Very Steep
Average Trail Gradient	5%
Maximum Trail Gradient	20% < 50m
Minimum Line of Sight	7.5m
Tread Width	600mm - 1000mm
Qualifier / Filter	TTF at Entry

DEVELOPMENT STAGING & COSTING

Development Stage	STAGE 1
Construction Type	Upgraded & New
Est. Design Cost	$10,233.00
Est. Construction Cost	$114,605.00
Est. Signage & Ancillary Cost	$2,292.10
Est. Total Trail Cost	$147,118.10
Est. Maintenance p/year	$5,157.23

RECOMMENDED CONSTRUCTION METHODOLOGY

Proposed Construction Methodology	Benched and lifted surface construction with sections of exposed rock outcrop
Proposed Construction Materials	Natural and imported trail tread and subsurface with TTF construction from imported and local materials

TECHNICAL TRAIL FEATURES

TURNS	VERTICAL CHANGE	OBSTACLES
Berm	Rollers	Rock Garden
Insloped Descending Turn	Kicker Jump	Stabilised Root Section
Climbing Turn	Tabletop	
Technical Climbing Turn	Rollable Double	
Insloped Climbing Turn	Grade Reversal	
Technical Inside Line	Rollable Step Down	
	Drop Off	

CITY DESCENT CORRIDOR

MOUNTAIN BIKE

EASY
GREEN CIRCLE

OVERVIEW

The City Descent trail is a proposed easy classification, open flowing cross country trail. This single direction descending mountain bike trail starts from the Mount Clarence car park, and finishes at the City trail head. The trail can be used as the descending section of a short mountain bike loop, which includes a climb via the ascending dual use Ridge Link Trail (Trail 1a,1b). The City Descent trail intersects the Ridge Link Trail approximately halfway uphill from the trail head, providing an optional shorter mountain bike loop.

The City Descent trail forms the descent for mountain bikes to complete the link from Middleton Beach to the City Centre and is therefore of high strategic value. It is anticipated that this section of trail will see a high relative level of use.

OPPORTUNITIES

USER MARKETS

The short easy classification (green circle) mountain bike circuit options cater well for the leisure market, beginner mountain bikers and families. Due to its proximity to the city centre, the leisure market will be drawn to this as potentially their first ever mountain biking experience. It provides an achieveable alternative option to visitors who want to access the summit of Mt Clarence via trails.

OPTIONAL LINES TO CATER FOR MULTIPLE CLASSIFICATIONS

It is anticipated that this section of trail will see a high relative level of use by beginner riders and minimal optional intermediate lines could provide a for progression for some riders. Riders seeking higher classification trails are sufficiently catered for on other trails descending from Mt Clarence.

USE OF EXISTING TRAIL

The descending trail is composed of a new alignment, primarily traversing relatively steep rock slabs and granite outcrops. It passes through open terrain free of trees and shrubbery, and over sections of granite vegetation.

CONFLICT MANAGEMENT

The purpose of this trail is to provide a duplicate descent that is desirable to beginner mountain bike users, which will allow walkers to safely descend the Ridge Link Trail. Where the trail meets the Padre White Lookout, signage and other measures will be installed to instruct riders to dismount and walk to and around the lookout area.

CONSTRAINTS

Environmental, hygiene and heritage constraints have been assessed broadly in the context of the AHP.

- The trail is primarily located on steep rock slabs with limited trees and shrubbery. Through the detailed design stage, areas of sensitive vegetation will be identified prior to confirming the most appropriate alignment.
- The dieback assessment identified potential for disease free vegetation to exist within this proposed alignment. Further investigations may be undertaken prior to confirming the detailed design to prevent impact on potentially protectable downslope areas.
- There are no heritage issues associated with the indicative alignment of this trail.

TRAIL CORRIDOR DETAILS

Corridor ID	4
Name	City Descent
Strategic Value	High
Use	Single - Mountain Bike Only
Classifications	Easy - Green Circle
Trail Type	Cross Country
Trail Style	Open
Direction	Single Direction
Ascending / Descending	Descending
Options	Optional Blue Features & Lines
Corridor Width	100m
Trail Length	1800m
Vertical Range	120m
Elevation Variation	120m
Prevailing Cross Slopes	Moderate to Very Steep
Average Trail Gradient	7%
Maximum Trail Gradient	15% < 20m
Minimum Line of Sight	10m
Tread Width	1000mm - 1500mm
Qualifier / Filter	Nil

DEVELOPMENT STAGING & COSTING

Development Stage	STAGE 1
Construction Type	New
Est. Design Cost	$5,184.00
Est. Construction Cost	$69,120.00
Est. Signage & Ancillary Cost	$1,382.40
Est. Total Trail Cost	$86,918.40
Est. Maintenance p/year	$3,110.40

RECOMMENDED CONSTRUCTION METHODOLOGY

Proposed Construction Methodology	Benched and lifted surface construction with sections of exposed rock outcrop
Proposed Construction Materials	Natural trail tread and subsurface with TTF construction from imported and local materials

TECHNICAL TRAIL FEATURES

TURNS	VERTICAL CHANGE	OBSTACLES
Berm	Rollers	Rock Garden
Insloped Descending	Kicker Jump	Stabilised Root
Turn Climbing Turn	Tabletop	Section
Technical Inside Line	Rollable Double	
	Rollable Step Down	
	Drop Off	

DUAL USE PERIMETER CORRIDOR

TRAIL ID 5

WALK

MOUNTAIN BIKE

BASIC
GRADE 1

EASIEST
WHITE CIRCLE

OVERVIEW

The Dual Use Perimeter trail is a proposed very easy classification, low gradient dual use walk and mountain bike trail. The dual direction trail circumnavigates the lower slopes of the Heritage Park, accessed from multiple minor entry points. The trail links the Rotary Lookout and the Ridge Link Trail to the summit of Mt Adelaide, where the major trail head is located. It is therefore of high strategic value. The trail is dual use in the uphill direction, but only walkers will be permitted to descend on this section of the trail. An alternative descent is provided for mountain bikers via the Middleton Beach Descent. It is anticipated that this trail will see a high relative level of use.

OPPORTUNITIES

USER MARKETS

This dual use trail caters for the leisure market, including beginner mountain bikers, families and people with disabilities. It will provide access and links to various areas of the reserve, including the Rotary Lookout & National Anzac Centre. Due to its accessibility it is anticipated to be used as an entry and exit trail for longer walk and ride circuits.

OPTIONAL LINES TO CATER FOR MULTIPLE CLASSIFICATIONS

It is anticipated that this section of trail will see a high relative level of use at a slower pace. Some features or stairs may be provided for walkers to pass other users. Mountain bike jumps or rollers are not appropriate on this trail, due to its purpose as an easy dual use trail. Riders seeking higher classification trails are sufficiently catered for on other trails.

USE OF EXISTING TRAIL

The majority of the Perimeter Trail utilises existing alignments over sandy soils and moderately dense vegetation. Some new trail will be required to complete the circuit.

CONFLICT MANAGEMENT

This dual use trail is designed to provide a positive and enjoyable trail experience for both walkers and mountain bikers, and is likely to be used as an entry or exit trail. To ensure all trail users have sufficient visibility of oncoming users, this wide trail will be designed with very long sight lines, and users should be able to see at least 15m ahead at all times. The trail is intersected by a number of other descending and ascending walk and mountain bike trails. At the intersections, signage will be installed in accordance with the code of conduct to guide trail etiquette. The code of conduct will set up an intuitive convention for the use of all intersections, which all users will quickly become familiar with. It is likely that some trail intersections will be utilised and impacted by event days. Event overlays will guide how particular intersections should be managed during events to ensure flow of users on the intersecting trails as appropriate.

CONSTRAINTS

Environmental, hygiene and heritage constraints have been assessed broadly in the context of the AHP.

- The trail is primarily located on steep rock slabs with limited trees and shrubbery. Through the detailed design stage, areas of sensitive vegetation will be identified prior to confirming the most appropriate alignment.
- The dieback assessment identified potential for disease free vegetation to exist within this proposed alignment. Further investigations may be undertaken prior to confirming the detailed design to prevent impact on potentially protectable downslope areas.
- There are no heritage issues associated with the indicative alignment of this trail.

TRAIL CORRIDOR DETAILS

Corridor ID	5a - 5t
Name	Perimeter Trail
Strategic Value	High
Use	Dual - Walk & Mountain Bike
Classifications	Grade 2 / Easiest - White Circle
Trail Type	Walk / Cross Country
Trail Style	Open
Direction	Dual Direction
Ascending / Descending	Ascending & Descending
Options	Optional Green Features and Lines for Mountain Bike Trail
Corridor Width	100m
Trail Length	6800m
Vertical Range	15m
Elevation Variation	15m
Prevailing Cross Slopes	Moderate
Average Trail Gradient	0%
Maximum Trail Gradient	0.08
Minimum Line of Sight	15m
Tread Width	1500mm - 1800mm
Qualifier / Filter	Nil

DEVELOPMENT STAGING & COSTING

Development Stage	STAGE 1
Construction Type	Upgraded & New
Est. Design Cost	$20,379.00
Est. Construction Cost	$267,710.00
Est. Signage & Ancillary Cost	$5,354.20
Est. Total Trail Cost	$377,196.70
Est. Maintenance p/year	$12,046.95

RECOMMENDED CONSTRUCTION METHODOLOGY

Proposed Construction Methodology	Partial bench & lifted construction
Proposed Construction Materials	In-situ & imported trail tread and subsurface

TECHNICAL TRAIL FEATURES

TURNS	VERTICAL CHANGE	OBSTACLES
Turns	Rollers	Chicane
Berm	Grade Reversal	Choke
Climbing Turn	Steps - Optional	
Technical Inside Line	Walk Line	

BLACK CLIMB & URBAN DOWNHILL CORRIDOR

TRAIL ID 6

MOUNTAIN BIKE

DIFFICULT
BLACK DIAMOND

OVERVIEW

The Black Climb and Urban Downhill trail is a proposed difficult classification, steep mountain bike climb and downhill trail. The single direction climbing trail originates at an intersection with the Perimeter Trail (Trail 5) and can be easily accessed from the City Trail Head. The downhill component originates at the Mt Clarence summit. Currently the annual Albany Urban Downhill event uses a mix of existing informal and formal trails, including some walk trail and some emergency access trails. The event involves mountain bike riders descending at extremely high speeds. Each year, temporary features are installed for the event and removed afterward. The closures of the various trails that intersect the race course have been a source of confusion and safety risk for other users in the area. The new Albany Urban Downhill trail is designed specifically for use in the annual Albany Urban Downhill race/festival, this descent is of high strategic value. It is anticipated that this section of trail will see a high relative level of use. A shuttle drop off point at the summit of Mt Clarence, which is normally used only for this event, will be formalised to improve the accessibility of the downhill track.

OPPORTUNITIES

USER MARKETS

While some enthusiasts may complete both the climbing and downhill components of the trail, the urban downhill component is targeting participants in the annual Urban Downhill event, and will be a drawcard for the gravity market. Users may access multiple descending trails from the Mt Clarence summit, using downhill-specific bikes and shuttle uplifts.

OPTIONAL LINES TO CATER FOR MULTIPLE CLASSIFICATIONS

It is anticipated that this track will see a high relative level of use by advanced and professional level mountain bikers. Some higher classification features or provision for temporary event-only features may be constructed to cater for professional level downhill mountain bikers. Lower classification lines and B-lines will be minimised, as intermediate riders are sufficiently catered for on other trails.

USE OF EXISTING TRAIL

The trail does not utilise any existing alignments and will be constructed as a new alignment traversing moderately dense vegetation.

CONFLICT MANAGEMENT

The trail entry is located near the popular Padre White lookout area. The code of conduct will guide how recreational mountain bike riders and event participants can share this area respectfully with other visitors and walkers. The trail exit is located nearby the entry to the uphill component, and nearby the Perimeter trail. There will be sufficient space provided between the end of the downhill track and the Perimeter trail, to eliminate the risk of collisions at this point.

CONSTRAINTS

Environmental, hygiene and heritage constraints have been assessed broadly in the context of the AHP.

- The trail is primarily located on steep rock slabs amongst moderately dense vegetation. Through the detailed design stage, areas of sensitive vegetation will be identified prior to confirming the most appropriate alignment.
- The dieback assessment identified potential for disease free vegetation to exist within this proposed alignment. Further investigations may be undertaken prior to confirming the detailed design to prevent impact on potentially protectable downslope areas.
- There are no heritage issues associated with the indicative alignment of this trail.

TRAIL CORRIDOR DETAILS

Corridor ID	6a, 6b
Name	Black Climb & Urban Downhill
Strategic Value	High
Use	Single - Mountain Bike Only
Classifications	Difficult - Black Diamond
Trail Type	Downhill
Trail Style	Technical
Direction	Single Direction
Ascending / Descending	Ascending
Options	Optional Blue Features & Lines
Corridor Width	100m
Trail Length	700m
Vertical Range	95m
Elevation Variation	95m
Prevailing Cross Slopes	Moderate to Steep
Average Trail Gradient	14%
Maximum Trail Gradient	50% < 10m
Minimum Line of Sight	N/A
Tread Width	300mm - 600mm
Qualifier / Filter	TTF at Entry

DEVELOPMENT STAGING & COSTING

Development Stage	STAGE 2
Construction Type	New
Est. Design Cost	$5,040.00
Est. Construction Cost	$73,980.00
Est. Signage & Ancillary Cost	$1,479.60
Est. Total Trail Cost	$92,097.60
Est. Maintenance p/year	$3,329.10

RECOMMENDED CONSTRUCTION METHODOLOGY

Proposed Construction Methodology	Benched construction.
Proposed Construction Materials	Natural trail tread and subsurface

TECHNICAL TRAIL FEATURES

TURNS	VERTICAL CHANGE	OBSTACLES
Berm	Rollers	Rock Garden
Insloped Descending Turn	Kicker Jump	Stabilised Root Section
Climbing Turn	Tabletop	
Technical Climbing Turn	Rollable Double Step Down Jump	
Insloped Climbing Turn	Grade Reversal	
Technical Inside Line	Rollable Step Down	
	Drop Off	

BLUE LOOP CORRIDOR

TRAIL ID 7

MOUNTAIN BIKE

MODERATE
BLUE SQUARE

OVERVIEW

The Blue Loop Trail is a proposed moderate classification, mountain bike loop trail. The single direction trail can be accessed from the perimeter trail, or from the summit of Mt Clarence. It intersects the walk-only Circuit Trail (Trail 14) at several points. This trail provides a new type of mountain bike experience that caters well for existing demand, and is therefore of moderate strategic value. It is anticipated that this section of trail will see a high relative level of use.

OPPORTUNITIES

USER MARKETS

The Blue Loop Trail is aimed at enthusiasts who will most likely complete this trail as part of a longer ride combining the other intermediate classification trails in the network.

OPTIONAL LINES TO CATER FOR MULTIPLE CLASSIFICATIONS

It is anticipated that this track will see a high relative level of use by intermediate level mountain bikers and some beginner mountain bikers progressing their skills. Lower classification lines and B-lines can be included to cater for this range of users. Higher classification optional features will be minimised, as advanced riders are sufficiently catered for on other trails.

USE OF EXISTING TRAIL

The trail utilises new and existing alignments and traverses moderately dense vegetation.

CONFLICT MANAGEMENT

The Blue Loop Trail intersects the Circuit Walk Trail (Trail 14) at a number of points. It is designed so that at each intersection the mountain bike user is approaching a slow point on the trail, and is able to easily yield to a walker, who will have right of way at the intersection.

CONSTRAINTS

Environmental, hygiene and heritage constraints have been assessed broadly in the context of the AHP.

- The trail is primarily located amongst moderately dense vegetation. Through the detailed design stage, areas of sensitive vegetation will be identified prior to confirming the most appropriate alignment.
- The dieback assessment identified potential for disease free vegetation to exist within this proposed alignment. Further investigations may be undertaken prior to confirming the detailed design to prevent impact on potentially protectable downslope areas.
- There are no heritage issues associated with the indicative alignment of this trail.

TRAIL CORRIDOR DETAILS

Corridor ID	7a, 7b
Name	Blue Loop
Strategic Value	Moderate
Use	Single - Mountain Bike Only
Classifications	Moderate - Blue Square
Trail Type	Cross Country
Trail Style	Open
Direction	Single Direction
Ascending / Descending	Ascending & Descending
Options	Optional Black Features & Lines
Corridor Width	100m
Trail Length	2900m
Vertical Range	85m
Elevation Variation	85m
Prevailing Cross Slopes	Moderate to Steep
Average Trail Gradient	3%
Maximum Trail Gradient	20% < 50m
Minimum Line of Sight	7.5m
Tread Width	600mm - 1000mm
Qualifier / Filter	TTF at Entry

DEVELOPMENT STAGING & COSTING

Development Stage	STAGE 2
Construction Type	New
Est. Design Cost	$8,631.00
Est. Construction Cost	$100,695.00
Est. Signage & Ancillary Cost	$2,013.90
Est. Total Trail Cost	$128,601.90
Est. Maintenance p/year	$4,531.28

RECOMMENDED CONSTRUCTION METHODOLOGY

Proposed Construction Methodology	Benched construction.
Proposed Construction Materials	Natural trail tread and subsurface.

TECHNICAL TRAIL FEATURES

TURNS	VERTICAL CHANGE	OBSTACLES
Berm	Rollers	Nil
Insloped Descending Turn	Kicker Jump	
Climbing Turn	Tabletop	
Technical Climbing Turn	Rollable Double	
	Step Down Jump	
Insloped Climbing Turn	Grade Reversal	
Technical Inside Line	Rollable Step Down	
	Drop Off	

MT ADELAIDE STAIRS CORRIDOR

TRAIL ID 8

WALK

BASIC / MODERATE
GRADE 2

OVERVIEW

The Mt Adelaide Stairs are proposed as a basic/moderate classification staircase trail, providing a direct link between the Middleton Beach trail head and Mt Adelaide. The dual direction staircase utilises a new alignment passing between the green and blue descending mountain bike trails. It is anticipated to be a popular recreation and tourism asset, but its estimated construction cost may be prohibitive. The design of the stairs needs further consideration to ensure the appropriateness of the location and the style of construction. It is therefore of moderate strategic value.

OPPORTUNITIES

USER MARKETS

The staircase caters for the leisure and enthusiast trail user markets. It provides a short, accessible route with a hardened surface, to allow users with very limited bushwalking experience to access the Mt Adelaide attractions easily from the Middleton Beach tourism precinct. The staircase also provides an alternative descent for users walking from the City Centre via the Ridge Link trail. The staircase provides a new type of experience that will cater for current and future demand, including those walkers and runners seeking this type of facility for exercise.

OPTIONAL LINES TO CATER FOR MULTIPLE CLASSIFICATIONS

It is anticipated that there will be a single alignment and no optional lines will be provided for other classifications.

USE OF EXISTING TRAIL

There is no existing trail within the alignment of the staircase. It utilises a new alignment and traverses moderately dense vegetation.

CONFLICT MANAGEMENT

Given the range of potential user markets, there is potential for conflict. The code of conduct will deal with yield hierarchy between ascending and descending walkers and runners. The staircase intersects with the Perimeter shared use trail approximately halfway up to Mt Adelaide. The intersection will be designed so that the dual use trail users are approaching a slow point at the intersection with the staircase. The Perimeter trail users will be able to easily yield to staircase users, who will have right of way at the intersection.

CONSTRAINTS

Environmental, hygiene and heritage constraints have been assessed broadly in the context of the AHP.

- The trail is primarily located amongst moderately dense vegetation. Through the detailed design stage, areas of sensitive vegetation will be identified prior to confirming the most appropriate alignment.
- The dieback assessment identified potential for disease free vegetation to exist within this proposed alignment. Further investigations may be undertaken prior to confirming the detailed design to prevent impact on potentially protectable downslope areas.
- There are no heritage issues associated with the indicative alignment of this trail.

TRAIL CORRIDOR DETAILS

Corridor ID	8
Name	Mt Adelaide Stairs
Strategic Value	High
Use	Single - Walk Only
Classifications	Staircase
Trail Type	Walk
Trail Style	Open
Direction	Dual Direction
Ascending / Descending	Ascending & Descending
Options	Nil
Corridor Width	100m
Trail Length	500m
Vertical Range	
Elevation Variation	N/A
Prevailing Cross Slopes	N/A
Average Trail Gradient	N/A
Maximum Trail Gradient	Refer Australian Standards
Minimum Line of Sight	N/A
Tread Width	> 1200mm
Qualifier / Filter	Nil

DEVELOPMENT STAGING & COSTING

Development Stage	STAGE 3
Construction Type	New
Est. Design Cost	$1,428.00
Est. Construction Cost	$476,000.00
Est. Signage & Ancillary Cost	$9,520.00
Est. Total Trail Cost	$535,738.00
Est. Maintenance p/year	$21,420.00

RECOMMENDED CONSTRUCTION METHODOLOGY

Proposed Construction Methodology	Preference for natural material construction rather than concrete.
Proposed Construction Materials	Imported materials.

TECHNICAL TRAIL FEATURES

TURNS	VERTICAL CHANGE	OBSTACLES
Nil	Steps	Nil

BLUE DUAL USE COASTAL TRAIL CORRIDOR

TRAIL ID 9

WALK

MODERATE
GRADE 3

MOUNTAIN BIKE

MODERATE
BLUE SQUARE

OVERVIEW

The Blue Dual Use Coastal Trail is a proposed dual use, moderate classification, walk and cross country mountain bike trail, focused primarily on providing an iconic Albany experience. Showcasing the rugged and exposed coastline, users will be able to start this trail at Middleton Beach and climb toward the Saddle Trail Head traversing the rocky headland. The lower section of the trail intersects a number of walk trails that can be used by walkers to link to Mt Adelaide more directly. These links can be utilised for shorter experiences when parking at the trail head or either of the Mt Adelaide car parks.

The Coastal Trail provides an alternative connection to that provided by existing trails within the network, and is of moderate strategic value. As an iconic and visually stunning location, it is anticipated that this section of trail will see a very high relative level of use by both walkers and mountain bikers seeking a more adventurous alternative to the boardwalk pathway, as well as users who already utilise the area for other recreation activities, e.g. rock fishing.

OPPORTUNITIES

USER MARKETS

This iconic trail caters for a number of more experienced user markets, including enthusiast mountain bikers and experienced bushwalkers, and can be utilised as part of a longer half day or full day experience utilising other similar classification trails.

OPTIONAL LINES TO CATER FOR MULTIPLE CLASSIFICATIONS

Optional lines should be provided at regular intervals to allow users to pass each other safely whilst ensuring the majority of the trail experience is sufficiently narrow to meet the standard requirements for the relevant trail classification.

USE OF EXISTING TRAIL

It is composed of predominantly new and some existing disturbed alignments where a number of distinct informal tracks have formed over time. The trail is primarily located on rock, with some sandy soil in the western sections (9b & 9c).

CONFLICT MANAGEMENT

The trail is designed to be dual use, with long sight lines (minimum 7.5m) for walkers and strategically placed features to slow riders to a moderate pace when climbing or descending. It is designed to allow users to view the surrounding scenery and viewsheds. Whilst it does provide a descent this trail will not be designed to cater for the gravity market, therefore features such as jumps and drops will not be installed.

CONSTRAINTS

Environmental, hygiene and heritage constraints have been assessed broadly in the context of the AHP.

- The trail is primarily located amongst moderately dense vegetation. Through the detailed design stage, areas of sensitive vegetation will be identified prior to confirming the most appropriate alignment.
- The dieback assessment identified potential for disease free vegetation to exist within this proposed alignment. Further investigations may be undertaken prior to confirming the detailed design to prevent impact on potentially protectable downslope areas.
- There are no heritage issues associated with the indicative alignment of this trail.

TRAIL CORRIDOR DETAILS

Corridor ID	9a, 9b, 9c
Name	Ocean Trail
Strategic Value	Low
Use	Dual - Walk & Mountain Bike
Classifications	Grade 3 / Moderate - Blue Square
Trail Type	Walk / Cross Country
Trail Style	Open
Direction	Dual Direction
Ascending / Descending	Ascending & Descending
Options	Optional Lines and Steps for Walk Trail
Corridor Width	100m
Trail Length	3500m
Vertical Range	50m
Elevation Variation	50m
Prevailing Cross Slopes	Flat to Moderate
Average Trail Gradient	1%
Maximum Trail Gradient	20% < 50m
Minimum Line of Sight	7.5m
Tread Width	600mm - 1000mm
Qualifier / Filter	TTF at Entry

DEVELOPMENT STAGING & COSTING

Development Stage	STAGE 3
Construction Type	Upgraded & New
Est. Design Cost	$10,221.00
Est. Construction Cost	$209,090.00
Est. Signage & Ancillary Cost	$4,181.80
Est. Total Trail Cost	$252,919.30
Est. Maintenance p/year	$9,409.05

RECOMMENDED CONSTRUCTION METHODOLOGY

Proposed Construction Methodology	Benched & lifted construction.
Proposed Construction Materials	Natural & imported rock and trail tread.

TECHNICAL TRAIL FEATURES

TURNS	VERTICAL CHANGE	OBSTACLES
Turns	Rollers	Chicane
Berm	Grade Reversal	Choke
Climbing Turn	Steps - Optional	
Technical Inside Line	Walk Line	

DOWNHILL CORRIDOR

MOUNTAIN BIKE

DIFFICULT
BLACK DIAMOND

OVERVIEW

The Downhill Trail is a proposed difficult classification downhill mountain bike trail, focusing primarily on upgrading and extending the existing downhill race track at both ends. This will create a longer and more appealing ride experience, and will connect the track with suitable shuttle uplift drop-off and pick-up points. The shuttle uplift can utilise the existing public roads linking the trail exit and entries.

Race events using this track are regularly run by local mountain bike organisations, and involve mountain bikers descending at extremely high speed. Temporary bunting is installed to demarcate the race track zone and riders use the existing push-up track to return to the start of the track for multiple runs. When races are not being held, there is little existing demarcation and signage, which is a source of confusion and safety risk for users, including other mountain bikers, in the area.

The existing trail start can only be accessed via the push-up track, which begins at the Apex carpark. Extending the top of the trail will allow users to commence the ride from the summit of Mt Clarence. Extending the lower end of the trail will allow users to finish exit outside the perimeter of the Heritage Park, and access a shuttle uplift at the nearby Hare Street Entry point. This trail will continue to see a moderate level of use by advanced mountain bikers, but is of low strategic value to the trail network.

OPPORTUNITIES

USER MARKETS

The downhill track caters for the enthusiast and gravity markets and is aimed at riders with advanced riding ability.

OPTIONAL LINES TO CATER FOR MULTIPLE CLASSIFICATIONS

Existing optional lines should remain to cater for higher classifications, and additional optional lines should be installed on new sections.

USE OF EXISTING TRAIL

It is composed of predominantly existing and some new alignments. The existing alignment is in poor condition in some areas, which should be upgraded.

CONFLICT MANAGEMENT

The downhill track intersects the Perimeter Trail (Trail 5), and it is recommended that a flyover structure be provided to prevent conflict. There is currently limited car parking provided at the existing trail head, located at the Apex Lookout, which causes conflict with other users primarily during events. The addition of the shuttle uplift facilities means that event assembly areas can be moved away from their current location, which will remove this potential conflict.

CONSTRAINTS

Environmental, hygiene and heritage constraints have been assessed broadly in the context of the AHP.

- The trail is primarily located amongst moderately dense vegetation. Through the detailed design stage, areas of sensitive vegetation will be identified prior to confirming the most appropriate alignment.
- The dieback assessment identified potential for disease free vegetation to exist within this proposed alignment. Further investigations may be undertaken prior to confirming the detailed design to prevent impact on potentially protectable downslope areas.
- There are no heritage issues associated with the indicative alignment of this trail.

TRAIL CORRIDOR DETAILS

Corridor ID	10a, 10b, 10c
Name	Downhill
Strategic Value	Low
Use	Single - Mountain Bike Only
Classifications	Difficult - Black Diamond
Trail Type	Downhill
Trail Style	Technical
Direction	Single Direction
Ascending / Descending	Descending
Options	Optional Double-Black Features & Lines
Corridor Width	100m
Trail Length	1200m
Vertical Range	95m
Elevation Variation	95m
Prevailing Cross Slopes	Moderate to Steep
Average Trail Gradient	N/A
Maximum Trail Gradient	50% < 10m
Minimum Line of Sight	N/A
Tread Width	600mm - 1000mm
Qualifier / Filter	TTF at Entry

DEVELOPMENT STAGING & COSTING

Development Stage	STAGE 3
Construction Type	Upgraded & New
Est. Design Cost	$3,360.00
Est. Construction Cost	$53,810.00
Est. Signage & Ancillary Cost	$1,076.20
Est. Total Trail Cost	$68,927.20
Est. Maintenance p/year	$2,421.45

RECOMMENDED CONSTRUCTION METHODOLOGY

Proposed Construction Methodology	Lifted construction.
Proposed Construction Materials	Imported materials.

TECHNICAL TRAIL FEATURES

TURNS	VERTICAL CHANGE	OBSTACLES
Berm	Rollers	Rock Garden
Insloped Descending Turn	Kicker Jump	Stabilised Root Section
Climbing Turn	Tabletop	
Technical Climbing Turn	Rollable Double	
Insloped Climbing Turn	Step Down Jump	
Technical Inside Line	Grade Reversal	
	Rollable Step Down	
	Drop Off	

MIDS BLUE DESCENT CORRIDOR

TRAIL ID 11

MOUNTAIN BIKE

MODERATE
BLUE SQUARE

OVERVIEW

The Mids Blue Descent Trail is a proposed moderate classification descending mountain bike trail, focusing primarily on providing a link from the Mt Adelaide Trail Head to the Middleton Beach Trail Head by linking into the Blue Icon Descent Trail (Trail 3). This link trail can also be used as part of a short loop originating on the Mt Adelaide end of the Park, or as part of a longer distance intermediate loop or point to point ride. The single direction descending trail starts with viewsheds from the summit, near Wesfarmers Lookout, and provides a flowing descent through a number of switchbacks to meet with the Icon Descent.

OPPORTUNITIES

USER MARKETS

This trail caters for the enthusiast market and is aimed at riders with intermediate to advanced riding ability. Forming an integral part of multiple mountain bike circuit options, it is anticipated that this section of trail will see a high relative level of use.

OPTIONAL LINES TO CATER FOR MULTIPLE CLASSIFICATIONS

Optional advanced features and lines should be provided to cater for the enthusiast market who are likely to be the largest user group for this trail.

USE OF EXISTING TRAIL

The Mids Blue Descent Trail is located in moderately dense vegetation, making use of existing alignments. As a result, these will be reduced from 5m wide fire management access roads, down to 300mm wide single track, allowing a substantial area of natural bush to regenerate. Some new alignments will be required in areas of moderately dense vegetation.

CONFLICT MANAGEMENT

Without the provision of this trail from the Mt Adelaide trail head, due to its predicted popularity, there is high potential for conflict with users of the easy classification (green circle) Mids Descent Trail (Trail 2) and the section of the Perimeter Trail that would otherwise be required to link with the Icon Descent to the Middleton Beach Trail Head. Therefore it is necessary to provide both trails separately.

CONSTRAINTS

Environmental, hygiene and heritage constraints have been assessed broadly in the context of the AHP.

- The trail is primarily located amongst moderately dense vegetation. Through the detailed design stage, areas of sensitive vegetation will be identified prior to confirming the most appropriate alignment.
- The broadscale dieback assessment identified the area where this trail is proposed is impacted. Further dieback investigations may be undertaken prior to confirming the most appropriate alignment of the trail to prevent impact on potentially protectable downslope areas.
- There are no heritage issues associated with the indicative alignment of this trail.

TRAIL CORRIDOR DETAILS

Corridor ID	11a, 11b
Name	Mids Blue Descent
Strategic Value	Moderate
Use	Single - Mountain Bike Only
Classifications	Moderate - Blue Square
Trail Type	All Mountain
Trail Style	Technical
Direction	Single Direction
Ascending / Descending	Descending
Options	Optional Black Features & Lines
Corridor Width	100m
Trail Length	600m
Vertical Range	40m
Elevation Variation	40m
Prevailing Cross Slopes	Moderate to Very Steep
Average Trail Gradient	7%
Maximum Trail Gradient	20% < 50m
Minimum Line of Sight	7.5m
Tread Width	600mm - 1000mm
Qualifier / Filter	TTF at Entry

DEVELOPMENT STAGING & COSTING

Development Stage	STAGE 2
Construction Type	Upgraded & New
Est. Design Cost	$1,791.00
Est. Construction Cost	$20,895.00
Est. Signage & Ancillary Cost	$417.90
Est. Total Trail Cost	$101,685.90
Est. Maintenance p/year	$940.28

RECOMMENDED CONSTRUCTION METHODOLOGY

Proposed Construction Methodology	Benched construction.
Proposed Construction Materials	Natural tread with sections of granite

TECHNICAL TRAIL FEATURES

TURNS	VERTICAL CHANGE	OBSTACLES
Berm	Rollers	Rock Garden
Insloped Descending Turn	Kicker Jump	Stabilised Root Section
Climbing Turn	Tabletop	
Technical Climbing Turn	Rollable Double Step Down Jump	
Insloped Climbing Turn	Grade Reversal	
Technical Inside Line	Rollable Step Down	
	Drop Off	

ALBANY HARBOUR PATH CORRIDOR

TRAIL ID 12

WALK

BASIC
GRADE 1

MOUNTAIN BIKE

EASIEST
WHITE CIRCLE

OVERVIEW

The Albany Harbour Path is proposed to provide a highly accessible link between the Albany Harbour and the Heritage Park, via Cuddihy Avenue, Marine Drive and Forts Road. It is therefore proposed as a basic Grade 1, easiest classification dual use trail. Intended primarily as an alternative transport option rather than recreation, it is anticipated that this section of trail will see low relative level of use and is therefore of low strategic value.

OPPORTUNITIES

USER MARKETS

It is anticipated that the trail will be used by visitors from the large number of cruise ships docking at the Harbour, as well as walkers and cyclists using the Harbour Path for transport. It is composed of 1km of new alignment and forms an integral link for visitors accessing the network, as an alternative to motorised transport options.

OPTIONAL LINES TO CATER FOR MULTIPLE CLASSIFICATIONS

There is no need for optional lines and features to be provided on the harbour path, as its primary purpose is not recreation.

USE OF EXISTING TRAIL

The Albany Harbour Path utilises predominantly disturbed alignment within public road reserves.

CONFLICT MANAGEMENT

There is a need to manage potential conflict between user types on this trail. The trail will be designed to a minimum width of 1500mm and with a minimum line of sight of 15m, to ensure users have visibility of oncoming traffic. Signage will be installed in accordance with the code of conduct to inform path users.

CONSTRAINTS

Environmental, hygiene and heritage constraints have been assessed broadly in the context of the AHP.

- The trail is primarily located amongst moderately dense vegetation. Through the detailed design stage, areas of sensitive vegetation will be identified prior to confirming the most appropriate alignment.
- The broadscale dieback assessment identified the area where this trail is proposed is impacted. Further dieback investigations may be undertaken prior to confirming the most appropriate alignment of the trail to prevent impact on potentially protectable downslope areas.
- There are no heritage issues associated with the indicative alignment of this trail.

TRAIL CORRIDOR DETAILS

Corridor ID	12a, 12b
Name	Albany Harbour Path
Strategic Value	High
Use	Dual - Walk & Mountain Bike
Classifications	Grade 1 - Easiest - White Cicle
Trail Type	Walk / Cross Country
Trail Style	Open
Direction	Dual Direction
Ascending / Descending	Ascending & Descending
Options	Nil
Corridor Width	100m
Trail Length	1100m
Vertical Range	N/A
Elevation Variation	N/A
Prevailing Cross Slopes	Flat to Moderate
Average Trail Gradient	N/A
Maximum Trail Gradient	0.071
Minimum Line of Sight	15m
Tread Width	>2000mm
Qualifier / Filter	Nil

DEVELOPMENT STAGING & COSTING

Development Stage	STAGE 3
Construction Type	New
Est. Design Cost	$3,135.00
Est. Construction Cost	$156,750.00
Est. Signage & Ancillary Cost	$3,135.00
Est. Total Trail Cost	$181,307.50
Est. Maintenance p/year	$7,053.75

RECOMMENDED CONSTRUCTION METHODOLOGY

Proposed Construction Methodology	Benched and lifted using imported materials, asphalt sealed
Proposed Construction Materials	Imported materials.

TECHNICAL TRAIL FEATURES

TURNS	VERTICAL CHANGE	OBSTACLES
Turns	Rollers	Chicane
Berm	Grade Reversal	Choke
Climbing Turn	Steps - Optional	
Technical Inside Line	Walk Line	

GRANITE TRAIL CORRIDOR

TRAIL ID 13

WALK

MODERATE
GRADE 3

OVERVIEW

The Granite Trail is a pre-existing walk trail, which is proposed to be upgraded to a Grade 3, moderate classification walk trail. This dual direction trail utilises an existing alignment and will be upgraded to provide cohesive links with dual use trails that can be accessed from multiple locations. It is anticipated that this section of trail will cater for existing demand, and is of not of high strategic value.

OPPORTUNITIES

USER MARKETS

It is anticipated that this trail will be used by visitors and local residents to access the summit of Mt Clarence on a relatively short loop originating at the City Trail Head.

OPTIONAL LINES TO CATER FOR MULTIPLE CLASSIFICATIONS

Optional lines of higher classifications may be provided using existing features.

USE OF EXISTING TRAIL

This trail predominantly utilises the existing alignment, with some upgrades to unsustainable sections.

CONFLICT MANAGEMENT

This trail is designed as a single user walk trail. In recent times there have been some conflicts resulting from mountain bikers using the existing walk trail. However, this is anticipated to be mitigated through provision of appropriate mountain bike trails to meet this demand, and promotion of a well understood code of conduct. The minimum line of sight on this trail is 7.5m to allow walkers to see oncoming walkers.

CONSTRAINTS

Environmental, hygiene and heritage constraints have been assessed broadly in the context of the AHP.

- The trail is primarily located amongst moderately dense vegetation. Through the detailed design stage, areas of sensitive vegetation will be identified prior to confirming the most appropriate alignment.
- The broadscale dieback assessment identified the area where this trail is proposed is impacted. Further dieback investigations may be undertaken prior to confirming the most appropriate alignment of the trail to prevent impact on potentially protectable downslope areas.
- There are no heritage issues associated with the indicative alignment of this trail.

TRAIL CORRIDOR DETAILS

Corridor ID	13a, 13b
Name	Granite Trail
Strategic Value	High
Use	Single - Walk Only
Classifications	Grade 3
Trail Type	Walk
Trail Style	Open
Direction	Dual Direction
Ascending / Descending	Ascending & Descending
Options	Nil
Corridor Width	100m
Trail Length	1000m
Vertical Range	N/A
Elevation Variation	N/A
Prevailing Cross Slopes	Moderate to Steep
Average Trail Gradient	N/A
Maximum Trail Gradient	20% < 50m
Minimum Line of Sight	N/A
Tread Width	Variable, < 1200mm
Qualifier / Filter	Nil

DEVELOPMENT STAGING & COSTING

Development Stage	STAGE 3
Construction Type	Upgraded
Est. Design Cost	$2,913.00
Est. Construction Cost	$29,130.00
Est. Signage & Ancillary Cost	$582.60
Est. Total Trail Cost	$37,966.10
Est. Maintenance p/year	$1,310.85

RECOMMENDED CONSTRUCTION METHODOLOGY

Proposed Construction Methodology	Bench & partial bench, mostly existing alignment, some rock outcrop
Proposed Construction Materials	Natural materials.

TECHNICAL TRAIL FEATURES

TURNS	VERTICAL CHANGE	OBSTACLES
Climbing Turns	Grade Reversal Steps - Optional Walk Line Natural Obstacles	Chicane Choke Exposed edges

CIRCUIT TRAIL CORRIDOR

WALK

MODERATE
GRADE 3

OVERVIEW

The Circuit Trail is a pre-existing walk trail, which is proposed to be upgraded to a Grade 3, moderate classification walk trail. This dual direction trail utilises an existing alignment and will be upgraded to provide cohesive links with dual use trails that can be accessed from multiple locations. It is anticipated that this section of trail will cater for existing demand, and is of not of high strategic value.

OPPORTUNITIES

USER MARKETS

It is anticipated that this trail will be used by visitors and local residents to access the summit of Mt Clarence on a relatively short loop originating at the Secondary Trail Head at Innes Street.

OPTIONAL LINES TO CATER FOR MULTIPLE CLASSIFICATIONS

Optional lines of higher classifications may be provided using existing features.

USE OF EXISTING TRAIL

This trail predominantly utilises the existing alignment, with some upgrades to unsustainable sections.

CONFLICT MANAGEMENT

This trail is designed as a single user walk trail. In recent times there have been some conflicts resulting from mountain bikers using the existing walk trail. However, this is anticipated to be mitigated through provision of appropriate mountain bike trails to meet this demand, and promotion of a well understood code of conduct. The minimum line of sight on this trail is 7.5m to allow walkers to see oncoming walkers.

CONSTRAINTS

Environmental, hygiene and heritage constraints have been assessed broadly in the context of the AHP.

- The trail is primarily located amongst moderately dense vegetation. Through the detailed design stage, areas of sensitive vegetation will be identified prior to confirming the most appropriate alignment.
- The broadscale dieback assessment identified the area where this trail is proposed is impacted. Further dieback investigations may be undertaken prior to confirming the most appropriate alignment of the trail to prevent impact on potentially protectable downslope areas.
- There are no heritage issues associated with the indicative alignment of this trail.

TRAIL CORRIDOR DETAILS

Corridor ID	14a, 14b
Name	Circuit Trail
Strategic Value	High
Use	Single - Walk Only
Classifications	Grade 3
Trail Type	Walk
Trail Style	Open
Direction	Dual Direction
Ascending / Descending	Ascending & Descending
Options	Nil
Corridor Width	100m
Trail Length	1000m
Vertical Range	N/A
Elevation Variation	N/A
Prevailing Cross Slopes	Moderate to Very Steep
Average Trail Gradient	N/A
Maximum Trail Gradient	20% < 50m
Minimum Line of Sight	N/A
Tread Width	Variable, < 1200mm
Qualifier / Filter	Nil

DEVELOPMENT STAGING & COSTING

Development Stage	STAGE 3
Construction Type	Upgraded
Est. Design Cost	$2,742.00
Est. Construction Cost	$25,505.00
Est. Signage & Ancillary Cost	$510.10
Est. Total Trail Cost	$33,592.60
Est. Maintenance p/year	$1,147.73

RECOMMENDED CONSTRUCTION METHODOLOGY

Proposed Construction Methodology	Bench & partial bench, mostly existing alignment.
Proposed Construction Materials	Natural materials.

TECHNICAL TRAIL FEATURES

TURNS	VERTICAL CHANGE	OBSTACLES
Climbing Turns	Grade Reversal Steps - Optional Walk Line Natural Obstacles	Chicane Choke Exposed edges

SUMMIT TRAIL CORRIDOR

TRAIL ID 15

WALK

MODERATE
GRADE 3

OVERVIEW

The Summit Trail is a pre-existing walk trail, which is proposed to be upgraded to a Grade 3, moderate classification walk trail. This dual direction trail utilises an existing alignment and will be upgraded to provide cohesive links with dual use trails that can be accessed from multiple locations. It is anticipated that this section of trail will cater for existing demand, and is of not of high strategic value.

OPPORTUNITIES

USER MARKETS

It is anticipated that this trail will be used by visitors and local residents to access the summit of Mt Clarence on a relatively short loop originating at the Secondary Trail Head at Innes Street.

OPTIONAL LINES TO CATER FOR MULTIPLE CLASSIFICATIONS

Optional lines of higher classifications may be provided using existing features.

USE OF EXISTING TRAIL

This trail predominantly utilises the existing alignment, with some upgrades to unsustainable sections.

CONFLICT MANAGEMENT

This trail is designed as a single user walk trail. In recent times there have been some conflicts resulting from mountain bikers using the existing walk trail. However, this is anticipated to be mitigated through provision of appropriate mountain bike trails to meet this demand, and promotion of a well understood code of conduct. The minimum line of sight on this trail is 7.5m to allow walkers to see oncoming walkers.

CONSTRAINTS

Environmental, hygiene and heritage constraints have been assessed broadly in the context of the AHP.

- The trail is primarily located amongst moderately dense vegetation. Through the detailed design stage, areas of sensitive vegetation will be identified prior to confirming the most appropriate alignment.
- The broadscale dieback assessment identified the area where this trail is proposed is impacted. Further dieback investigations may be undertaken prior to confirming the most appropriate alignment of the trail to prevent impact on potentially protectable downslope areas.
- There are no heritage issues associated with the indicative alignment of this trail.

TRAIL CORRIDOR DETAILS

Corridor ID	15a, 15b
Name	Summit Trail
Strategic Value	High
Use	Single - Walk Only
Classifications	Grade 3
Trail Type	Walk
Trail Style	Open
Direction	Dual Direction
Ascending / Descending	Ascending & Descending
Options	Nil
Corridor Width	100m
Trail Length	200m
Vertical Range	N/A
Elevation Variation	N/A
Prevailing Cross Slopes	Moderate to Steep
Average Trail Gradient	N/A
Maximum Trail Gradient	20% < 50m
Minimum Line of Sight	N/A
Tread Width	Variable, < 1200mm
Qualifier / Filter	Nil

DEVELOPMENT STAGING & COSTING

Development Stage	STAGE 3
Construction Type	Upgraded & New
Est. Design Cost	$498.00
Est. Construction Cost	$7,710.00
Est. Signage & Ancillary Cost	$154.20
Est. Total Trail Cost	$9,548.20
Est. Maintenance p/year	$346.95

RECOMMENDED CONSTRUCTION METHODOLOGY

Proposed Construction Methodology	Bench & partial bench, mostly existing alignment.
Proposed Construction Materials	Natural materials.

TECHNICAL TRAIL FEATURES

TURNS	VERTICAL CHANGE	OBSTACLES
Climbing Turns	Grade Reversal Steps - Optional Walk Line Natural Obstacles	Chicane Choke Exposed edges

MT ADELAIDE BATTERY CORRIDOR

TRAIL ID 16

WALK

BASIC / MODERATE
GRADE 2

OVERVIEW

The Princess Royal Fortress has two gun batteries dug into the Mt Adelaide hillside. The Mt Adelaide Battery Trail is proposed to be a Grade 2, basic to moderate classification walk trail. Utilising an existing alignment, this dual direction trail will be upgraded to provide a more structured route suitable and accessible for most users. Originating near the Wesfarmers Lookout, it is a popular entry point for visitors exploring the historic forts precinct.

OPPORTUNITIES

USER MARKETS

It is anticipated that this trail will continue to be used by visitors and local residents to access the historic sites, on a moderate distance walk trail circuit that extends down to the Ellen Cove Boardwalk, and back to the National Anzac Centre.

OPTIONAL LINES TO CATER FOR MULTIPLE CLASSIFICATIONS

Optional lines of higher classifications, e.g. stairs may be provided using existing features.

USE OF EXISTING TRAIL

This trail predominantly utilises the existing alignment, with some upgrades to unsustainable sections.

CONFLICT MANAGEMENT

This trail is designed as a single user walk trail. In recent times there have been some conflicts resulting from mountain bikers using the existing walk trail. However, this is anticipated to be mitigated through provision of appropriate mountain bike trails to meet this demand, and promotion of a well understood code of conduct. Features such as choke points may be installed to deter mountain bikers from using this trail.

CONSTRAINTS

Environmental, hygiene and heritage constraints have been assessed broadly in the context of the AHP.

- The trail is primarily located amongst moderately dense vegetation. Through the detailed design stage, areas of sensitive vegetation will be identified prior to confirming the most appropriate alignment.
- The broadscale dieback assessment identified the area where this trail is proposed is impacted. Further dieback investigations may be undertaken prior to confirming the most appropriate alignment of the trail to prevent impact on potentially protectable downslope areas.
- There are no heritage issues associated with the indicative alignment of this trail.

TRAIL CORRIDOR DETAILS

Corridor ID	16
Name	Mt Adelaide Battery
Strategic Value	High
Use	Single - Walk Only
Classifications	Grade 2
Trail Type	Walk
Trail Style	Open
Direction	Dual Direction
Ascending / Descending	Ascending & Descending
Options	Nil
Corridor Width	100m
Trail Length	200m
Vertical Range	N/A
Elevation Variation	N/A
Prevailing Cross Slopes	Moderate to Steep
Average Trail Gradient	N/A
Maximum Trail Gradient	0.1
Minimum Line of Sight	N/A
Tread Width	1500mm
Qualifier / Filter	Nil

DEVELOPMENT STAGING & COSTING

Development Stage	STAGE 3
Construction Type	Upgraded
Est. Design Cost	$579.00
Est. Construction Cost	$3,860.00
Est. Signage & Ancillary Cost	$77.20
Est. Total Trail Cost	$5,384.70
Est. Maintenance p/year	$173.70

RECOMMENDED CONSTRUCTION METHODOLOGY

Proposed Construction Methodology	Benched & lifted construction.
Proposed Construction Materials	Imported materials.

TECHNICAL TRAIL FEATURES

TURNS	VERTICAL CHANGE	OBSTACLES
Climbing Turns	Grade Reversal Steps - Optional Walk Line Natural Obstacles	Chicane Choke Exposed edges

WW2 TRACK CORRIDOR

TRAIL ID 17

WALK

BASIC / MODERATE
GRADE 2

OVERVIEW

The WW2 Track is proposed to be upgrade to a Grade 2, basic to moderate classification walk trail. This dual direction trail utilises an existing alignment and will be upgraded to provide cohesive links and interpretive experiences between the Princess Royal Fortress historical precinct and sites located below Marine Drive.

OPPORTUNITIES

USER MARKETS

The WW2 Track provides a moderately short experience, and can be linked with other trails to complete a longer walk. It is anticipated that this section of trail will cater for existing demand, and is of not of high strategic value.

OPTIONAL LINES TO CATER FOR MULTIPLE CLASSIFICATIONS

Optional lines of higher classifications, e.g. stairs, may be provided using existing features.

USE OF EXISTING TRAIL

This trail predominantly utilises the existing alignment, with some upgrades to unsustainable sections.

CONFLICT MANAGEMENT

This trail is designed as a single user walk trail. In recent times there have been some conflicts resulting from mountain bikers using the existing walk trail. However, this is anticipated to be mitigated through provision of appropriate mountain bike trails to meet this demand, and promotion of a well understood code of conduct.

CONSTRAINTS

Environmental, hygiene and heritage constraints have been assessed broadly in the context of the AHP.

- The trail is primarily located amongst moderately dense vegetation. Through the detailed design stage, areas of sensitive vegetation will be identified prior to confirming the most appropriate alignment.
- The broadscale dieback assessment identified the area where this trail is proposed is impacted. Further dieback investigations may be undertaken prior to confirming the most appropriate alignment of the trail to prevent impact on potentially protectable downslope areas.
- There are no heritage issues associated with the indicative alignment of this trail.

TRAIL CORRIDOR DETAILS

Corridor ID	17
Name	WW2 Track
Strategic Value	High
Use	Single - Walk Only
Classifications	Grade 2
Trail Type	Walk
Trail Style	Open
Direction	Dual Direction
Ascending / Descending	Ascending & Descending
Options	Nil
Corridor Width	100m
Trail Length	600m
Vertical Range	N/A
Elevation Variation	N/A
Prevailing Cross Slopes	Moderate to Very Steep
Average Trail Gradient	N/A
Maximum Trail Gradient	0.1
Minimum Line of Sight	N/A
Tread Width	1200mm
Qualifier / Filter	Nil

DEVELOPMENT STAGING & COSTING

Development Stage	STAGE 3
Construction Type	Upgraded
Est. Design Cost	$1,653.00
Est. Construction Cost	$27,550.00
Est. Signage & Ancillary Cost	$551.00
Est. Total Trail Cost	$33,886.50
Est. Maintenance p/year	$1,239.75

RECOMMENDED CONSTRUCTION METHODOLOGY

Proposed Construction Methodology	Benched & lifted construction.
Proposed Construction Materials	Imported materials.

TECHNICAL TRAIL FEATURES

TURNS	VERTICAL CHANGE	OBSTACLES
Climbing Turns	Grade Reversal Steps - Optional Walk Line Natural Obstacles	Chicane Choke Exposed edges

COLONIAL CORRIDOR

WALK


BASIC
GRADE 2


MODERATE
GRADE 3

OVERVIEW

The Colonial Trail is a proposed Grade 2 to 3, basic to moderate classification walk trail. This dual direction trail utilises an existing alignment and will be upgraded to provide cohesive links and interpretive experiences within the Princess Royal Fortress historical precinct.

OPPORTUNITIES

USER MARKETS

The Colonial Trail provides a moderately long walk, with a number of opportunities to visit various points of interest along the circuit. It is anticipated that this section of trail will cater for existing demand, and is of not of high strategic value.

OPTIONAL LINES TO CATER FOR MULTIPLE CLASSIFICATIONS

Optional lines of higher classifications may be provided using existing features.

USE OF EXISTING TRAIL

This trail predominantly utilises the existing alignment, with some upgrades to unsustainable sections.

CONFLICT MANAGEMENT

This trail is designed as a single user walk trail. In recent times there have been some conflicts resulting from mountain bikers using the existing walk trail. However, this is anticipated to be mitigated through provision of appropriate mountain bike trails to meet this demand, and promotion of a well understood code of conduct.

CONSTRAINTS

Environmental, hygiene and heritage constraints have been assessed broadly in the context of the AHP.

- The trail is primarily located amongst moderately dense vegetation. Through the detailed design stage, areas of sensitive vegetation will be identified prior to confirming the most appropriate alignment.
- The broadscale dieback assessment identified the area where this trail is proposed is impacted. Further dieback investigations may be undertaken prior to confirming the most appropriate alignment of the trail to prevent impact on potentially protectable downslope areas.
- There are no heritage issues associated with the indicative alignment of this trail.

TRAIL CORRIDOR DETAILS

Corridor ID	18a, 18b, 18c, 18d, 18e, 18f, 18g
Name	Colonial
Strategic Value	High
Use	Single - Walk Only
Classifications	Grade 2
Trail Type	Walk
Trail Style	Open
Direction	Dual Direction
Ascending / Descending	Ascending & Descending
Options	Nil
Corridor Width	100m
Trail Length	2300m
Vertical Range	N/A
Elevation Variation	N/A
Prevailing Cross Slopes	Flat to Moderate
Average Trail Gradient	N/A
Maximum Trail Gradient	0.1
Minimum Line of Sight	N/A
Tread Width	900mm
Qualifier / Filter	Nil

DEVELOPMENT STAGING & COSTING

Development Stage	STAGE 3
Construction Type	Upgraded & New
Est. Design Cost	$6,681.00
Est. Construction Cost	$100,215.00
Est. Signage & Ancillary Cost	$2,004.30
Est. Total Trail Cost	$124,489.30
Est. Maintenance p/year	$4,509.68

RECOMMENDED CONSTRUCTION METHODOLOGY

Proposed Construction Methodology	Lifted construction.
Proposed Construction Materials	Imported materials & subsurface.

TECHNICAL TRAIL FEATURES

TURNS	VERTICAL CHANGE	OBSTACLES
Climbing Turns	Grade Reversal Steps - Optional Walk Line Natural Obstacles	Chicane Choke

DEVELOPMENT

It is recommended that the development process outlined in the Albany Trail Hub Strategy, the Draft Western Australian Mountain Bike Management Guidelines and applicable Australian Standards are used to guide development of the AHP Trail Network.

ALBANY TRAILS HUB STRATEGY DEVELOPMENT PROCESS

The Albany Trails Hub Strategy provides a toolkit for sustainable trail facility development, which includes the trail development process, guiding principles for trail development and construction, a framework template and signage guidelines. The recommendations within this concept report align with this toolkit.

CORRIDOR EVALUATION

The Corridor evaluation stage involves detailed checks and surveys within the proposed corridor identified in the concept plan and documenting environmental or heritage protection strategies where required. The development of this concept plan has involved broad site assessments to identify the major environmental and heritage constraints. Planning and construction permits and approvals to proceed to further stages of design and construction may require additional assessments and documentation for specific trail alignments. Permits and approvals for trail development require the involvement of the City of Albany, Department of Parks and Wildlife, Water Corporation and other stakeholders. These may include specialist flora and fauna habitat surveys, Aboriginal heritage surveys, European heritage surveys, dieback mapping and geotechnical assessments. These surveys will identify appropriate ways in which trails can be developed, and establish any mitigation strategies. Permits are not usually required if an existing trail is being upgraded or modified. The concept design GPS locations for trail alignments should be used to investigate the relevant environmentally and culturally significant values. Permits issued should allow for the trail to be located within a 30m corridor, which allows the builder to respond to changing conditions after construction has commenced.

PLANNING PERMITS

Planning permits are needed for development within heritage listed areas or affecting heritage listed buildings.

BUILDING PERMITS

Building permits are granted under the Building Act to ensure that structures comply with the relevant building standards and regulations. A building surveyor may advise on whether a trail or structure requires a building permit.

VEGETATION CLEARING PERMITS

Vegetation clearing permits granted under the EP Act are administered by the Department of Environmental Regulation, and will be required prior to construction commencing. Permits may contain conditions such as revegetation requirements.

ABORIGINAL HERITAGE SURVEYS AND MONITORS

An Aboriginal Monitor may be required if Aboriginal heritage has been identified close to or within the development area and there is a high risk of harm which the presence of a Monitor could prevent.

DETAILED DESIGN

The detailed design stage ensures that trail alignments and quality and sustainability standards are defined. The alignments are informed and may be adjusted by requirements and conditions detailed in the relevant permits and approvals granted.

The detailed design identifies trail elements, such as technical features, surfacing and drainage, and enables contractors to accurately estimate construction costs, resources, materials and scheduling. Trail corridors are flagged in the field, and correspond with digitally recorded GPS coordinates for corridors and trail elements. The final detailed designs should constitute 10m wide corridors. The detailed design includes construction ready specifications and drawings noting chainage to ensure agreed quality and sustainability standards are achieved. The detailed design documentation will also include a signage plan and a summary of estimated probable construction costs. Rates for detailed design have been based around an industry standard for professional trail designers of $3 per linear metre. This rate is applied to all new, upgraded or realigned trails, and is based on indicative trail corridors. Estimated detailed design costs per trail are provided in the following Tables.

SIGNAGE

Signage is important for visitor risk management, promotion of the trails and communication with users.

A signage plan will be produced as part of the detailed design documentation, to detail locations and types of trail signage. The signage plan will correspond with flagging in the field and electronically recorded GPS coordinates.

In accordance with the Albany Trails Hub Strategy, the following types of signage will be developed:

TRAIL HEAD SIGNS

Trail head signs will include maps, trail names, distances and classifications, as well as a code of conduct for users, safety and land manager contact information.

WAYMARKING SIGNS

Waymarking signs will be small signs located at regular intervals along the trails, at decision points and crossing points to provide directions to trail users. They will include a marker arrow and trail name.

DIRECTIONAL SIGNS

Directional signs will direct users to a trail head from the town or from other key landmarks and destinations. These may include orientation signs with a map and 'you are here' points.

INTERPRETIVE SIGNS

Interpretive signs will display cultural, heritage and environmental information in suitable locations along trails, particularly walking trails designed to be interpretive experiences.

MANAGEMENT SIGNS

Management signs will be used where trails are temporarily closed or realigned due to hazards, incidents or events.

The style and branding of signage will be in line with the City of Albany's Trails Hub brand and signage guidelines, and the trail classification information will be as per internationally recognised standards and the Draft Western Australian Mountain Bike Management Guidelines.

A rate of 2% of the total trail cost has been used to estimate the cost of trail way-marking signage. Trail head infrastructure is highly variable, and can be influenced by branding requirements. Primary trail heads are estimated at $75,000, while secondary trail heads are estimated at $25,000. Minor entry points are estimated at $2,500.

INTERSECTION SIGNS

While most of the trails within the network have been designed to avoid cross-overs and associated conflicts, there are a number of points, where mountain bike trails, walk trails and dual use trails cross. These points will be signed as such, and will be designed as slow points with maximum sight lines. These strategies will ensure crossing points can be safely negotiated by all users.

CONSTRUCTION

The techniques used to construct trails will be vital to ensuring trails are sustainable. The topography of the Mounts varies from sandy soils to dense woodland to open granite outcrops. Construction methodology needs to be tailored to the specific ecological conditions and sensitivities to prevent erosion and other impacts. Many trail construction techniques can be used to prevent soil erosion. In addition to the guiding principles for sustainable trail construction given in the Albany Trails Hub Strategy, the following techniques are recommended for specific ground conditions occurring within the proposed trail alignments.

MACHINE CUT TRAIL

Specialised trail building machinery has been recommended for construction of trails, to maximise efficiency and minimise construction costs. Mini-excavators and mini-skid steers can be used to clear vegetation on the trail corridor within the maximum disturbance width allowed by trail construction standards. Debris can be stockpiled to be later used for trail naturalisation and rehabilitation. Machinery can be used to cut the trail bed profile, back slopes and drainage to the appropriate width and depth requirements.

Mechanised compaction is achieved to the appropriate level as required by detailed design. Broad hazards, such as overhanging branches can be cleared by hand using hand held brushcutters, saws and chainsaws.

BENCHED CONSTRUCTION

Benched trail offers longevity, provides a stable trail surface, and allows water to shed off the trail surface. Benching is generally undertaken by machinery such as mini excavators and mini skid steers with minimum track width of approximately 900m. While the initial trail is at least this width, landscaping can finish trail edges to the desired width, or over time the trail will narrow naturally as vegetation regrows.

IMPORTED MATERIALS AND SURFACE STABILISATION

Generally natural trail surface is preferred, however unstable and loose sandy ground conditions may require some surfacing. Rock armouring may be used on steep sections of trail, to achieve a natural appearance and create an appropriate obstacle. Only appropriate materials endemic to the site and where possible, in-situ materials, should be used. Where materials are imported, high clay or granite content materials similar in nature to the surrounds, will be sourced. Granitic materials with clay base are preferred over limestone or laterite gravel for longevity and visual amenity.

PRESSURE CLEANING

Some steep granite outcrops can become slippery and dangerous in wet conditions. In some cases, the rock surface may undergo treatment such as pressure cleaning to remove this hazard. The use of this technique will depend on whether the surface conditions are acceptable to the relevant trail classification.

HAND BUILT TRAIL

Hand building techniques may be required where environmental sensitivities or access restrictions may prevent trail building machinery from entering an area. This includes clearing of vegetation above and beside the trail corridor. Where trails require minor improvements only, these may be undertaken by hand.

NATURALISATION AND DEMARCATION

Trail naturalisation and demarcation involves a number of landscaping techniques to achieve the appearance that the trail has always existed. This involves using hand tools for the removal of hard edges, steep back slopes, piled spoil, vegetative matter, roots and sticks. Vegetation is trimmed above and beside the trail

corridor to ensure broad hazards are removed and sight lines are maintained. The trail surface is compacted and raked to an stable and even finish. Disturbed trail and drain edges are naturalised to blend seamlessly with the surrounding vegetation and to achieve a consistent trail width in line with the relevant classification.

Demarcation corrals and anchors are specified in the detailed design, and should utilise natural in situ rocks, logs or other features endemic to the area. These elements direct trail users to stay on the designated trail alignment to ensure the trail width stays constant with use. Clever use of demarcation will allow some trails to be used for management and emergency vehicle access.

MANAGEMENT AND MAINTENANCE

Trails require ongoing management and maintenance. Increased demand for trails will lead to increased pressure on existing facilities and services, such as car parking, toilets and rubbish removal. The City of Albany will undertake management of the trail network through recurrent funding. A range of supplementary funding and management models are recommended, which include contributions from commercial operations and volunteer involvement. A management plan will be developed to detail the management roles and responsibilities, funding and resources, maintenance program, reporting procedures and branding and marketing.

MANAGEMENT MODEL

The long term sustainability of the trail network is dependent on understanding clear roles and responsibilities of the trail owner and operator in the development, management and maintenance of trails. The trail owner is the entity that owns the physical trail and carries the liability for the health and safety of all users. The City of Albany is the trail owner of the AHP trail network.

The trail owner will provide relevant resources to carry out the management and maintenance of the trails and associated facilities and infrastructure, including:

- Trail usage monitoring
- Risk management
- Capital renewal
- Event management
- Dieback management
- Identifying and implementing revenue streams
- Marketing and promotion
- Maintenance

The operator is the entity that maintains the trail to the agreed standards of the owner. The City of Albany is the trail operator of the AHP trail network.

TRAIL MAINTENANCE REQUIREMENTS

The Western Australian Mountain Bike Management Guidelines (Parks and Wildlife, 2016) provide comprehensive guidance on trail maintenance requirements to ensure trails remain in good condition and have minimal impact on the surrounding environment. The following maintenance requirements have been considered in determining cost estimates for trail maintenance:

- treatment and removal of weeds from trail alignments and trail heads
- regular inspection of technical trail features
- surface restoration
- clearing of drainage
- removal of litter and hazards
- pruning of vegetation within trail corridor

It is recommended that the detailed design of trails aims to minimise maintenance requirements; and that a comprehensive trail maintenance plan be prepared for each individual trail once the detailed design has been completed to improve accuracy of costings.

MAINTENANCE APPROACHES

Maintenance is critical to ensure the trail owner can meet its obligations to user safety. A professionally designed and constructed trail facility will require minimal ongoing maintenance. A rate of 4.5% of the total trail cost has been used to estimate the cost of a structured formal annual maintenance program for the network. It will be important to establish and document roles and responsibilities for trail management prior to trails being built.

A number of maintenance models may be considered for the AHP site, as listed below:

PROFESSIONAL ONLY

A commercial provider could be engaged to undertake the annual maintenance program for the AHP. Local industry capability and cost effectiveness would need to be considered.

VOLUNTEERS

Given the current involvement of volunteers and ongoing plans for use of the AHP as a racing venue, there is opportunity for the trail operator responsibilities to be delegated to suitable community groups, such as the Albany Mountain Bike Club. A formal trail adoption agreement may be established to formalise partnerships using the template provided within the Draft WA Mountain Bike Management Guidelines.

IN-HOUSE

CoA Reserves Staff could undertake the annual maintenance program.

PARTNERSHIPS

While there is currently no known local capability in trail maintenance in Albany, there is opportunity for development of local skills through targeted skills development programs. These programs could be developed in partnership with local businesses and education and training organisations, such as schools and TAFE. Such programs have potential to provide long term economic and social benefits to the City of Albany and the Great Southern Region.

LOCAL SKILLS DEVELOPMENT AND EMPLOYMENT

There is great economic benefit in using local labour during construction and ongoing management of trails in Albany. Strategies for addressing the skills gap should be developed in accordance with the CoA's wider economic development planning, to ensure that skills development links to future opportunities. Employment in non-skilled trail building roles and provision of training should be considered when developing tender specifications. It is recommended that CoA discusses potential opportunities in relation to delivery of this project with partner organisations, stakeholder groups and local businesses.

Consultation with the Noongar community identified aspirations for Aboriginal people to be trained and employed in construction of

the trails network. It is recommended that the CoA engages with the relevant local Noongar community training and employment organisations at a partnership level.

It is recommended that local and Noongar involvement are preferred as part of tender evaluation processes. It is important that where training is provided, this is linked with ongoing employment opportunities. Achieving long term economic outcomes will ensure a sustainable facility for the Albany community.

EVENT PROVIDERS

The CoA has relationships with a range of event providers, including commercials and not for profit bodies. With the development of the trail network, there will be significant potential for more types of events, particularly mountain bike events to use the trails. Commercial events have the potential to contribute financially to the facility. It is recommended that the CoA implement a policy for event providers involving a fee for use system, including a bond component, and relevant to the number of competitors.

PROMOTION AND EDUCATION

TRAIL USERS

Two of the main issues raised during the consultation were conflict management and environmental sensitivities. These issues arise primarily from a lack of information and cohesion within the existing trail network, and lack of understanding between trail user groups.

A trail code of conduct has been developed as part of this concept plan to describe the responsibilities of users to the values of the AHP and to other users. All groups need to be aware of each other and aware of their responsibilities when interacting on the trails. The code will be displayed on maps and signage at all trail heads, intersections and various key locations around the area.

It is recommended that an educational campaign is undertaken to communicate the code of conduct, duty of care, sustainable use of trails and sharing the trails. This will ensure the safety and enjoyment of the AHP for all users.

Information will be made available to the public online and at key locations such as CoA offices and local recreation facilities. Trail information will be communicated to all stakeholders and interested community members.

Contact information will also be provided at the trails so users can report issues or trail hazards to the CoA.

RESIDENTS

It is recommended that the education campaign includes information for residents living around the AHP with regard to access to the trails. Over time users have created a large number of tracks to gain quick access to the AHP from street level. A key part of the concept plan has been the consolidation of these access tracks, and users will need to understand which have been closed for rehabilitation, and where their closest access route is.

MAPS

Maps will be developed for the AHP trail network, to inform users of trail types, classifications (difficulty), distances, facilities nearby, points of interest, the code of conduct, as well as cultural, historical and environmental information on the area. Maps can include information about sponsors or businesses that support the trails.

TRAILS OFFICER

In order to implement the trail project and coordinate its ongoing management, the employment of a Trails Officer is recommended. The Trails Officer would be an ongoing position responsible for working with trail user groups, partners and other stakeholders to coordinate development, maintenance and promotion of the trails.

CONSTRUCTION STAGING & COSTING

Please note that all cost estimates provided in this report are estimates only. They do not represent formal quotations from Common Ground Trails. Cost estimates are based on broad assumptions relating to expenses, imported materials, such as gravels and rocks, construction techniques, trail widths and complexity of drainage requirements. The next stages of detailed design and site assessments will inform construction requirements to enable contractors to quote to a greater level of accuracy. Quotations given following detailed design may differ to the estimates provided within this report.

WALK TRAILS

The typical rate used for walk trail construction is $30-$35/m. Additional landscaping recommended on some walk trails increases the rate to $45-$50/m.

DUAL USE TRAILS

The typical rate used for dual use trail construction is $30-$40/m. Additional landscaping is recommended for dual use trails to create an exceptionally high quality experience, and the rate used is up to $90/m.

MOUNTAIN BIKE TRAILS

The rate used for mountain bike trails depends on the classification, and whether the trail is ascending or descending. Mountain bike only trails range between $35-$60/m.

ASSESSMENTS AND DESIGN COSTS

Assessments are estimated at $2/m. Design costs are estimated at $3/m.

MAINTENANCE RATES

A rate of 4.5% of the total trail cost has been used to estimate annual maintenance costs on all trails.

SIGNAGE

A rate of 2% of the total trail cost has been used to estimate the cost of trail way-marking signage.

CONTINGENCY

Allowance of average industry rates plus 10% contingency for increased trail lengths during detailed design.

TRAIL HEAD INFRASTRUCTURE

Trail head infrastructure is highly variable. Primary trail heads are estimated at $75,000. Secondary trail heads are estimated at $25,000 and minor entry points are estimated at $2,500.

CONSTRUCTION STAGING & COSTING

Table 6 outlines the recommended construction sequencing (SEQ) and broad cost estimates.

SEQ	ID	PROVISIONAL NAME	LENGTH (M)	RATE ($/M)	CONDITION	TRAIL BUILD COST	ASSESSMENT COST	DESIGN COST	TRAIL HEAD COST	SIGNAGE COST (@1%)	CONTINGENCY (10%)	TOTAL COST
STAGE 1												
1	1a	Ridge Link	654	90	New	58,860.00	1,308.00	1,962.00	75,000.00	1,177.20	6,213.00	144,520.20
2	1b	Ridge Link	1621	90	Existing	145,890.00	3,242.00	4,863.00		2,917.80	15,399.50	172,312.30
3	1c	Ridge Link	759	90	New	68,310.00	1,518.00	2,277.00	25,000.00	1,366.20	7,210.50	105,681.70
4	1d	Ridge Link	398	80	New	31,840.00	796.00	1,194.00		636.80	3,383.00	37,849.80
5	1e	Ridge Link	740	80	New	59,200.00	1,480.00	2,220.00		1,184.00	6,290.00	70,374.00
6	1f	Ridge Link	616	50	New	30,800.00	1,232.00	1,848.00		616.00	3,388.00	37,884.00
7	1g	Ridge Link	519	50	New	25,950.00	1,038.00	1,557.00	75,000.00	519.00	2,854.50	106,918.50
8	1h	Ridge Link	860	90	New	77,400.00	1,720.00	2,580.00	25,000.00	1,548.00	8,170.00	116,418.00
9	1i	Ridge Link	296	60	New	17,760.00	592.00	888.00		355.20	1,924.00	21,519.20
10	1j	Ridge Link	166	50	New	8,300.00	332.00	498.00	2,500.00	166.00	913.00	12,709.00
11	1k	Ridge Link	2333	50	New	116,650.00	4,666.00	6,999.00		2,333.00	12,831.50	143,479.50
		TRAIL 1 SUBTOTALS				640,960.00	17,924.00	26,886.00	202,500.00	12,819.20	68,577.00	969,666.20
12	2-	Mids Descent	1852	40	New	74,080.00	3,704.00	5,556.00		1,481.60	8,334.00	93,155.60
		TRAIL 2 SUBTOTALS				74,080.00	3,704.00	5,556.00	-	1,481.60	8,334.00	93,155.60
13	3a	Iconic Descent	765	35	New	26,775.00	1,530.00	2,295.00		535.50	3,060.00	34,195.50
14	3b	Iconic Descent	239	15	Existing	3,585.00	478.00	717.00		71.70	478.00	5,329.70
15	3c	Iconic Descent	820	35	New	28,700.00	1,640.00	2,460.00		574.00	3,280.00	36,654.00
16	3d	Iconic Descent	114	35	Existing	3,990.00	228.00	342.00		79.80	456.00	5,095.80
17	3e	Iconic Descent	176	35	New	6,160.00	352.00	528.00		123.20	704.00	7,867.20
18	3f	Iconic Descent	281	35	Existing	9,835.00	562.00	843.00		196.70	1,124.00	12,560.70
19	3g	Iconic Descent	113	35	Existing	3,955.00	226.00	339.00		79.10	452.00	5,051.10
20	3h	Iconic Descent	903	35	New	31,605.00	1,806.00	2,709.00		632.10	3,612.00	40,364.10
		TRAIL 3 SUBTOTALS				114,605.00	6,822.00	10,233.00	-	2,292.10	13,166.00	147,118.10
21	4-	City Descent	1728	40	New	69,120.00	3,456.00	5,184.00		1,382.40	7,776.00	86,918.40
		TRAIL 4 SUBTOTALS				69,120.00	3,456.00	5,184.00	-	1,382.40	7,776.00	86,918.40

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SEQ	ID	PROVISIONAL NAME	LENGTH (M)	RATE ($/M)	CONDITION	TRAIL BUILD COST	ASSESSMENT COST	DESIGN COST	TRAIL HEAD COST	SIGNAGE COST (@1%)	CONTINGENCY (10%)	TOTAL COST
22	5a	Perimeter	102	60	New	6,120.00	204.00	306.00		122.40	663.00	7,415.40
23	5b	Perimeter	203	50	Existing	10,150.00	406.00	609.00		203.00	1,116.50	12,484.50
24	5c	Perimeter	224	30	Existing	6,720.00	448.00	672.00		134.40	784.00	8,758.40
25	5d	Perimeter	597	30	Existing	17,910.00	1,194.00	1,791.00		358.20	2,089.50	23,342.70
26	5e	Perimeter	86	30	Existing	2,580.00	172.00	258.00		51.60	301.00	3,362.60
27	5f	Perimeter	215	30	Existing	6,450.00	430.00	645.00	25,000.00	129.00	752.50	33,406.50
28	5g	Perimeter	79	30	Existing	2,370.00	158.00	237.00		47.40	276.50	3,088.90
29	5h	Perimeter	136	60	New	8,160.00	272.00	408.00	2,500.00	163.20	884.00	12,387.20
30	5i	Perimeter	157	40	New	6,280.00	314.00	471.00	2,500.00	125.60	706.50	10,397.10
31	5j	Perimeter	94	40	Existing	3,760.00	188.00	282.00		75.20	423.00	4,728.20
32	5k	Perimeter	95	60	New	5,700.00	190.00	285.00		114.00	617.50	6,906.50
33	5l	Perimeter	237	60	New	14,220.00	474.00	711.00		284.40	1,540.50	17,229.90
34	5m	Perimeter	181	50	New	9,050.00	362.00	543.00		181.00	995.50	11,131.50
35	5n	Perimeter	257	30	Existing	7,710.00	514.00	771.00		154.20	899.50	10,048.70
36	5o	Perimeter	565	50	Existing	28,250.00	1,130.00	1,695.00		565.00	3,107.50	34,747.50
37	5p	Perimeter	195	60	New	11,700.00	390.00	585.00		234.00	1,267.50	14,176.50
38	5q	Perimeter	552	20	Existing	11,040.00	1,104.00	1,656.00	2,500.00	220.80	1,380.00	17,900.80
39	5r	Perimeter	66	60	New	3,960.00	132.00	198.00	2,500.00	79.20	429.00	7,298.20
40	5s	Perimeter	2302	40	Existing	92,080.00	4,604.00	6,906.00	2,500.00	1,841.60	10,359.00	118,290.60
41	5t	Perimeter	450	30	Existing	13,500.00	900.00	1,350.00	2,500.00	270.00	1,575.00	20,095.00
		TRAIL 5 SUBTOTALS				267,710.00	13,586.00	20,379.00	40,000.00	5,354.20	30,167.50	377,196.70
					STAGE 1 GRAND TOTAL	1,166,475.00	45,492.00	68,238.00	242,500.00	23,329.50	128,020.50	1,674,055.00
STAGE 2												
42	6a	Black Climb	1002	40	New	40,080.00	2,004.00	3,006.00		801.60	4,509.00	50,400.60
43	6b	Urban Downhill	678	50	New	33,900.00	1,356.00	2,034.00		678.00	3,729.00	41,697.00
		Trail 6 Subtotals				73,980.00	3,360.00	5,040.00	-	1,479.60	8,238.00	92,097.60
44	7a	Blue Loop	1409	35	New	49,315.00	2,818.00	4,227.00		986.30	5,636.00	62,982.30

45	7b	Blue Loop	1468	35	New	51,380.00	2,936.00	4,404.00		1,027.60	5,872.00	65,619.60
		Trail 7 Subtotals				100,695.00	5,754.00	8,631.00	-	2,013.90	11,508.00	128,601.90
46	11a	Midds Blue Descent	473	35	New	16,555.00	946.00	1,419.00	75,000.00	331.10	1,892.00	96,143.10
47	11b	Midds Blue Descent	124	35	Existing	4,340.00	248.00	372.00		86.80	496.00	5,542.80
					TRAIL 11 SUBTOTALS	20,895.00	1,194.00	1,791.00	75,000.00	417.90	2,388.00	101,685.90
					STAGE 2 GRAND TOTAL	195,570.00	10,308.00	15,462.00	75,000.00	3,911.40	22,134.00	322,385.40
STAGE 3												
48	8a	Mt Adelaide Stairs	476	1000	New	476,000.00	952.00	1,428.00		9,520.00	47,838.00	535,738.00
		TRAIL 8 SUBTOTALS				476,000.00	952.00	1,428.00	-	9,520.00	47,838.00	535,738.00
49	9a	Ocean Trail	2231	70	New	156,170.00	4,462.00	6,693.00		3,123.40	16,732.50	187,180.90
50	9b	Ocean Trail	1030	45	New	46,350.00	2,060.00	3,090.00		927.00	5,150.00	57,577.00
51	9c	Ocean Trail	146	45	Existing	6,570.00	292.00	438.00		131.40	730.00	8,161.40
		TRAIL 9 SUBTOTALS				209,090.00	6,814.00	10,221.00	-	4,181.80	22,612.50	252,919.30
52	10a	Downhill	396	60	New	23,760.00	792.00	1,188.00		475.20	2,574.00	28,789.20
53	10b	Downhill	615	40	Existing	24,600.00	1,230.00	1,845.00		492.00	2,767.50	30,934.50
54	10c	Downhill	109	50	New	5,450.00	218.00	327.00	2,500.00	109.00	599.50	9,203.50
		TRAIL 10 SUBTOTALS				53,810.00	2,240.00	3,360.00	2,500.00	1,076.20	5,941.00	68,927.20
55	12a	Albany Harbour Path	938	150	New	140,700.00	1,876.00	2,814.00		2,814.00	14,539.00	162,743.00
56	12b	Albany Harbour Path	107	150	New	16,050.00	214.00	321.00		321.00	1,658.50	18,564.50
		TRAIL 12 SUBTOTALS				156,750.00	2,090.00	3,135.00	-	3,135.00	16,197.50	181,307.50
57	13a	Granite Trail	440	30	Existing	13,200.00	880.00	1,320.00		264.00	1,540.00	17,204.00
58	13b	Granite Trail	531	30	Existing	15,930.00	1,062.00	1,593.00		318.60	1,858.50	20,762.10
		TRAIL 13 SUBTOTALS				29,130.00	1,942.00	2,913.00	-	582.60	3,398.50	37,966.10
59	14a	Circuit Trail	383	25	Existing	9,575.00	766.00	1,149.00		191.50	1,149.00	12,830.50
60	14b	Circuit Trail	531	30	Existing	15,930.00	1,062.00	1,593.00		318.60	1,858.50	20,762.10
		TRAIL 14 SUBTOTALS				25,505.00	1,828.00	2,742.00	-	510.10	3,007.50	33,592.60
61	15a	Summit Trail	91	60	New	5,460.00	182.00	273.00		109.20	591.50	6,615.70
62	15b	Summit Trail	75	30	Existing	2,250.00	150.00	225.00		45.00	262.50	2,932.50
		Trail 15 Subtotals				7,710.00	332.00	498.00	-	154.20	854.00	9,548.20
63	16-	Mt Adelaide Battery	193	20	Existing	3,860.00	386.00	579.00		77.20	482.50	5,384.70

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		TRAIL 16 SUBTOTALS				3,860.00	386.00	579.00	-	77.20	482.50	5,384.70
64	17-	WW2 Track	551	50	Existing	27,550.00	1,102.00	1,653.00		551.00	3,030.50	33,886.50
		TRAIL 17 SUBTOTALS				27,550.00	1,102.00	1,653.00	-	551.00	3,030.50	33,886.50
65	18a	Colonial	499	45	Existing	22,455.00	998.00	1,497.00		449.10	2,495.00	27,894.10
66	18b	Colonial	94	45	New	4,230.00	188.00	282.00		84.60	470.00	5,254.60
66	18b	Colonial	94	45	New	4,230.00	188.00	282.00		84.60	470.00	5,254.60
67	18c	Colonial	341	45	Existing	15,345.00	682.00	1,023.00		306.90	1,705.00	19,061.90
68	18d	Colonial	90	45	Existing	4,050.00	180.00	270.00		81.00	450.00	5,031.00
69	18e	Colonial	142	45	New	6,390.00	284.00	426.00		127.80	710.00	7,937.80
70	18f	Colonial	904	45	Existing	40,680.00	1,808.00	2,712.00		813.60	4,520.00	50,533.60
71	18g	Colonial	157	45	Existing	7,065.00	314.00	471.00		141.30	785.00	8,776.30
		TRAIL 18 SUBTOTALS				100,215.00	4,454.00	6,681.00	-	2,004.30	11,135.00	124,489.30
					STAGE 3 GRAND TOTAL	1,089,620.00	22,140.00	33,210.00	2,500.00	21,792.40	114,497.00	1,283,759.40
					OVERALL GRAND TOTAL	2,451,665.00	77,940.00	116,910.00	320,000.00	49,033.30	264,651.50	3,280,199.80

Table 6: Construction Staging & Costing

TRAIL BREAKDOWN BY CLASSIFICATION

Table 7 outlines the classification, type, style, value and classification breakup of the proposed trail network

ID	NAME	CLASSIFICATION	TYPE	STYLE	STRATEGIC VALUE	LENGTH (M)
STAGE 1						
1a	Ridge Link	Grade 2 / Easy - Green Circle	Walk / Cross Country	Open	High	654
1b	Ridge Link	Grade 2 / Easy - Green Circle	Walk / Cross Country	Open	High	1621
1c	Ridge Link	Grade 2 / Easy - Green Circle	Walk / Cross Country	Open	High	759
1d	Ridge Link	Grade 2 / Easy - Green Circle	Walk / Cross Country	Open	High	398
1e	Ridge Link	Grade 2 / Easy - Green Circle	Walk / Cross Country	Open	High	740
1f	Ridge Link	Grade 2 / Easy - Green Circle	Walk / Cross Country	Open	High	616
1g	Ridge Link	Grade 2 / Easy - Green Circle	Walk / Cross Country	Open	High	519
1h	Ridge Link	Grade 2 / Easy - Green Circle	Walk / Cross Country	Open	High	860
1i	Ridge Link	Grade 2 / Easy - Green Circle	Walk / Cross Country	Open	High	296
1j	Ridge Link	Grade 2 / Easy - Green Circle	Walk / Cross Country	Open	High	166
1k	Ridge Link	Grade 2 / Easy - Green Circle	Walk / Cross Country	Open	High	2333
					TRAIL 1 SUBTOTALS	8962
2	Mids Descent	Easy - Green Circle	Cross Country	Open	High	1852
					TRAIL 2 SUBTOTALS	1852
3a	Iconic Descent	Moderate - Blue Square	All Mountain	Technical	High	765
3b	Iconic Descent	Moderate - Blue Square	All Mountain	Technical	High	239
3c	Iconic Descent	Moderate - Blue Square	All Mountain	Technical	High	820
3d	Iconic Descent	Moderate - Blue Square	All Mountain	Technical	High	114
3e	Iconic Descent	Moderate - Blue Square	All Mountain	Technical	High	176
3f	Iconic Descent	Moderate - Blue Square	All Mountain	Technical	High	281
3g	Iconic Descent	Moderate - Blue Square	All Mountain	Technical	High	113
3h	Iconic Descent	Moderate - Blue Square	All Mountain	Technical	High	903
					TRAIL 3 SUBTOTALS	3,411.00
4	City Descent	Easy - Green Circle	Cross Country	Open	High	1728
					TRAIL 4 SUBTOTALS	1,728.00
5a	Perimeter	Grade 2 / Easiest - White Circle	Walk / Cross Country	Open	High	102
5b	Perimeter	Grade 2 / Easiest - White Circle	Walk / Cross Country	Open	High	203
5c	Perimeter	Grade 2 / Easiest - White Circle	Walk / Cross Country	Open	High	224
5d	Perimeter	Grade 2 / Easiest - White Circle	Walk / Cross Country	Open	High	597
5e	Perimeter	Grade 2 / Easiest - White Circle	Walk / Cross Country	Open	High	86
5f	Perimeter	Grade 2 / Easiest - White Circle	Walk / Cross Country	Open	High	215
5g	Perimeter	Grade 2 / Easiest - White Circle	Walk / Cross Country	Open	High	79
5h	Perimeter	Grade 2 / Easiest - White Circle	Walk / Cross Country	Open	High	136
5i	Perimeter	Grade 2 / Easiest - White Circle	Walk / Cross Country	Open	High	157
5j	Perimeter	Grade 2 / Easiest - White Circle	Walk / Cross Country	Open	High	94
5k	Perimeter	Grade 2 / Easiest - White Circle	Walk / Cross Country	Open	High	95
5l	Perimeter	Grade 2 / Easiest - White Circle	Walk / Cross Country	Open	High	237
5m	Perimeter	Grade 2 / Easiest - White Circle	Walk / Cross Country	Open	High	181
5n	Perimeter	Grade 2 / Easiest - White Circle	Walk / Cross Country	Open	High	257
5o	Perimeter	Grade 2 / Easiest - White Circle	Walk / Cross Country	Open	High	565

ALBANY HERITAGE PARK TRAIL NETWORK
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ID	NAME	CLASSIFICATION	TYPE	STYLE	STRATEGIC VALUE	LENGTH (M)
5p	Perimeter	Grade 2 / Easiest - White Circle	Walk / Cross Country	Open	High	195
5q	Perimeter	Grade 2 / Easiest - White Circle	Walk / Cross Country	Open	High	552
5r	Perimeter	Grade 2 / Easiest - White Circle	Walk / Cross Country	Open	High	66
5s	Perimeter	Grade 2 / Easiest - White Circle	Walk / Cross Country	Open	High	2302
5t	Perimeter	Grade 2 / Easiest - White Circle	Walk / Cross Country	Open	High	450
					TRAIL 5 SUBTOTALS	6,793.00
					STAGE 1 GRAND TOTAL	22,746.00
STAGE 2						
6a	Black Climb	Difficult - Black Diamond	All Mountain	Technical	Moderate	1002
6b	Urban Downhill	Difficult - Black Diamond	Downhill	Technical	Moderate	678
					TRAIL 6 SUBTOTALS	1,680.00
7a	Blue Loop	Moderate - Blue Square	Cross Country	Open	Moderate	1409
7b	Blue Loop	Moderate - Blue Square	Cross Country	Open	Moderate	1468
					TRAIL 7 SUBTOTALS	2,877.00
11a	Midds Blue Descent	Moderate - Blue Square	All Mountain	Technical	Moderate	473
11b	Midds Blue Descent	Moderate - Blue Square	All Mountain	Technical	Moderate	124
					TRAIL 11 SUBTOTALS	597.00
					STAGE 2 GRAND TOTAL	5,154.00
STAGE 3						
8a	Mt Adelaide Stairs	Staircase	Walk	Open	Low	476
					TRAIL 8 SUBTOTALS	476
9a	Ocean Trail	Grade 3 / Moderate - Blue Square	Walk / Cross Country	Open	Low	2231
9b	Ocean Trail	Grade 3 / Moderate - Blue Square	Walk / Cross Country	Open	Low	1030
9c	Ocean Trail	Grade 3 / Moderate - Blue Square	Walk / Cross Country	Open	Low	146
					TRAIL 9 SUBTOTALS	3,407.00
10a	Downhill	Difficult - Black Diamond	Downhill	Technical	Low	396
10b	Downhill	Difficult - Black Diamond	Downhill	Technical	Low	615
10c	Downhill	Difficult - Black Diamond	Downhill	Technical	Low	109
					TRAIL 10 SUBTOTALS	1,120.00
12a	Albany Harbour Path	Class 1 - Easiest - White Cicle	Walk / Cross Country	Open	Low	938
12b	Albany Harbour Path	Class 1 - Easiest - White Cicle	Walk / Cross Country	Open	Low	107
					TRAIL 12 SUBTOTALS	1,045.00
13a	Granite Trail	Grade 3	Walk	Open	Low	440
13b	Granite Trail	Grade 3	Walk	Open	Low	531
					TRAIL 13 SUBTOTALS	971.00
14a	Circuit Trail	Grade 3	Walk	Open	Low	383
14b	Circuit Trail	Grade 3	Walk	Open	Low	531
					TRAIL 14 SUBTOTALS	914.00
15a	Summit Trail	Grade 3	Walk	Open	Low	91
15b	Summit Trail	Grade 3	Walk	Open	Low	75
					TRAIL 15 SUBTOTALS	166.00
16-	Mt Adelaide Battery	Grade 2	Walk	Open	Low	193
					TRAIL 16 SUBTOTALS	193.00
17-	WW2 Track	Grade 2	Walk	Open	Low	551

ID	NAME	CLASSIFICATION	TYPE	STYLE	STRATEGIC VALUE	LENGTH (M)
					TRAIL 17 SUBTOTALS	551.00
18a	Colonial	Grade 2	Walk	Open	Low	499
18b	Colonial	Grade 2	Walk	Open	Low	94
18c	Colonial	Grade 2	Walk	Open	Low	341
18d	Colonial	Grade 2	Walk	Open	Low	90
18e	Colonial	Grade 2	Walk	Open	Low	142
18f	Colonial	Grade 2	Walk	Open	Low	904
18g	Colonial	Grade 2	Walk	Open	Low	157
					TRAIL 18 SUBTOTALS	2,227.00
					STAGE 3 GRAND TOTAL	11,070.00
					OVERALL GRAND TOTAL	38,970.00

Table 7: Trail Breakdown by Classification

RECOMMENDATIONS

The proposed Albany Heritage Park Trails Network has been developed to consolidate and rationalise the existing trail system, to produce a cohesive, logical network of trails for a range of users. The introduction of shared use trails presents a progressive approach to trail facility development. A formalised walk trail system will cater for the current user groups, and provide more accessible experiences for new users and visitors. A formalised mountain bike trail system will introduce new user groups to the area, and encourage visitors to Albany to return or extend their stay in the region.

The facility will set a new benchmark for trail development in Western Australia, drawing on industry best practice planning and development processes.

The concept plan allows for rehabilitation of disused or degenerated areas of native bushland that have been heavily impacted by past and current activities. The result will be a net improvement to the environmental values of the AHP.

The following recommendations provide achievable steps to ensure sustainable development through detailed design and appropriate construction methods.

The recommendations include associated management and maintenance requirements to ensure the new system achieves a positive social, environmental and economic impact on the Albany community.

DEVELOPMENT STAGE	RECOMMENDED ACTIONS
DESIGN	Council endorses concept plan
	Conduct detailed site assessments of trail alignments – a desktop assessment has been completed as part of this planning process. This will inform any further environmental, cultural and social surveys required to ensure trail development avoids environmentally and/or culturally sensitive areas, and reduces user conflict by enhancing the area for all users.
	Obtain approvals and associated risk management plans
	Review concept design against site assessment findings. If required, amend concept design to address approvals requirements and inform detailed design
	Prepare a design brief based on this concept plan
	Appoint a designer to design trails using the Western Australian Mountain Bike Management Guidelines
	Develop a trail signage plan, including all trail heads, way marking and orientation signage
	Develop an interpretive signage plan, including all interpretive sites and trails in consultation with key stakeholders (e.g. Noongar community, Historical Society)
	Prepare a construction cost estimate

DEVELOPMENT STAGE	RECOMMENDED ACTIONS
CONSTRUCTION	Develop a staged delivery program for the facility
	Determine construction standards, on-site management plans (e.g. hygiene, heritage)
	Prepare a construction brief based on this plan and the detailed design specifications and the Western Australian Mountain Bike Management Guidelines and other applicable standards
	Appoint a contractor to undertake construction in accordance with the detailed design specifications
	Install trail signage as per the signage plan
MANAGEMENT	Create a trail network management plan that identifies and clarifies management roles and responsibilities internally, and includes a trail maintenance plan
	Evaluate and apply suitable revenue generation models
	Implement a fee per use arrangement for all competitive events using the trail network
	Consider appointing a 'Trails Officer' position to assist with direct management of the trail network and potentially other City of Albany trails
	Create a trails database and undertake regular inspections to identify and resolve maintenance issues or hazards in accordance with the trail maintenance plan
	Install trail counters at strategic locations to monitor usage.
	Evaluate trail usage to identify issues and gaps, through analysing data from trail counters, maintenance inspections and community feedback.
	Adopt the Code of Conduct provided in Appendix 5.
PARTNERSHIPS	Investigate partnerships with community organisations, local residents, local Noongar community, interest groups, businesses, sponsors etc to identify and establish partnership opportunities for the long term success of the network
	Create a formal trail adoption agreement with the Albany Mountain Bike Club
MARKETING & PROMOTION	Develop a brand for the AHP Trail Network and focus marketing as a recreation resource for local residents and short stay tourism via a range of media
	Develop and implement an interpretive trails plan, identifying sites and detailed interpretive materials
	Undertake targeted education initiatives to address user conflict and environmental protection and access and inclusion
	Create a calendar of events, including races, community and family events, maintenance days and others

Table 8: Development Recommendations

DEFINITIONS

Active Recreation	Activities involving physical exertion, such as walking, running, cycling
AM	All mountain (trail type)
AMTB	Adaptive mountain bike (trail type)
BL	Black diamond (trail difficulty classification)
BU	Blue square (trail difficulty classification)
CALM	Conservation and Land Management (Superseded by Parks and Wildlife)
CX	Cyclocross
DB classification)	Double black diamond (trail difficulty
DH	Downhill (trail type)
DSR	Department of Sport and Recreation
EN	Enthusiast (mountain bike rider type)
FR	Freeride (trail type)
GN	Green circle (trail difficulty classification)
GR	Gravity (mountain bike rider type)
GSDC	Great Southern Development Commission
Iconic	an experience that is unique to the local area, that cannot be replicated or experienced anywhere else in the region or the world
IMBA	International Mountain Bike Association
IN	Independent (mountain bike rider type)
LS	Leisure (mountain bike rider type)
MBTF	Munda Biddi Trail Foundation
MTBA	Mountain Bike Australia
Parks and Wildlife	Department of Parks and Wildlife
Passive Recreation	Low intensity activities such as picnicking, bird watching
PDWSA	Public Drinking Water Source Area
PK	Park (trail type)
RPZ	Reservoir Protection Zone
SP	Sport (mountain bike rider type)
TO	Touring (trail type)
TTF	Technical Trail Feature
UCL	Unallocated Crown Land
WAMBA	Western Australian Mountain Biking Association
WAPC	Western Australian Planning Commission
WH	White circle (trail difficulty classification)
WHPZ	Wellhead Protection Zone
World Class	Trails are planned, designed, constructed and managed using methods and techniques that are reflective of the practices implemented in other world wide destinations that are visited and recognised by a significant population worldwide
XC	Cross country (trail type)

APPENDICES

APPENDIX 1

ATTRIBUTES OF A SUCCESSFUL TRAILS DESTINATION

Trail terminology is varied and no single system is universally adopted. The terminology used in this plan is consistent with the best practice Draft Western Australian Mountain Bike Management Guidelines (Parks and Wildlife, 2015). The following sections describe the various trail models and their attributes, as well as the types of trail systems within trail models.

Trails come in a variety of types and configurations and are defined by their model, system, use, direction and classification. They can accommodate a range of user types and cohorts.

TRAIL MODELS

A trail model defines the extent of development for a trail facility. Depending on a number of factors, the scale of trail model can vary significantly from individual trails up to trail centres and trail hubs. The type of trail model should be appropriate to the significance rating of the trail facility and where possible, allow for opportunities to generate revenue that can sustain the development. Refer Figure 29 for a summary of trail models relating to significance level.

INDIVIDUAL TRAILS

Individual linear or looped trails are generally not considered as a development model for a destination. Long distance trails can link individual trails and can also be the precursor to developing a destination. Small individual trails typically form part of a trail hub, centre or network model.

SHORT LINEAR TRAILS

These are linear, marked routes which can be completed in under a day and are of varying lengths. They are generally marked in two directions as they need to be ridden as a return journey. Short linear trails are often associated with key visitor attractions such as summits, vistas, headlands and beaches, and may include campgrounds or huts.

LONG DISTANCE LINEAR TRAILS

Long distance trails often connect towns or locations. These are long multi-day routes which start and finish in different locations and may be broken up into smaller sections. They can be iconic tourism products, however the market for end to end use is relatively limited and often specialised.

TRAIL NETWORK

A trail network is a single site with multiple signed and mapped trails of varying type and classification, with no visitor centre and limited user amenities. A trail network may be standalone within a population centre or individual location, or form part of a trail centre or trail hub. If not part of a trail hub, trail networks are often located away from population centres, or in a location that does not provide essential visitor services.

Trail networks suit locations close to residential population centres as passive recreation facilities for community use. They also suit locations where demand does not exist for significant development and there is no supporting population centre.

With careful planning, trail networks can be designed to accommodate staged development with a view to becoming a trail centre as demand increases.

TRAIL CENTRE

A trail centre is a single site with dedicated visitor services and facilities, provided by a single trail provider. It includes multiple signed and mapped trails of varying type and classification.

A trail centre can be part of a trail hub and incorporates a trail network. They are typically located close to major population centres or iconic locations.

TRAIL HUB

A trail hub is a population centre or popular recreation destination that offers a wide range of high quality trails as well as related services, facilities, businesses, strong branding and supportive governance. They can incorporate trail centres and typically have multiple trail networks. A trail hub may consist of a number of

sites, hosting several signed and mapped trails of varying type and classification.

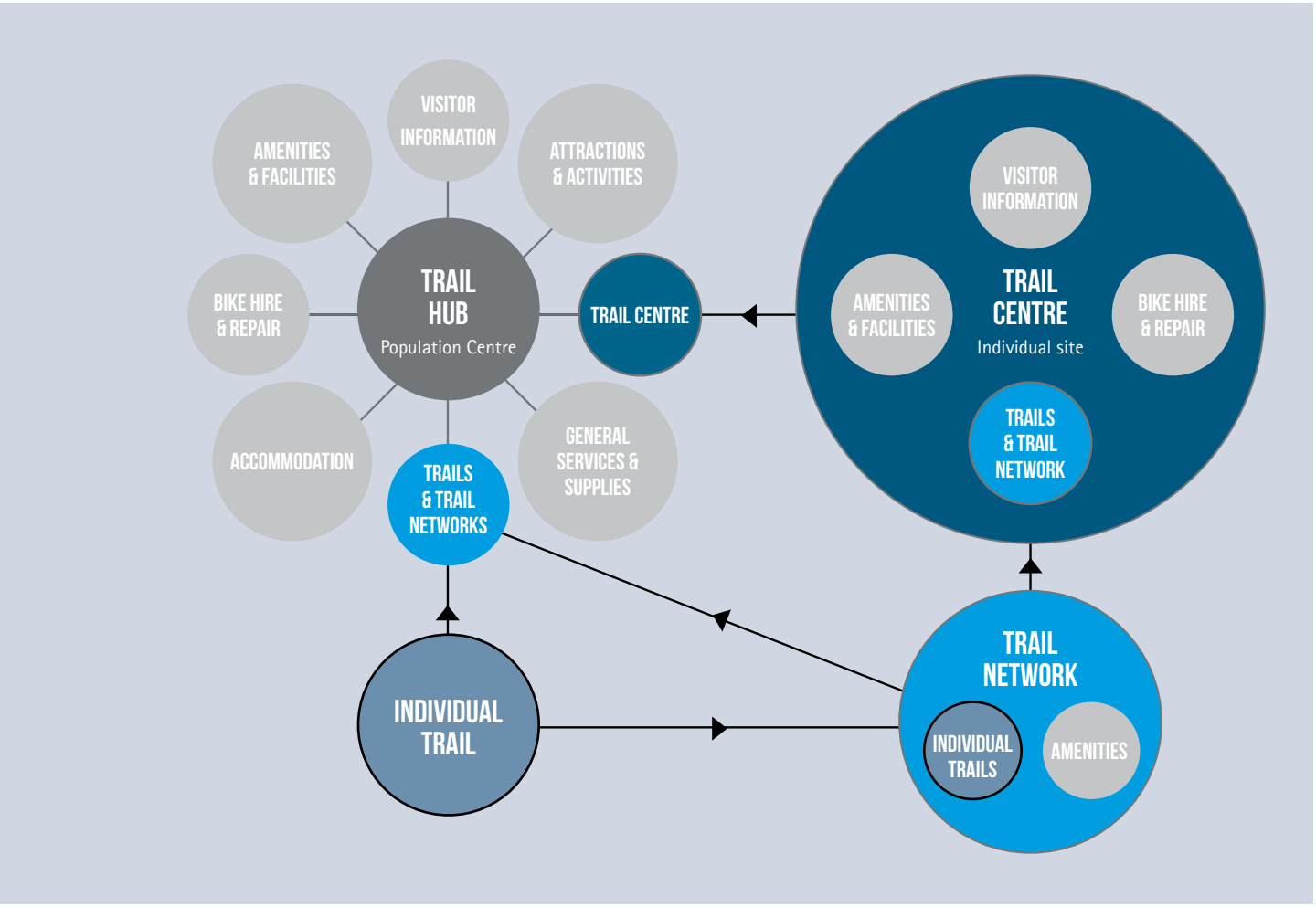
Facilities such as car parking and visitor services are available within the vicinity, typically provided by independent businesses. In order to appeal to the market majority, it is important trail hubs are user friendly and have high quality directional signage and maps.

Trail hubs benefit from having a single central information and service centre to promote and provide access to trails. Although different, these can act similarly to a trail centre.

Trail hubs should have at least one cohesive trail network offering multiple classifications and trail types within a single uninterrupted area (for example, with no major road crossings).

	TRAIL HUB	TRAIL CENTRE	TRAIL NETWORK	INDIVIDUAL TRAILS
National Significance	✔	✔	Only if part of trail hub	Only if part of trail hub
Regional Significance	✔	✔	✔	Only if part of trail hub
Local Significance	✖	✖	✔	✔
Population centre based user services & facilities	✔	✖	✖	✖
Site-based user services & facilities	✔	✔	✖	✖
Associated infrastructure	✔	✔	✔	✔
Multiple trails	✔	✔	✔	✖
Single trail	✖	✖	✖	✔

Figure 29: Significance Hierarchy & Appropriate Trail Model



	LINEAR TRAILS		TRAIL NETWORK
	SHORT LINEAR TRAILS	LONG DISTANCE LINEAR TRAILS	
SERVICES	Toilets, parking, trail information, accommodation on or nearby trail	Parking, trail information, accommodation and toilets on or nearby trail	Toilets, parking, trail information
MARKET	Day trip tourism markets	Short break tourism markets if accommodation is provided	Day trip tourism markets
USER TYPES	Depending on the type of trail and points of interest, users include enthusiast, sport and gravity	Appeals to more experienced, independent or enthusiast user types who actively seek this type of experience	Generally lacking visitor services, serves more experienced enthusiast, sport, and gravity
POTENTIAL REVENUE GENERATION AND ECONOMIC IMPACT	• A potential marketable 'epic trail' or 'epic ride' product that can attract sponsorship and be promoted alongside similar international experiences. • Achieving IMBA Epic Ride status would attract international enthusiast market. • Potential for concessions to commercial operators with revenue being returned to trail management.	• Potential for economic benefit for businesses and accommodation providers along the trail. • Potential to link a number of established trail hubs, enhancing economic impact. • Potential for concessions to commercial operators with revenue being returned to trail management.	• Clearly identifiable recreation product that can attract sponsorship for ongoing management and maintenance. • Scale manageable by volunteer and not-for-profit organisations. • Potential for concessions to commercial operators with revenue being returned to trail management.
ADVANTAGES	• Facilitates important access to key landscapes. • They can provide important access to sensitive habitats and landscapes. • Relatively easy to sign and waymark.	• Can have iconic status and be tourism assets. • May bring economic benefits to communities along the route. • Can be a valuable local recreation resource.	• Can cater for a range of abilities. • Accessibility can be significantly enhanced. • Single trailhead makes it easier to manage visitors and trail users. • A number of loops can be focused on one trailhead. • Can be consolidated in a single location with minimal external influences. • Ability to manage trail quality and standards and user experience.
DISADVANTAGES	• The linear nature of the trails can deter some users. • May experience intense physical and user pressure due to linear trails receiving twice the use.	• Lack of visitor services and facilities deter the market majority. • The market for end to end use is relatively small and often specialised. • The linear nature can deter some recreational users. • Requires significant investment to achieve very high quality and to succeed as a tourism asset.	• Lack of visitor services and facilities deter the market majority. • Difficult to generate income for management. • Can limit overnight stay and community economic benefit. • Typically less accessible to users. • More remote trail networks can lack community development, activation and stewardship.

Table 5: Trail Model Requirements

TRAIL CENTRE	TRAIL HUB
Visitor information, trail information, cafe, car parking, toilets, showers, bike hire and repair and sometimes accommodation	Attractions, accommodation, restaurants, bars, cafes, visitor information, trail information, car parking, toilets, showers, bike sales, hire and repair
Day trip tourism market, but can include short break if accommodation is provided nearby or within vicinity	Holiday, short breaks and day visit tourism markets
Very user friendly, they can serve all types including leisure, enthusiast, sport, and gravity	Can be user friendly and serve all mountain bike user types including leisure, enthusiast, sport, and gravity
• Clearly identifiable and marketable recreation and/or tourism trail products. • Focusing trails on a single trailhead with support facilities makes it possible to generate income directly from trail users. • Accessible to a wide range of users including those with low levels of expertise. • Use as an important marketing tool for other trail models and opportunities.	• Possible to package a local area as a trail-based destination • Wide range of visitor services can be provided by the greater trail hub, spreading economic impact wider and more effectively.
• They produce a clearly identifiable and marketable recreation or tourism trail product. • Focusing the trails on a single trailhead with support facilities makes it possible to generate income directly from trail users. • The trail model is accessible to a wide range of users including those with low levels of expertise. • The accessibility of the trail model to a range of markets can have a significant effect on increasing levels of participation in trail activities. • Can be key iconic trail products with recreational and tourism strategic significance. • Can be important marketing tools for other trail models and opportunities and a number of strategic levels.	• Ability to package a local area as a trail-based destination. • A wide range of visitor services and facilities can be provided by the greater trail hub which can distribute economic impacts more widely and effectively. • Utilising existing infrastructure and services can reduce capital investment. • Community development, activation and stewardship. • Overnight stays increase community economic benefit. • Accessible trails especially for the community, families and young people. • Diversity of trail provider and tenure. • Multiple stakeholders typically involved.
• Popularity and high usage can create management issues. • Can limit overnight stays and community economic benefit. • Capital investment to develop infrastructure and services can be significant. • Typically less accessible to users. • Lack of community development, activation and stewardship. • Increased management to maintain consistency, quality and trail status information. • Additional costs for development and management of trail centre infrastructure. • If the scope and scale of trail centres is inappropriate, visitor pressures can exceed capacity. • Accommodation and other visitor services must be provided by local communities. • Direct economic benefits can be restricted to the trail centre and its associated facilities if the trail centre is developed to more than local significance.	• Poor execution may result in negative user experience. • More barriers to generating revenue for management. • Potentially confusing for new users if there are limited visitor services and trail information. • Inability to manage quality of services. • Multiple providers can result in varied trail quality, maintenance standards, and experiences. • Limit to scale of population centre that is appropriate. • Unless the trail models are suitably market focused, they may not be effective at targeting key markets. • Trail provision can be haphazard, inconsistent and differ between differing owners and/or tenures unless centrally coordinated.

ALBANY HERITAGE PARK TRAIL NETWORK
CONCEPT PLAN

TRAIL SYSTEMS

Trails can standalone or be part of trail systems that link several linear or loop trails, or other facilities together. The layout and design of a trail system is dependent on the location's characteristics and attributes:

- The location of the trailhead
- Topography and environmental conditions
- Land tenure

LINEAR TRAILS

Linear trails are point-to-point alignments that start and finish in different places. Linear trails may be single direction, or dual direction and have trailheads at both ends.

Linear trails can be used to link destinations, points of interest or other trails, with long-distance linear trails providing an uninterrupted trail experience over a significant distance.

LOOP TRAILS

Loop or circular trails are trails that start and finish in the same place with a single trailhead.

Loops can be stacked so that they enable trail users to ride shorter or longer sections and vary the route they take. Loop trails may be interconnected with each other or linked together by linear trails to enable trail users to travel one trail and return to the same point via an alternative trail. Loop trails are an efficient design that may allow for longer trail lengths within the available space.

CONCEPTUAL TRAIL SYSTEMS

Different trail systems can make the optimal use of available space by linking several trails together from a trailhead and may include a combination of trail styles, difficulty levels and designs, depending on the location's characteristics and attributes.

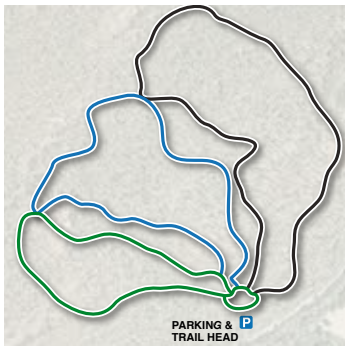
It is important to consider emergency and maintenance access points in the design stages of all trail networks.

Larger trail networks may require more than one trailhead, however where practicable, trail systems should limit access to one entry and egress area, preferable at the bottom of hills.

Dependant on the design of the trailhead, trail systems may utilise a core trail. The core trail could lead from the trailhead and provide access to the rest of the system. As the core trail will receive the most use, it should be able to accommodate a variety of trail users.

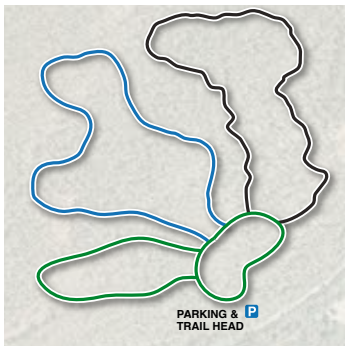
It may be more appropriate to design downhill mountain bike trails within a trail network closer to the core trail or trailhead, as trail users seeking these styles typically do not want to ride long distances or climb uphill too much due to the style of bike they are riding (e.g. heavy, long travel, highly geared). When designing downhill mountain bike trails, vehicle access should be considered to enable shuttling from the bottom to the top.

KEY TRAIL SYSTEM DESIGNS



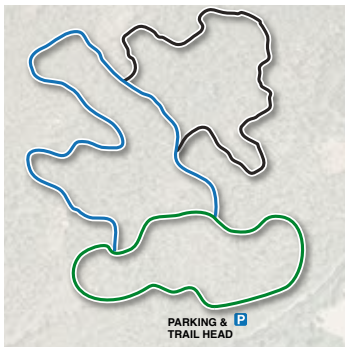
LINKED LOOP

A Linked Loop system has linkages between trails to enable trail users to try a different trail without having to ride back to the trailhead.



CLOVERLEAF

Cloverleaf designs are a series of loop trails that radiate from a central trailhead and core trail. Linear trails can link loops together meaning the trails can be used in many combinations.



STACKED LOOP

Stacked loop designs are a series of loop trails that radiate concentrically from a trailhead and core trail, usually in a single direction. This means that there are loops inside other loops. Linear trails can link loops together, meaning the trails can be used in many combinations. Depending on the style of trails within the system, trails can become longer and more technically challenging as the distance from the core trail or trailhead increases, as trail users seeking difficult or remote experiences are usually willing to travel further. This design is generally suited to cross-country and all-mountain trail types.

TRAIL FINGER

Trail fingers fan out from the core trail or trailhead at various points giving riders a simple choice of options, trails could be loops or linear. Trail finger design lends itself to uplift facilities such as a chair lift or shuttle road.

APPENDIX 2

OVERVIEW OF TRAIL CLASSIFICATION SYSTEM

WALKING TRAIL CLASSIFICATION SYSTEM

The Australian Walking Track Grading System (based on the Australian Standard 2156.1-2001 Walking Tracks – Classification and Signage) provides walking trail information to users, from people who are not regular users to highly experienced bushwalkers. A summary of the grades is provided below, and further detail is contained within the Users Guide to the Australian Walking Track Grading System (Department of Sustainability and Environment, Victoria).

GRADE 1

No bushwalking experienced required. Flat even surface with no steps or step sections. Suitable for wheelchair users who have someone to assist them. Walks no greater than 5km.

GRADE 2

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.

GRADE 3

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.

GRADE 4

Bushwalking experience recommended. Tracks may be long, rough and very steep. Directional signage may be limited.

GRADE 5

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.

MOUNTAIN BIKE TRAIL CLASSIFICATION SYSTEM

Trail classification is determined by trail width, tread surface, average trail gradient, maximum trail gradient and natural obstacles and technical trail features. The mountain bike trail classifications are:

EASIEST - WHITE CIRCLE (WH)

Wide trails with smooth terrain and low gradients. Surface may be uneven, loose or muddy at times but free from unavoidable obstacles. Recommended for novice riders.

EASY - GREEN CIRCLE (GN)

Flowing open trails on firm terrain with gentle gradients. Surface may be uneven, loose or muddy at times. Riders may encounter small rollable obstacles and technical trail features. Recommended for beginner mountain bikers.

MODERATE – BLUE SQUARE (BU)

Narrow trail with loose, soft, rocky or slippery sections and hills with short steep sections. Riders will encounter obstacles and technical trail features. Recommended for riders with some technical mountain biking experience.

DIFFICULT –BLACK DIAMOND (BL)

Trails with variable surfaces and steep gradients. Riders will encounter large obstacles and technical trail features. Recommended for experienced riders with good technical skill levels.

EXTREME – DOUBLE BLACK DIAMOND (DB)

Trails may contain highly variable surfaces, very challenging terrain and/or very steep sections. Riders will encounter unavoidable obstacles and technical trail features. Recommended for very experienced riders with high technical skill levels.

APPENDIX 3

GENERAL TRAIL PLANNING, DESIGN & CONSTRUCTION PRINCIPLES

The information provided here is an overview of the terminology and principles used in the planning, design and construction of mountain bike facilities and is a summarised version of what can be found in the Western Australian Mountain Bike Strategy (WestCycle, 2015) and Draft Western Australian Mountain Bike Management Guidelines (Parks and Wildlife, 2015).

SUSTAINABLE TRAIL DEVELOPMENT PRINCIPLES

ENVIRONMENTAL PROTECTION AND REHABILITATION

Every visit to the bush causes an environmental impact. Construction and use of mountain bike trails is no exception. The challenge for land managers is balancing the environmental impact while helping people maintain a connection with nature.

Mountain biking is inherently a nature-based activity and protection of environmental values is essential for delivering enjoyable trail experiences. Mountain biking is an increasingly popular and enjoyable way to access, explore and appreciate nature, which can result in less user impact, e.g. from littering or user built unsanctioned trails. In close proximity to urban environments, this is particularly important.

Mountain bike trails have a similar impact on flora, fauna and ecological communities to walking trails. Mountain bikers seek narrow trails (1 m or less) and the impact of trail development is significantly less than clearing for access tracks and fire breaks. Disturbance and impacts on important, rare and protected flora, fauna and ecological communities are mitigated through a stringent planning, design and construction process that includes multiple environmental assessments and reviews. This rigorous process results in sustainable trails in appropriate locations.

Uncontrolled access by mountain bikes, either through inappropriate use of walk trails or unauthorised building of trails, jumps or structures has serious and sometimes irreversible impacts on these values. Unauthorised, or unsanctioned, building sets a poor example of responsible stewardship of public lands and does not consider a comprehensive planning process to ensure environmental impacts are minimised through developing a trail.

Rationalising and upgrading existing unsanctioned trails can successfully control access through careful planning, design and construction strategies. The Draft Western Australian Mountain Bike Management Guidelines (Parks and Wildlife, 2015) have been developed to combine best practice trail development and management from around the world to guide the sustainable development and management of mountain bike trails in WA.

ENVIRONMENTAL DEGRADATION FROM POORLY DESIGNED TRAILS

The majority of trails used in the AHP are unsanctioned or informal. These comprise fire management access tracks, walk tracks and informal user-created trails. These trails have not been formally planned or designed nor has their construction been in accordance with best practice. The increased demand for trails, particularly mountain bike trails in the AHP has led to greater intensity of usage, and further degradation of the trails and impacts on the surrounding natural environment. The potential long term impacts created by these trails include:

- Erosion and soil displacement along steep gradient trails that are sloped along the fall-line. Continued use of these trails can create deep ruts, which increase the rate of erosion and create hazards for trail users.
- Widening can occur where poor drainage has caused water to pool on the trail surface, and trail users have avoided travelling through the water. Widening causes the trail to encroach on surrounding vegetation.
- When the alignment of a trail has not been properly designed, or passes over undesirable obstacles such as rocks or tree roots, users may create their own alternative lines or shortcuts, called 'desire lines'. The creation of multiple desire lines can result in trail widening and significant impact on surrounding vegetation.
- Structures that are constructed from unsuitable or old materials can deteriorate over time creating the potential for serious injury to users, and risk to the environment. Poorly built structures can also impact negatively on the aesthetic value of the surrounding natural environment.

- Where trails exist without appropriate facilities, users may seek privacy and relieve themselves in areas of sensitive vegetation that cannot sustain damage from shoes or human waste. Seeds from invasive plants can also be introduced by dirt carried on shoes and bike tyres. The inadvertent discovery of such locations can also be an unpleasant experience for other trail users.
- Lack of signage can lead to risk management issues, such as potential injury to individual users and conflict between users. Visitor safety may be compromised without clear understanding and communication of trail etiquette, especially at intersections and on narrow singletrack with tight corners.
- Fire management can be difficult if the whereabouts of users is unknown. Land managers typically communicate planned fire management activities via formal communication media to user groups who use sanctioned trails in those areas. Damage caused to sanctioned trails by unplanned bushfires can typically be repaired under insurance arrangements.

For the reasons listed above, it is important that proper planning, design and construction processes are implemented to prevent further construction and usage of poorly designed trail.

PREVENTION OF ENVIRONMENTAL IMPACT THROUGH IMPLEMENTING THE WESTERN AUSTRALIAN MOUNTAIN BIKE MANAGEMENT GUIDELINES

The formal planning, design and construction processes prescribed in the Guidelines are designed to prevent and minimise environmental impacts from mountain bike trail development. The Guidelines advise on:

- Compatibility with land tenure; depending on the purpose and value of a reserve type, some types of mountain biking activities may be conditionally compatible or incompatible
- Permit requirements for clearing of vegetation for the construction of mountain bike trails as per Australian environmental protection legislation
- Detailed site assessments and surveys required to identify environmental constraints, such as sensitive or poorly represented vegetation, threatened fauna and habitats, and Aboriginal heritage sites
- Consultation practices to identify or better understand constraints
- Mapping and detailed documentation standards and level of detail to be used in consultation and to obtain approvals and permits
- Appropriate drainage design to remove water from trails effectively
- Design methods to ensure a high quality user experience to keep users on the trail alignment
- Appropriate construction techniques to minimise impacts during construction and to ensure trails in unstable areas are adequately supported

APPENDIX 4

SUMMARY OF USER SURVEY RESULTS

INTRODUCTION

This Survey was conducted as part of the Albany Heritage Park (AHP) Concept Plan consultation process, to understand the existing trends of the wider community and their preferences for trails development in the AHP.

The survey was developed as an online form and was widely distributed throughout the community. It was promoted by the City of Albany (COA) via their website, social media, letters to residents, public notices, at the COA office and the Library, as well as via user group social media. The survey received a total of 230 individual responses during the month long comment period, with 96% of responses from Albany residents, based on their postcode.

Given that the survey was mainly targeting people who live in Albany, or visit for recreation regularly, it is likely that it did not capture much of the tourism market, being those who may visit the park as a tourist attraction, for leisure or as a beginner level mountain biker.

In addition to identifying respondent demographics, the survey established a detailed community profile, where respondents identified what they felt was lacking, or what they felt were issues that could be addressed through the project.

Respondents identified locations of where and how they access the AHP, their recreation habits, as well as features of the AHP that are important to them and they feel a connection with.

Respondents were asked about the interactions between mountain bike trails and walk trails, whether conflicts have been experienced, and any particular locations that are problematic. This feedback will form an integral component of the overall design of the network and will be used as a basis to inform the broad concept.

KEY INSIGHTS

The key insights and communication received through the survey included:

- 90% of respondents are comfortable with dual use trails
- Many locations around the AHP are appreciated for their recreational, environmental or historical value
- Many trails are popular with both walkers and mountain bikers, creating potential for and actual conflict between users
- Walking trails could be improved with some links and better access to desirable locations surrounding the AHP
- The existing sanctioned mountain bike trail (advanced black diamond downhill) does not cater for a wide range of mountain bike users
- There is a lack of suitable trail to challenge beginner and advanced mountain bike riders
- There are many popular walking trails that are experiencing degradation through poor design / construction and the inappropriate use by mountain bikes
- There is confusion about the purpose of tracks, and signage is lacking
- There is poor access to trails and there are no formal trail heads with information or facilities for visitors

COMMUNITY PROFILE

The AHP survey provided some information on trail usage and engagement of the community. Of the 230 respondents:

- 96% of respondents lived in or near Albany
- 87% reside in the City of Albany
- 33% live less than 100m from the Albany Heritage Park
- 58% of the respondents had used the AHP within the last week
- 62% were male
- 38% were female
- 29% are from the 40-49 year age group
- 48% use the existing mountain bike trails
- 63% of respondents use the existing walk trails
- 73% of respondents who use the existing walk trails, also use the existing mountain bike trails

- 43% of mountain bike respondents ride the existing black (advanced) downhill trail

KEY FEEDBACK ON EXISTING FACILITIES

Respondents provided information on the quality of trails they use and how frequently they use them. This gave some information regarding the usage and habits of trail users at the AHP.

69% of respondents think the trails and facilities such as visitor information at the AHP are average or below.

FREQUENCY OF USE AND ACCESS

58% of the respondents had visited the AHP in the last week. 28% had visited in the last month, and 14% had visited in the last year.

Of the total number of estimated visits to the AHP each year:

- 30% of those were for walking trails or dog walking.
- 14% of visits were for off road cycling or mountain biking.
- 12% of visits were for the lookouts, 12% for running trails.
- A small percentage of visits were for historical, interpretive or culturally significant sites, road cycling routes, rock climbing and bird / wildlife watching.
- Most people use trails around both Mount Clarence and Mount Adelaide in a circuit, as opposed to favouring one over the other.

VALUES THAT NEED PROTECTING

- Specific areas of environmental, cultural, historical or recreational value within the AHP that users feel need protecting include:
- ANZAC related features, monuments and history, National ANZAC Centre, Forts, Fort Monuments, Desert Corp Memorial, Historical buildings
- Lookouts and Boardwalks - Padre White Lookout, Wesfarmers Convoy Lookout
- Old drains running on south side of Mount Clarence
- Indigenous Cultural history, Potential Aboriginal artefacts and sites
- Native fauna and flora species and habitats – particularly internationally recognised flora
- General protection of the bush through providing quality trails and access to walkers, sightseers and riders, to prevent users from making their own
- Walking tracks – protection from bike riders eroding track surfaces and steps, making them difficult to walk on
- Existing trails such as Granite Trail for walking, used by tourists
- Mountain bike tracks - Mount Adelaide Rock Garden Trail, Mount Clarence Downhill track
- Recreational value of area close to town to engage kids and adults in nature and physical activity is the most important value of this inner city park
- Natural bush environment and the ability for people to feel connected to the authentic Albany nature
- Sandy areas on north of Mount Adelaide full of rabbits and being badly degraded by cyclists making too many tracks

WALKING TRAIL USER HABITS

63% of respondents use the walking or running trails, or visit interpretive and cultural sites.

The primary reason for using the walking trails is for walking.

POPULAR TRAILS

Most people use trails around both Mount Clarence and Mount Adelaide in a circuit, as opposed to favouring one over the other. Particular trails that are used for walking include:

- Padre White Trail
- Mass Rock Trail
- Firebreaks
- Granite Trail
- Boardwalk from Middleton Beach

ACCESS POINTS

While over 50% of respondents access the walking trails by private vehicle and parking on site, 50% also access the trails via off-road tracks and access points from home or from Middleton Beach. The most popular access points are listed below:

- Bottom of Downhill Track
- Hare Street
- Morley Place
- Burt Street
- Hare Street (near the intersection with Sussex Street) Marine Terrace and Apex Drive Car park
- Burt Street (Tracks off street)
- Hare Street (Top of)
- Middleton Beach (3 Anchors Car park)
- Hill Street (Tracks off street)
- Hay Street
- Middleton beach (car parking area)
- Earl Street
- Hill Street
- Middleton Beach Area
- From Middleton Beach via Boardwalk
- Ennis Street
- Padre White Trail
- Golf Links Road Marine Parade
- Watkins Road
- Gravel fire road near Albany High School tennis courts
- Innes Street
- Serpentine Road East (behind school oval Mount Clarence)
- Track from Middleton Beach
- Innes Street (opposite about 17 Innes Street)
- Suffolk Street
- Wooden steps from Marine Drive
- Burt Street (Northern side of Mt Clarence)
- Sussex Street
- Grey Street
- King Street Boardwalk
- Watkins Road

28% of respondents said they'd participated in a walking or running based competitive or social event, including the following:

- Adventurethon
- City to Surf
- Albany athletic cross country

- Fun run / walks
- Parkrun
- Port to Point
- Galliopli run

Respondents suggested the following types of walking or running competitive social events that they would participate in or would like to see in the AHP:

- Adventure racing
- Cultural tours
- Multisport racing with running and bike components
- School excursions
- Ultra marathon
- Charity events / fun runs/walks
- Cross country running

LOCATIONS

- Trails above Marine Parade
- Padre White Trail
- The downhill mountain bike track (walking on the track not realising it was a mountain bike track)
- Trails above Marine Parade
- Small trail below the top (guns) lookout, and sandy area below reception centre on Mount Adelaide
- Steep stepped track above the ASHS

GENERAL ISSUES AND INCIDENTS

- Mountain bikers (individuals or groups) riding on walking trails
- Near misses with mountain bikers appearing unexpectedly, frightening walkers
- Mountain bikers use the walking trails, as there are no designated mountain bike trails available. As such conflicts are common along most trails.
- Mountain bikers going too fast on the trails above Marine Parade
- Dogs off leash – in the way of others, or jumping on others running or walking
- Sometimes not enough visibility for mountain bikers to slow down
- Potential for injury to dogs by 'out of control' bikes
- General lack of consideration, and abuse
- Not clear who has right of way
- Sticks placed on tracks endangering all users

- Tourist excursions
- Trail running
- Free family events
- Bush walking
- Guided night walks to observe wild life

CONFLICT

30% of respondents said they'd experienced conflict with other trail users, such as mountain bikers, when using the walking trails at the AHP. Specific locations and issues mentioned include:

MOUNTAIN BIKE TRAIL USER HABITS

48% of respondents said they use or have used the AHP for mountain biking.

MOUNTAIN BIKE USER STYLES

Respondents to the survey showed an underrepresentation of advanced ability when compared with the broader WA mountain biking population. They showed an overrepresentation of beginner and novice riders. This is attributed to the very limited opportunities for progression and general lack of mountain bike trails in or near Albany.

Most riders classify themselves as an Enthusiast – a general mountain biker interested and mountain biking and mountain biking often.

60% of mountain bikers were members of the Albany Mountain Bike Club or another formal cycle club.

11% said they would join the Albany Mountain Bike Club upon finishing the survey.

43% of respondents said they use the existing black (advanced) downhill mountain bike trail, including all of the A lines.

ACCESS TO AHP

The preferred modes of access to the AHP were via off road tracks by bike, from the City Centre by bike, and via private vehicle. When accessing the existing downhill track by car, respondents said they generally park at the Apex Lookout car park.

Other ways to access points to the AHP by bike included:

The most popular access points are as listed below:

- Albany Hwy, Middleton Rd, through ASHS
- Grey Street (fire road off road)
- Middleton beach Car park
- Apex Drive Hare Street (Above) Middleton Beach Board walk
- Bay merchants car park Hare Street (Gate entry) Middleton Road (cnr Burt Street shared path)
- Behind ASHS
- Hare Street (near the intersection with Sussex Street)
- Near ASHS
- Behind ASHS on Burt Street
- Hay Street
- Northern side of Mount Clarence along Burt Street

- Burt Street
- Hill Street (The Earl Lane end)
- Rear of ASHS
- Burt street (eastern end)
- Hill Street (onto Pipeline trail)
- Road to National Anzac Centre
- Burt Street (near high school)
- Hill Street (end of)
- Serpentine Road East (above school oval, Mount Clarence)
- Burt Street (trail off road)
- Innes Street (trail off road)
- Serpentine Road East up past the access road near ASHS oval
- Burt Street (between ASHS and Hay Street)
- Innes Street (corner Innes and Clarence Streets)
  Suffolk Street (Near)
- Dome car park
- Innes Street (opposite about 17 Innes Street)
- Sussex Street (Top)
- Emu point car park at surfers
- King Street
- Through ASHS (near Campbell Road)
- Earl Street
- Main entrance
- Watkins Road
- Forts Road
- Marine Parade
- Grey Street
- Middleton beach area (Wylie Crescent and Morley Place)

CONFLICT

41% of mountain bikers said they'd experienced conflicts with other trails users.

Many commented that interactions have usually been friendly when encountering other users on the trails.

Some comments indicate many people see the trails as either 'walk only', 'mountain bike only' or 'shared', but there is no consistent understanding amongst users.

Specific locations and issues mentioned included:

LOCATIONS	GENERAL ISSUES AND INCIDENTS
• Adelaide trail • Innes Street • Most single track trails • Mount Clarence • Stairs section • Trail above Hare Street and Innes Street	• Being caught unaware of other users • Branches, logs and sticks placed across some tracks, including trail above Hare Street and Innes Street • Dogs off leash • Issues and conflict with Land manager staff members • People blocking trails • Repeated incidents of piles of sticks placed on the trails, pose a danger to mountain bikers particularly • The limestone track from the car park at the bottom of apex drive to hare street is popular with bikers but fast and blind - near misses between bikes and walkers • Occasionally unfriendly exchanges • Walkers have expressed that they are not happy about bikes being on the trails • Walkers on the downhill track

ROCK CLIMBING USERS AND HABITS

8 individuals identified themselves as rock climbers who use rock climbing or bouldering routes at the AHP. There are few existing tracks to boulders with some anchor points installed on the town side of the Mounts near the Padre White trail.

The locations given included:

- Along Middleton Beach to the Point area
- Either side of Burt Street
- Any boulders available

It was noted that there are a large number of boulders on the AHP that may be suitable for use. There are many interesting sites of scenic, geological and historical significance.

Most climbers typically access the mounts via private vehicle, and some walk or ride in via off road tracks. The Padres White Trail and Granite Track were noted as areas of conflict.

PARENTS AND CHILDREN'S HABITS

40% of respondents were parents who have children who use the AHP, primarily for either mountain biking or bushwalking.

Of the parents whose children use the AHP, bushwalking and mountain biking were the most popular activities. 11.1% indicated they do other activities, which included dog walking, exploring granite caves and rocks, making cubbies, taking visitors and Grandparents.

Usually (56%) parents drive their children to the park, or they travel with friends. 32% of children will access the park via off road tracks either walking or by bike.

88% of parents recreate with their children at the park.

PRIORITIES FOR TRAIL DEVELOPMENT

WALKING TRAILS AND INTERPRETIVE TRAILS

74% of respondents said they would use walking trails if they were

developed.

WALKER PREFERENCES

The main reasons given for using the walking trails if they were developed were, in order of importance:

- Walking or running
- Sight seeing
- Dog walking
- Bird/wildlife watching

43% of respondents said they would use grade 5 walking trail – the highest grade recommended for very experienced bushwalkers.

SPECIFIC POINTS OF INTEREST

Specific features of interest to respondents when walking or running on them included, in order of importance:

- Scenic views
- Cultural or historic values
- Connection with nature
- Geocaching
- Being away from traffic, noise and other people
- Being close to home and services, cafes and bars
- Physical challenge

ACCESS

The preferred method of accessing the walking trails for most people was private vehicle to on site car parking. Other methods, in order of popularity, were:

- Walking, via off road tracks
- Walking, from Middleton Beach
- Ride bike to on site car park
- Walking, from City Centre
- Walking, via the road and entry on Marine Terrace

Many respondents also gave walking from home as a preference.

SUGGESTED IMPROVEMENTS

Few respondents commented that there were already sufficient walking trails and signage. Many access points, points of interest and additional links and connections were suggested, to improve the AHP, including the following.

Additional access points

- Alternative walking access to town from Mount Adelaide
- Hare Street
- Watkins Road
- Access down to Middleton Beach
- Better access off Hare street and from Middleton beach area

Creating circuits and new linkages

- Better loop trail on the southern side
- Circuit around both Mounts
- Signage for circuit style tracks
- Better link from Middleton Beach to Mount Adelaide and Mount Clarence
- Connection between The Forts and Middleton Beach possibly via a 'Jacob's Ladder', similar to that near King's Park
- Link to Emu Point
- Links between roads
- Links to more water bodies, e.g. Middleton, Middleton path, ANZAC park or Emu Point
- Marine Drive lookout
- Ellen Cove car parking
- Safe and clear linkages from Mt Clarence to board walk
- Trail from Middleton Beach/Ellen Cove
- More public events

Improve facilities

- End point e.g. showers in the city centre to prepare to go to work in the morning after activities. Not rusty ones at ALAC
- Some good trail heads with toilets and maps
- Parking on Serpentine road to improve access

General improvements to the trails

- Some tree clearing could be done to improve views in certain parts.
- Fix erosion
- Improve signage
- Improvement of existing trail surfaces would be better than creating new trails
- Narrower, purpose built walking trails i.e. less erosion. Designated mountain bike low-moderate skill level trails signposted as bike trails but with pedestrian access.
- More trails, including sign posted circuit around the whole park
- More wooden board walk style infrastructure
- Upgrading of existing trails,
- Better sign posting

MOUNTAIN BIKE TRAILS

If mountain bike trails were developed to suit a range of abilities and styles, 52% of all survey respondents said they would use them.

MOUNTAIN BIKER PREFERENCES

46% of respondents said they would volunteer to assist with authorised trail building and maintenance when mountain bike trails are developed in the AHP.

Of those who would use the trails, their preferences for style of trail were as per below, with 82% of respondents preferring a trail network catering for all skill levels, including some cross country, all mountain and downhill.

ACCESS

Most respondents typically access mountain bike trails via private vehicle or off-road track by bike, and these are the preferred modes of access. When accessing the existing black downhill track, riders on downhill bikes (which are designed for downhill riding only) prefer to park in the Apex Lookout car park and push up to the start of the track. When doing a cross country ride (involving pedalling up and down hills), mountain bikers will often link together a number of fire roads, walking trails, other bush tracks and sections of the downhill track to create a circuit, and can be accessed from a number of access points surrounding the AHP. Popular ride start and finish points are those with good car parking and/or coffee, food and drinks, including Dome café, Bay Merchants café and Earl on Spencer pub. Many people also ride to the AHP from home, via a series of access tracks surrounding the AHP.

If a shuttle-able trail system was developed, most respondents

indicated they would continue to push up most of the time, but would also sometimes use a private shuttle vehicle. Occasionally they would use a commercial shuttle service. Some people would ride up rather than push or shuttle.

SUGGESTED IMPROVEMENTS

Many access points, points of interest and additional links and connections were suggested, to improve the AHP, including the following.

Additional access points

- Better access from Middleton Beach
- Access to the area below Marine Drive

Creating circuits and new linkages

- Connections to existing tourist areas
- A well built series of green and blue trails that link the whole area and can be ridden by all abilities
- Better links to avoid riding on Burt Street
- Circuit of both Mounts without any road sections
- New circuit from Middleton Beach to a 'figure 8' around the Mounts, down to Middleton on a flowy fun descent
- Trail which drops down to the Middleton Beach from the Forts, to finish ride with descent
- Trail head at Middleton facilities and cafes
- Link from Middleton Beach to town via single track through the AHP
- Incorporate magnificent vistas as lookout points
- Trail from top of Mount Clarence that links with Ellen Cove bike/walk trail

Improve facilities

- Provide facilities such as toilets, drinking water points, shelter, seating, first aid, trail maps and riding tips at trails heads - suggest at the bottom car park on Apex Drive
- Clear trail markers showing ability level and maps at multiple locations
- Trail maps where tourists enter, e.g. town centre or Middleton beach

General improvements to the trails

- More gravity trails, another downhill track and cross country loops with multiple options, more exposure, longer trails, flowing single track for a range of abilities
- Dedicated mountain bike trails
- Improve accessibility for visitors
- Variety of cross country loops to cater for travelling mountain bikers
- Trail heads at site of old water tank on Mount Clarence, north of the Garrison behind the Shop where the undercover shed is located
- Apps to provide trail information and directions
- Longer downhill race track to improve competition and capacity for larger events

EVENTS

- The majority of respondents indicated that they would like to see or participate in mountain biking events at the AHP.

CHANGES TO THE EXISTING DOWNHILL TRACK

85% of respondents felt the existing downhill track should be extended at both the top and bottom of the existing track.

52% of respondents said the existing black downhill trail is good. 35% said it was average and 13% said it was excellent.

Reasoning for respondents' opinions were given in positive and negative comments.

The following improvements and links to the downhill track were made to improve the trail and its connectivity:

- Area for event parking and event 'village' facilities
- Another black diamond downhill track
- Better access to the start point
- Creating more trails for beginners and families
- Flow jumps
- Something to prevent riders riding down the push up track
- Relocate the DH trail elsewhere if it suits the overall design better
- Better finish area to run events
- Better separation between the track and the push up track to stop people crossing from one to the other
- 'Give way to cyclist' signage
- Improve flow
- Convert push track into a blue flow trail
- Build new push up track that can be ridden uphill also
- More exposure
- Better spectator access
- Additional berms down the bottom end
- Shuttle point at Mount Clarence car parks
- Move start of trail closer to the top car park at Mount Clarence
- More regular maintenance days
- Create green downhill trail similar to 'Hammies' trail in Queenstown, NZ

BROAD ISSUES IDENTIFIED

ENVIRONMENT

Several people submitted comments relating to protection of

LEVEL OF SEPARATION	% OF WALKERS PREFER	% OF MOUNTAIN BIKERS PREFER
Yes, completely separated	12.2%	6.7%
Yes, but it's ok to have some mutual trail heads or meeting points	45.9%	53.3%
No, as long as trails are designed to avoid user conflict	24.9%	24.2%
No, there should be a mix of shared use and single use trails	17.1%	15.8%

biodiversity and the fragile environment being incompatible with development of trails.

There was also some strong, but minimal, opposition to mountain bike trails specifically, on the basis of its threat to the environment.

It is recommended that further clarity on environmental protection measures be provided within the concept planning.

CONFLICT MANAGEMENT

When asked "Do you think walking and interpretive trails should be separated from mountain bike trails?" respondents who use walking trails and respondents who use mountain bike trails had a proportionately similar response.

While there were many comments made by respondents that indicated some misunderstanding between 'walkers' and 'mountain bikers', there are some things that both user types seem to agree on. i.e. 45.9% of walkers and 53.3% of mountain bikers think that trails should be separate but it's ok to have some mutual trailheads or meeting points.

The walkers show a stronger preference for complete separation than mountain bikers do.

For the responses given, walkers and mountain bikers gave the following broad reasons:

SAFETY AND ENVIRONMENTAL CONCERNS

- General safety concerns, including children, dogs, walkers getting hit by mountain bikers, especially on faster downhill sections where riders may not be able to stop in time
- Mix of shared use and single use where appropriate will be safer
- Concerned about impact of mountain bikes with electric motors (emerging user type)
- Concerns about mountain bikers building their own tracks, destroying the ecosystem
- To prevent further damage to sensitive vegetation, and as there is a desire of all users to reach similar locations, some sharing will be necessary

TRAIL DESIGN CONSIDERATIONS

- Opens up the quantity of trails that can be used by walkers and riders
- Preference for trails that are multi purpose
- Sharing trails will make better use of the small space available
- Do not see a need for more trails, just better use of the existing ones
- There needs to be locations for mountain bikers to ride fast at times, where they can enjoy their riding. This is not compatible with some users on walk trails, e.g. deaf elderly person walking
- There are some cases where shared use or single track is more appropriate
- Separation of trails would provide peace of mind to users

RESPECT BETWEEN USERS

- When restrictions are placed, people tend to claim ownership (and don't share)
- User education about inclusivity is important to prevent conflict. It is inevitable that users will end up on the wrong trails from time to time so education and conflict prevention is more important
- As long as user conflict is managed, having a few specific use trails is good for those that cannot share with other users
- Separate trails become too difficult to manage and leads to exclusivity amongst users
- Concern that people will not follow the rules, so there needs to be dedicated separated trails on both Mounts
- Some people have had only good experiences on all trails, whether walking, running or bike riding
- Some people have had negative experiences, nearly been hit by bikes going fast on trails
- If everyone takes care when using the trails, it allows more people to use more trails
- More awareness of all users is required

OTHER EXAMPLES SEEN ELSEWHERE

- Have seen well-planned trails around the world where walkers and riders can coexist successfully. This would work for some of the network
- Good trail design could incorporate mountain biking and walking in some sections, similar to other trail networks in the country
- Belief that shared paths don't work, using the Middleton Beach to Emu Point path as an example where users refuse to share the path

SERVICES

60% of respondents said they would be willing to pay for trail maps.

Other services that walkers indicated they'd be willing to pay for, in order of preference included:

- Shuttle service for transport to the top of Mount Clarence
- Audio guides
- Showers
- Access to specific areas
- Other services that mountain bikers indicated they'd be willing to pay for, in order of preference included:
- Shuttle service for transport to the top of Mount Clarence
- Bike wash
- Showers
- Access to specific areas
- Car parking

CLOSING

Overall, the survey outcomes show that the Albany community is passionate about ensuring that the AHP is conserved in a way that is sensitive to the environmental, historical and recreational values.

As user groups have emerged organically, this has led to use of tracks and trails to an extent greater than originally intended. The impact on the environment and conflict between users has been increasing over time, and as a result there is general misunderstanding and misconception between walkers and mountain bikers.

Many of the issues identified and suggestions offered by survey respondents will be helpful in determining the most appropriate concept. This will achieve good outcomes for the environment and reduce conflict and promote reconciliation between user groups.

APPENDIX 5

PROPOSED USER CODE OF CONDUCT

INTRODUCTION

A Code of Conduct is a tool developed to include information about trail user responsibilities and etiquette when using trails. This Code of Conduct provides a set of rules and guidelines to manage potential conflict between users of the AHP Trail System as per the Concept Design.

The Western Australian Mountain Bike Management Guidelines include a basic Western Australian Mountain Biker's Code, which will form the basis of the Code of Conduct for the AHP Trail Network.

The Code of Conduct for the AHP specifically deals with the following potential areas of conflict within the site:

- Yield hierarchy between walkers and mountain bikers
- Passing conventions between same and different users
- Passing conventions between walkers and runners on the Mt Adelaide Staircase
- Navigating trail intersections
- Trail closures and modifications during events, such as the Urban Downhill
- Construction and use of unsanctioned trails
- Other unique rules, such as recommended times to use certain trails
- Guidance on how, where and what type of signage should be installed

During the detailed design stage, the code of conduct should be refined in partnership with local user groups representatives. The Code of Conduct should be heavily promoted through signage and online information and communicated via other media.

DETAILED DESIGN

At the detailed design stage, specific features of the trail will be designed, mapped and marked on drawings for construction. The trail designer will consider the intended trail use, gradient, ground conditions, landscape value and other features to determine placement of all trail elements. Placement of elements such as passing opportunities, trail intersections, turns, natural features, drains, choke points and anchor points will impact on the overall user experience of the trail. The Western Australian Mountain Bike Management Guidelines provide appropriate design measures to control how single and shared use and single and dual direction trails are used.

RULES OF THE TRAIL

The following are some examples of rules of the trail, adapted from the Western Australian Mountain Biker's Code, that should be promoted as part of the user code of conduct, to encourage users to be responsible.

SIGNAGE

With the introduction of dual use trails and a number of new mountain bike only trails, communication of the Code of Conduct will be extremely important to visitor safety. Simple, effective signage can be used to educate trail users on appropriate trail etiquette.

TRAIL HEAD SIGNAGE

- Trail head signage should include clear information about Trail Users Code of Conduct
- Each trail should be identified on the trail head sign as either a Walk Only Trail, Mountain Bike Only Trail or Dual Use Trail

The symbols and their meanings shown in Table 9 should be included on trail head signage.

SYMBOL	MEANING
	For the safety of all visitors, entry is not permitted on trails marked with this symbol
	For the safety of all visitors, riding is not permitted on trails marked with this symbol
	For the safety of all visitors, walking is not permitted on trails marked with this symbol

Table 8: Code of Conduct Symbols & Meanings

WAY MARKING SIGNAGE

- All trails should be marked with relevant classification symbols as per the above system.
- The exits of all single direction trails should be marked with 'No Entry' symbols.
- The entries of all walk trails should be marked with 'No bikes' symbols
- The entry of all mountain bike trails should be marked with 'No walkers' symbols
- Where trails merge or intersect, signage should be installed a reasonable distance prior

DUAL USE TRAIL SIGNAGE

As formal dual use trails are being introduced to the AHP for the first time, it will be important for users to understand the code of conduct. Additional educational signage should be installed at the entries to dual use trails where mountain bike users are only permitted in the uphill direction. This signage may be temporary, for re-education of current trail users who may be required to change their usage habits.

TRAIL CLOSURES FOR EVENTS

The following events are currently run on a regular basis, and utilise some of the existing trails of the AHP.

- Southern Mountain Bike Festival Cross Country race
- Southern Mountain Bike Festival Urban Downhill race
- Albany Mountain Bike Club Cross Country race
- Albany Mountain Bike Club Downhill race
- Albany Adventurethon
- Trail Running
- Anzac Day Commemoration

It is recommended that an event overlay be developed through the detailed design to describe broadly how certain trails and areas of the AHP should be used during events. However, it is the responsibility of event organisers to communicate event management plans, which include trail closures or disruptions. Additionally, mountain bike events sanctioned by Mountain Biking Australia (MTBA) are governed by the MTBA Event Guidelines, which include provisions for managing safety of spectators and passers-by.

	USER RESPONSIBILITIES	ACTIONS
SAFETY 	Be prepared	• Check trail conditions & current weather report • Tell someone your plans • Plan for worst-case scenario and carry extra water, food, spares, tools, clothes and first aid
	Give way	• Generally, cyclists give way to walkers. However, courtesy toward all trail users in all situations should be displayed. • On dual use trails, mountain bikers are only permitted to use the trail in the uphill direction. Separate descending trails are provided for mountain bike use only. • Users should always communicate clearly before passing or overtaking • At trail intersections, users should obey signage • When using roads, normal traffic road rules apply
	(Bike symbol) Bike riders - Know yourself, your equipment and your trail	• Read the trailhead and choose your trail • Check your bike, helmet and gear • Ride within your skills and abilities
	(Walkers symbol) Day walk / short walks	• Check your shoes, hat and gear • Consider your fitness and experience for the trail
ENVIRONMENT 	Respect your trail and the environment	• Follow signage • Stay on track and don't take shortcuts • Don't make your own trails • Dispose of rubbish in bins provided • Prevent spreading dieback: keep your bike and gear clean – use the wash stations provided before and after
ATTITUDE 	Make it a good experience	• Share the trail • Communicate clearly to pass safely and courteously • Help others out