



# HILLS FACE TRAILS REVIEW & Action Plan 2022

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# EXECUTIVE SUMMARY

The Southern Mount Lofty Ranges is a natural border to the Adelaide Metropolitan Area providing convenient access to a range of exciting and immersive nature-based recreational opportunities. The Southern Mount Lofty Ranges encapsulates many reserves, parks and conservation areas and has a growing network of established trails that allow people to experience a range of recreational activities.

As the Southern Mount Lofty Ranges is administered by multiple Local Governments and State Agencies, coordinated trail planning in parks and reserves across Adelaide is a critical component of planning for the recreational needs of visitors and residents in Metropolitan Adelaide.

Findings from previous targeted public consultation revealed that the Burnside Trail network has a diverse network of trails providing engaging experiences for a range of trail users both locally and from areas outside of Burnside. Of the people surveyed, over 60% used the trails for walking, 50% for cycling and 30% for running, with many users engaged in multiple activities. Users valued Burnside's natural setting, the convenience of access, challenging trails and linkages to other trails and networks which highlights the City's crucial recreational role in the Greater Mount Lofty Parklands for residents in Adelaide.

A trail audit was undertaken in 2016 which revealed an extensive network of predominately Class 3 trails (37km) throughout the Council area which are used by walkers, runners and cyclists. A combination of geography, natural features and heritage features within the Council area contribute to creating unique and high-quality trail experiences.

Geographically, a large portion of the city is situated in the foothills of the Southern Mount Lofty Ranges and is an important interface between the Metropolitan Area and green space within the Hills Face Zone and Adelaide Hills Region. Several large State parks adjoin the Council trail network.

A review of best practice design principles guides trail design and the management of shared use of trails. A review of Australian standards highlights a need to upgrade signage across the network, highlighting an opportunity to create a comprehensive signage suite that is consistent with signage in adjoining State-Owned Parks, to create continuity.

The development of a Trails Review has been an important step in formalising and managing the existing trail network and developing new trail opportunities. A Trails Review also allows the Council to align with adjoining Councils and State Agencies to develop a regional network of Conservation Trails throughout greater metropolitan Adelaide.

Specifically, the Review includes these major components:

- A review of the benefits of trails
- An overview of the network
- Mapping of existing and proposed improvements
- Trail Audit Findings
- Trail infrastructure
- Recommendations

Key actions from the report include:

- New trails, with a strong focus on creating linkages to other reserves and parks to create a more connected network
- The establishment of trailheads in key locations
- New directional and interpretive signage which formalises shared use and single-use trails
- Safety improvements and upgrades
- Additional trail infrastructure in key locations

The Trail Review provides Council with clear direction for the development and management of the trail network, ensuring decisions are informed with best-practice design, meet current Australian Standards, protect biodiversity and reflect the needs and desires of key stakeholders and residents.

# BENEFITS OF TRAILS

## DEFINITION OF A 'TRAIL'

A trail is defined as an established route, path or track that can be used for non-motorised recreation, such as walking, running, cycling, mountain- biking and horse-riding. Trails typically have unsealed or natural soil surfaces and pass-through natural areas, parks or reserves. Trails can be short distance, long-distance or can be interconnected sections of trail linked and navigated with signage and maps. Trails can be used for commuting, exercise, recreation and tourism experiences.

Conservation Trails offer a diverse range of benefits to communities and the environment they pass through. Improved social interaction, health benefits, environmental management and awareness, heritage interpretation and preservation, and economic benefits can result from the experiences offered by trails.

Research that was undertaken by the State Government of South Australia and internationally has identified a range of benefits from trails which are summarised as follows<sup>1</sup>:

## COMMUNITY AND SOCIAL BENEFITS

- Develop a greater sense of community through increased participation and interaction between a diverse range of community members
- Present the community with a controlled and safe environment for people to be physically active within
- Provide people with self-sufficient, affordable and sustainable activities
- Provide nature-based experiences for people
- Depending upon the design, trails can accommodate the elderly, people with mobility impairments or satisfy those seeking challenging adventures and a sense of achievement
- Enable pet owners to exercise their animals
- Provide people with opportunities for heritage interpretation and cultural experiences

## HEALTH BENEFITS

Physical activity creates positive effects on health and wellbeing which provides the following benefits for trail users:

- Improved physical health, fitness, wellbeing and disease prevention (e.g., illnesses associated with obesity and high blood pressure)
- Improved mental health from exercise and reduced risk of depression through contact with natural environments<sup>2</sup>.

## ENVIRONMENTAL

A connection with the outdoors can encourage better understanding and appreciation for the environment, as well as enhance the natural environment via improved conservation efforts and management practices

- Protect the environment by localising impacts and managing visitation effects
- Direct visitors through sensitive areas to minimise the creation of informal trails and associated impacts
- Provide for educational and interpretive opportunities and increase environmental and cultural awareness and appreciation
- Provide access for volunteers and land managers to undertake restoration activities

## ECONOMIC

Trails can provide a wide range of economic benefits to the community and local business:

- Trail users and tourists from outside the Council area are attracted to the trail network
- Trail visitors spend money in towns and communities along or near trails
- Trail construction and maintenance can generate employment opportunities
- Trails support and enhance local business opportunities in proximity to the trail network

- Participation in trails activities improves health which contributes to reducing healthcare costs

<sup>1</sup>State Government of South Australia, 2007, *Sustainable Conservation Trails; Guidelines for the Planning, Design, Construction and Maintenance of Conservation Trails in South Australia*

<sup>2</sup>Gregory N Bratman, J. Paul Hamilton, Kevin S. Hahn, Gretchen C. Daily, and James J. 2015 *Gross Nature experience reduces rumination and subgenual prefrontal cortex activation PNAS 2015 112 (28) 8567-8572;*

# BACKGROUND & PROJECT PURPOSE

## WHY DEVELOP A TRAIL REVIEW?

Stage 1 of the Burnside Conservation Trails Review involved a comprehensive audit that sought to identify the location and nature of the existing trail network, assess its condition, usage and opportunities for improvement and future development. The key objectives of the audit were to:

- To assess the location, condition and use of the existing trail network
- To base trail assessment on international best practice guidelines and relevant Australian Standards
- To identify links to the greater regional open space and trail network
- To acknowledge and consider important biodiversity values
- Make preliminary recommendations regarding the future direction of the trail network based on the audit findings

The findings revealed the trail network has a diverse network of trails providing engaging experiences for a range of trail users. The findings also revealed issues with trail connectivity, signage, maintenance, facilities and heritage interpretation which can be addressed through a coordinated and strategic approach to managing the trail network. The following recommendations from the audit provide the basis for the development of the Conservation Trails Review, to guide the future development and maintenance of the Burnside Trail Network:

- Propose linkages to adjoining Council areas, parks and long-distance trails (i.e. Heysen Trail, Yurrebilla Trail, Cleland etc.)
- Identify locations for new trails, accommodating a range of difficulties and uses
- Upgrade and improve existing trails
- Identify urban linkages and trails
- Resolve areas of poor trail condition through maintenance or trail modification
- Accommodate a range of user groups within the Burnside Trail Network
- Define appropriate use for existing trails within the network
- Propose locations for improved facilities (e.g., water points, lookouts, seating etc.)
- Improve signage across the network (adhering to AS2156.1-2001)
- Develop and improve heritage Interpretation

Underpinning the 2016 audit findings were several Council documents which supported the need to develop a trail review, specifically.

- Strategic Community Plan 2012-2025
- Open Space Review 2009-2018
- Burnside Cycling Review 2012
- Sport and Recreation Review 2013

In addition, State Planning Documents highlight the strategic importance of the Burnside Trail Network, its role as a part of the wider Metropolitan Open Space System (MOSS) and its recreational function for Greater Adelaide, which emphasise maintaining the natural and open character of the Mount Lofty Ranges Hills Face:

- Burnside Council Development Plan
- 30 Year Plan for Greater Adelaide

# EXISTING TRAIL NETWORK SUMMARY

The Council trail network comprises approximately 37km of trails, more than 26km of these are on lands owned or managed by Council, the remainder mainly on State Government lands and currently provides low key, unstructured passive and active recreation (predominately walking, cycling and fitness activities). It is located primarily toward the eastern boundary of the city, within the foothills of the Southern Mount Lofty Ranges, approximately 6km from the center of the Adelaide CBD. Steep topography has resulted in a unique and often challenging trail character with spectacular views providing engaging trail experiences for trail users. Given the convenient location of the trail network for residents and visitors, the network experiences a high number of trail users on several key trails. The trail network is located throughout a network of small reserves and road reserves within the Council area, under both Council and State ownership.

These reserves contain native vegetation of varying qualities ranging from highly degraded to moderate conditions. They provide important habitats to support biodiversity and provide nature-based experiences for trail users. All of these reserves are under active management to restore and improve biodiversity value. Some of the listed reserves are linked with existing trails, providing flexible and connected trail experiences throughout the trail network.

- Mount Osmond Reserve (State Government) & Road Reserve (Burnside Council)
- Gleeson Hill Reserve (Burnside Council)
- Brock Reserve (Burnside Council)
- Themeda Reserve (Burnside Council)
- Gully Reserve (Burnside Council)
- Dashwood Gully Reserve (Burnside Council)
- Chambers Gully Reserve (Burnside Council, within Adelaide Hills Council)
- Danthonia Reserve (Burnside Council)
- Zig Zag Reserve (Burnside Council)
- Wheal Gawler Reserve (Burnside Council)
- Mine Chimney Reserve (Burnside Council)
- Auldana Drainage Reserve (Burnside Council)
- Magill Stonemine and Wattle Park Reserves (Burnside Council)
- Wyfield Reserve (Burnside Council)
- Langman Reserve (Burnside Council)
- Waterfall Gully Reserve (Burnside Council)
- Second Creek Reserves - Michael Perry Reserve (Burnside Council), Harris Reserve (Burnside Council), Hubbe Court Reserve (Burnside Council), Simpson Reserve (Burnside Council), Moorcroft Reserve (Burnside Council) and Willowbridge Reserve (Burnside Council)

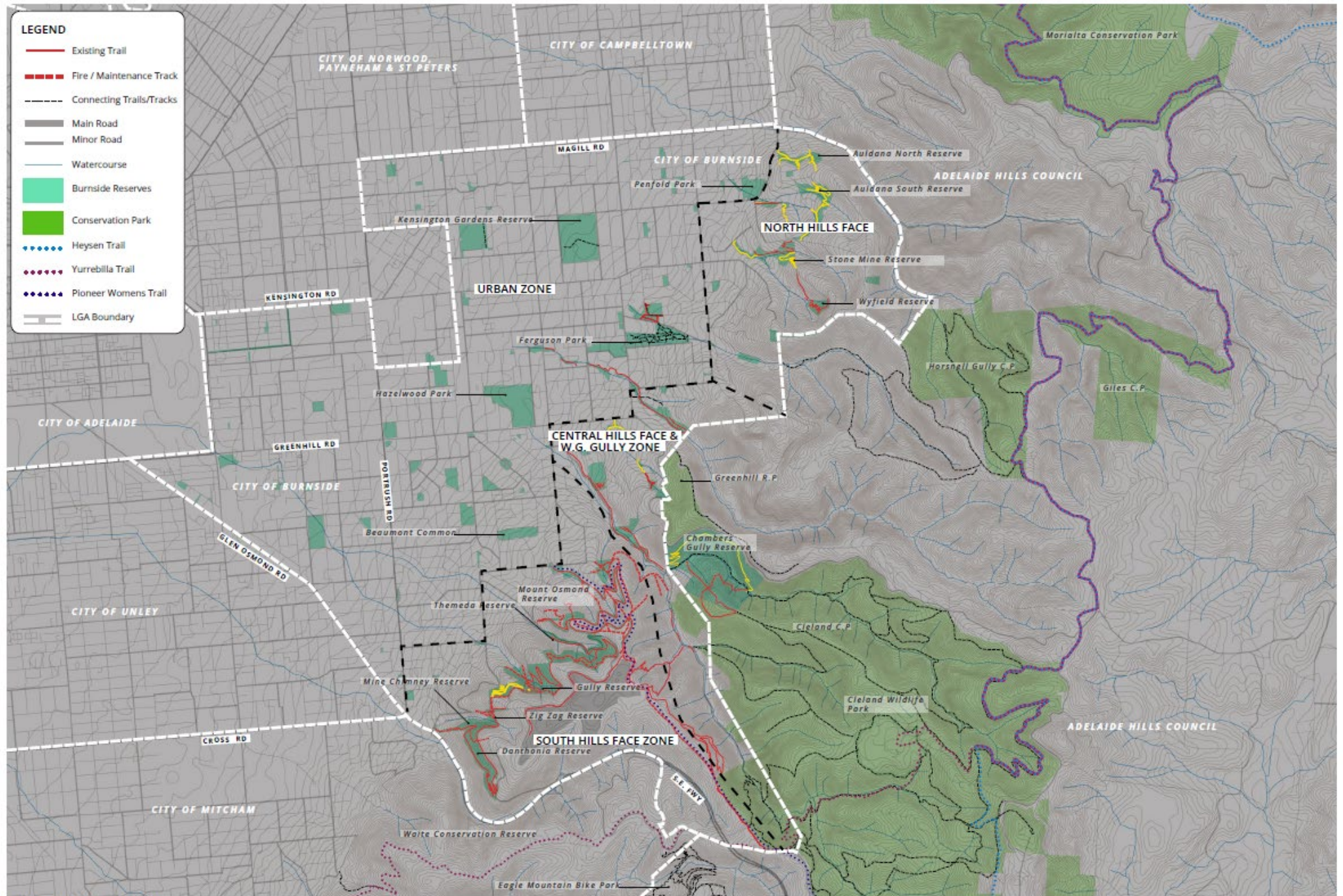
Refer to page 15 for detailed mapping of the trail network including existing and proposed trails.

## CURRENT MAINTENANCE REGIME

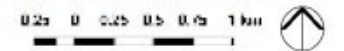
Maintenance of the Trails Network has historically been reactive (user experience and requests) and ad hoc (responding to requests). This has been due to resourcing constraints where only a single Council Technical Officer, supported by contractors, has been covering this and the many other priorities of the Conservation and Land Management function, which includes related strategy and policy, Biodiversity Nursery, conservation volunteer management, hill face reserves management and urban biodiversity reserve management.

Until recently no condition assessment of the entire network had been undertaken, thus forward and proactive enhancement and maintenance of the trails were poor. In the last 12 months, additional temporary staff support has been provided in the Conservation and Land Management function, which has meant the first complete condition assessment of all trails, informing better maintenance and renewal outcomes. The condition assessment should be undertaken annually due to the vulnerabilities of the trails.





**BURNSIDE TRAIL AUDIT**  
GEOGRAPHIC ZONES





# COMMUNITY AND STAKEHOLDER FEEDBACK

Feedback on the Trails Network has been drawn from the following sources –

- Annual Community Surveys
- Targeted stakeholder consultation

## ANNUAL COMMUNITY SURVEYS

In the 2018 survey, it was noted that across 5 years of survey results:

- Strengths continue to be the provision and maintenance of outdoor areas, in particular parks, reserves and playgrounds. While the lattermost has seen a marginal decline in satisfaction since 2016, it is still a highly regarded service. Providing passive recreation opportunities has also become a key strength area for Council, with 86% satisfied with the performance on this item.
- Provision and maintenance of cycle paths and walking trails is another area that has remained steady and is an area of moderate satisfaction for residents (65% satisfied). This item should be monitored.

## TARGETED STAKEHOLDER CONSULTATION

Consultation was undertaken with key stakeholders to discuss the Trails Review, including its drivers and processes, as well as any issues, opportunities and aspirations that the stakeholders have.

Joint meetings were conducted with Council representatives and key groups as an introduction to the Review and to identify any common themes, crossover issues and opportunities. Individual meetings were then conducted with representatives from each organisation to provide specific details relevant to their activities. The following organisations and individuals were involved in the consultation process.

- Walking SA
- Adelaide Hills Council
- Country Fire Service (CFS)
- Department of Environment & Water (DEW, formally DEWNR)
- Mountain bike clubs (Gravity Enduro SA, Inside Line Downhill Mountain Bike Club, Adelaide Mountain Bike Club)
- National Trust of South Australia: Hahndorf Branch

A summary of the key points and themes arising from the consultations are provided below.

- Signage of trails is seen by stakeholders and users as very important. Signage needs to cater to all user groups and:
  - clearly state the obligations of users, especially on shared-use trails and pathways
  - provide consistent and uniform information where trails have multiple owners
  - indicate where changes in ownership and management occur, whilst maintaining consistency
  - provide difficulty and warning signs for trails and trail features where applicable
  - provide interpretive signage regarding local flora and fauna and lookouts/viewing points
  - indicate shared uses or single-use trails with signage where deemed appropriate
  - provide integration with digital technology and mobile mapping applications

- Trail design needs to cater to a range of user groups including walkers, runners, mountain bikes and other riders. Also, the types of users need to be considered, including people using trails for fitness, competition, recreation and leisure. Stakeholders noted that:
  - in some situations, shared-use trails were considered appropriate
  - in other situations, single-use trails were proposed to avoid conflict, particularly where use and speed differentials are high
  - gradients and alignments need to be considered:
    - steep gradients are an issue for some walkers
    - downhill mountain bike riders require more challenging and steeper terrain
    - B-lines on trails could be provided to cater to and attract more users to existing downhill-specific trails
  - walking trails do not always need to be highly graded and maintained - in some cases, this is not desirable and can affect the nature of the walking experience. Some trails may only need regular use to ensure they remain open. Application of appropriate trail construction and maintenance standards is necessary and should be dependent on the intended use.
  - mountain bike groups want more single-track climbs from urban areas to mountain bike trails, e.g., Pioneer Women's Trail (PWT) is used as a transit and part of longer rides to other areas i.e., Eagle Mountain Bike Park
  - when designing trails, linkages to other trails need to be incorporated and emphasised where possible, e.g., established links to Horsnell's Gully, Cleland Conservation Park & Chambers Gully Reserve
  - the Pioneer Women's Trail and the Bullock Track are noted in the Trail Audit Summary report as being very important linkages through the Burnside Council for all user groups.
- Trail upgrades and facility requirements. Stakeholders noted that:
  - trail upgrades are required along the PWT
  - general support from stakeholders was provided for a separate trail for mountain bikes in proximity to the PWT given that it has such high use
  - there is limited car parking at trail access and transition points including the:
    - top of trails near Mt Osmond Golf Course
    - bottom of downhill trails at Waterfall Gully
    - Skye Lookout and Coach Road
  - drinking water and toilet facilities are required on some trails
  - opportunities exist to develop trailhead facilities for users accessing Gandy's Gully, Coach Rd and Horsnell's Gully
- User conflict. Stakeholders noted that:
  - conflicts between walkers and mountain bikers were an issue raised by all user groups as a key issue in the Burnside Trail Network, particularly on Pioneer Women's Trail which is a high use trail for all user groups. It was noted that cyclists use the trail as a convenient linking trail to other trails within the network or in adjoining Council areas. It was suggested that this is particularly an issue where there are significant differences in speeds between trail users.
  - it was also noted that where cyclists and walkers share narrow trails, conflicts occurred due to limited space for passing which is an important consideration if shared-use trails are proposed. It was also emphasised the importance of achieving a balance between shared-use trails and those nominated as walking or riding only. It was noted that it can be difficult to achieve harmony between

use for riding and walking and that some walkers can be sensitive to other uses and may avoid shared-use trails.

- Stakeholders generally agreed that sharing trails is important and most people supported the concept of shared-use trails in appropriate circumstances. It was also highlighted that users need to respect and have awareness of other trail users.
- Risk and safety. Stakeholders acknowledged risk and safety as genuine user issues, particularly on shared-use trails that include riding and walking. Some specific issues were raised during consultations as follows:
  - Cyclist use on certain trails (particularly the Burnside PWT section) is resulting in some conflicts between cyclists and walkers. Whilst DEWNR noted there has been only a small number of reported incidents on the Pioneer Women's Trail, some users have safety concerns as a result of conflicts.
  - Developing a separate descending trail in proximity to the Pioneer Women's Trail for mountain biking is supported by user groups
  - DEW has launched the 'I Share My Trail' initiative to promote the sharing of trails.
  - Some trails in Burnside were noted to be used only for advanced mountain bikers and have a high skill requirement (rated as black diamond or double black diamond):
    - These trails are important to mountain bikers (particularly downhill and gravity enduro riders) and have existed for many years with a small number of riders using them without issue
    - It is important to mountain bikers that the skill, technical and difficulty levels of these trails remain. Anecdotally there are few injuries reported from users of these trails
  - Bushfire was also raised as a risk and comments were made from the Country Fire Service that consideration needs to be given to signage at trail entrances that highlights the risk and the appropriate procedures and actions needed in case of fire. User access at times of high fire risk needs to be managed by trail owners.
  - The planning of vegetation management and revegetation is relevant to the management of fire risk, and it was noted that the Burnside Council has a Fire Control and Management Plan and that land management practices will continue per this plan. Access on Extreme or Catastrophic Fire Danger days needs to be restricted.
- Trail Naming
  - The naming of trails was noted by the user groups as an issue that the Trails Review could address. Comment was made that the main downhill mountain bike descents and other trails in Burnside Council are referred to colloquially by the mountain bike community e.g., 4 Weeks, Twisted Gum and Venison Trail. The groups consulted thought that it would be highly likely that the bike community would continue to refer to these trails colloquially regardless of any formalised Council processes that may result in a change of name.



# TRAIL AUDIT FINDINGS

In 2016 an audit of all trails within the city was undertaken, excluding footpaths, and short trails within major parks, such as Hazelwood Park, Tusmore Park, Kensington Gardens Reserve and Kensington Park.

The audit examined the condition and precise location of the Council's trail network. The findings revealed that while the trail network has many trails in good condition which provide high-quality trail experiences, certain parts of the trail network have issues that need to be addressed, and are summarised as follows:

- Signage
  - Issues with the placement, frequency and standard of signage across the entire network, with excessive signage on some trails and inadequate signage on other trails
- Connectivity
  - Poor connectivity between some Burnside Reserves and with external reserves
- Maintenance
  - Trail maintenance issues identified in specific locations and inconsistent and/or uncoordinated trail and footpath management approaches
- Trail alignments
  - Poor alignments on certain trails resulting in erosion and access issues
- Hazards
  - Safety issues where trails are in proximity to the road network and other specific hazards
- Heritage Interpretation
  - Limited heritage interpretation for trail users where trails are in proximity to heritage features
- Access
  - Hills face reserves that currently have limited access and no formal trails

# SIGNAGE

The findings of the Audit revealed that existing signage within the Trail Network needs substantial upgrades to ensure all trails are easily navigable and meet Australian Standard 2156.1 2001 for Walking Tracks, which has specific requirements for size and colour of trail markers. Much of the signage is likely to have been installed before the implementation of this standard. The existing signage:

- Does not meet the recommended size according to AS 2156.1
- Has not been placed in a coordinated way throughout the network
- Is lacking in some locations and excessive others
- Limited provisions of overall trail maps and general trail information (maps, user responsibilities etc.)
- Inconsistency of signage regarding shared use or single use of trails
- Limited directional information linking to other trails and facilities within the region (e.g., Pioneer Women’s Trail, Cleland Conservation Park)

Interpretive signage in many cases requires improvement or replacement, and in some locations, there are opportunities to introduce new signage and provide trail users with more information on Burnside’s cultural history.



## CONNECTIVITY

The Burnside Council trail network is in proximity to several Recreational Facilities and Conservation Parks of State importance listed below which provide opportunities for linkages to the broader trail network across the Southern Mount Lofty Ranges:

- Cleland Conservation Park (State Government)
- Eagle Mountain Bike Park (State Government)
- Greenhill Recreation Park (State Government)
- Giles Conservation Park (State Government)
- Waite Conservation Reserve (University of Adelaide)
- Mount Osmond Reserve (State Government)

The 1200 km Heysen Trail and the 54 km Yurrebilla Trail, whilst not within the Burnside Council, present opportunities for connections with the existing trail network within the Burnside Council.

## MAINTENANCE

The audit found that due to a lack of staff resourcing, maintenance and renewal of the trails network was reactive and unstructured, focusing on responding to user feedback and requests. The ideal is to be proactive allowing for a planned and targeted approach to maintenance and enhancement. The trails network should have an annual assessment undertaken to reduce risk exposure and provide reliable data on the condition of the network.

## TRAIL ALIGNMENTS

The grade and alignment of trails are crucial design considerations to ensure the future sustainability of trails. Soil displacement issues due to water movement are noted as an issue throughout the network. An example in Chambers Gully Reserve demonstrates the action of water across the trail surface which has resulted in erosion and soil displacement as a result of the steep trail grade. Long term use of the trail has displaced soil over time to create a cupped and sloped tread surface that intercepts and carries water which further increases soil movement.

Trail alignments that gradually ascend or descend contours, rather than following fall lines (direct line down a slope) at steep grades are an important principle to ensure trail sustainability, particularly in wet conditions. Sustainable trails are generally constructed with a slightly crowned tread on flat terrain or an out sloped tread in sloping terrain.

Water and the sediment it carries will travel down a trail until a natural or constructed feature diverts it off the tread. Such features include a natural or constructed reversal in grade, out sloped tread, rocks or tree roots, or a constructed drainage nick. Properly designed drainage features are designed to discharge water from the trail and sediment well below the tread, where vegetation and organic litter can filter out sediments.

The soil type and subsequent trail surface affect the quality of trails and how well they respond to water run-off and resist erosion. Clay and silt are soil components with the smallest particles. Small particles tend to be muddy when wet and dusty when dry. Clay and silt don't provide good drainage but compact well to create a hard surface. Sand is composed of large particles that don't bind together and create an unstable surface.

Loose, uncompacted soil particles are most prone to soil erosion. The majority of the trail network is constructed on heavy clay soils which compact well to form a hard surface with good erosion resistance but can be very slippery in wet conditions particularly in shady areas where moss grows on the trail surface.

## HAZARDS

Hazards identified within the audit included (but in no particular order):

- User conflict – mainly between cyclists and pedestrians
- Trail alignment and maintenance – as discussed above
- User safety in proximity to roads and where trails utilise road networks as trail connections
- Bushfire impacts

## HERITAGE INTERPRETATION

Heritage sites within proximity to trails within the trail network were identified in the following locations. Relevant Heritage sites and specific sites adjacent trails identified during the Audit are identified as follows (refer to Page **Error! Bookmark**



**not defined.** for Maps):

- Wheal Watkins Lower and Upper Adit (State Heritage), Wheal Gawler Reserve. Refer Map 5.
- Wheal Gawler Mine Chimney (State Heritage), Mine Chimney Reserve. Refer Map 6.
- Wheal Augusta Mine, Site Lot 26 Mount Barker Road, Mount Osmond (Local Heritage Listed). Refer Map 6.
- Magill Stone Mine Reserve, Wyfield Street and Coach Road, Wattle Park. Refer Map 2.
- Penfolds Magill Estate Winery. Refer Map 1.
- Hazelwood Park (State Heritage). Refer Map 3.
- Beaumont Coach House, Beaumont House, Stables and Olive Groves, 631 Glynburn Road, Beaumont
- State and Local Heritage listed dwellings along Waterfall Gully Road, Waterfall Gully
- Waterfall Gully Kiosk/Restaurant, Cleland Conservation Park
- The Old Bullock Track (Local Heritage) Refer Map 5 & 7.
- Michael Perry Botanic Reserve (Local Heritage). Refer Map 3.
- Undelcarra Complex & Garden (State Heritage), 13 Undelcarra Road Burnside, adjacent Hubbe Court Reserve. Refer Map 3.
- Former Moorcroft Estate Bridge and Garden (including gravestones), 12A Moorcroft Court (& Lot 16 Warren Street) Burnside (Local Heritage), Moorcroft Reserve. Refer Map 3.
- Ferguson Conservation Park (Local Heritage). Refer Map 3.

The network also provides visitors access to historical sites and interpretive experiences with relics from former mining activities. Notably, the 22 km Pioneer Women's trail which traverses Mt Osmond Reserve is a heritage walking trail that passes through the Adelaide Hills Council and ends in Verdun in Mount Barker Council.

## ACCESS

The audit offered opportunities for improved linkages, trailheads, lookouts and facilities. The key points are summarised below:

- Urban Linkages
  - Trails along Second Creek provide a unique interface with the urban area and could be linked using wayfinding signage to connect points of interest, heritage sites, parks shops, cafes and restaurants for trail users to combine trail use with other activities. Two self-guided Historic Walks exist in proximity to the audited trails along Second Creek, the Burnside Historic Walk and the Knightsbridge Historic Walk.
- North Hill Face Zone
  - Trails audited throughout this zone tended to be isolated and short, connecting well with the road network but not with other trails. Opportunities exist to better connect the trails through a combination of additional linking trails and urban links using footpaths in the road network. The success of this would require coordinated signage to direct users to other parts of the network and improvements to pedestrian safety. Key opportunities for links exist at Kensington Road Lookout (via Coach Road Reserve), Giles Conservation Park (Heysen Trail) and Horsnell Gully Conservation Park. Gandy's Gully may present an opportunity to develop trailhead linkages in the southern part of the Northern Hills Face Zone following further investigation.
- Central Hills Face and Waterfall Gully
  - Chambers Gully Trail while noted as closed according to signage on-site provides the user with a very challenging experience rewarded with views. The trail is known to be used for Kokoda track training. This trail could be modified to control erosion and ensure future sustainability.
  - The Waterfall Gully roadside trail provides a key link to Waterfall Gully, Cleland Conservation Park and Mount Osmond. Whilst it is presently a series of informal trail and footpath sections it could be improved as a key linkage to Waterfall Gully and Chambers Gully by removing interruptions and providing a consistent trail surface.
  - Waterfall Gully Reserve access could be improved as this location is a volunteering conservation site and has enormous potential for immersive nature experiences and interpretive signage. In addition, a northern connection in conjunction with urban linkages could be developed to provide access to

Burnalta Crescent, through to Greenhill Recreation Park and Michael Perry Reserve.

- South Hills Face Zone
  - Sherwood Link offers useful linkages with the adjoining road network but was noted to be in poor condition and very steep in many cases, with many tight bends and slippery clay surfaces. Opportunities exist to improve these linkages to maintain and improve access into Mt Osmond Reserve from multiple access points.
  - The trail linking Mt Osmond Road to Themeda Reserve and trails to the south contains a road crossing that interrupts the trail and creates a crossing hazard where the trail is within the Mt Osmond Road Reserve. While it is noted that the trail is constrained in this location, the removal of the crossing would enhance the trail experience.
  - Opportunities exist to provide facilities and infrastructure for trail users to make the most of the views and spend more time within the Mt Osmond Reserve.
  - Tollgate Circuit Trail while noted as a management trail, this trail could be developed and improved as a key part of the Southern Hills Face network as it provides a high user experience.
  - Mount Osmond Roadside Trail is a class 2 trail within the Mount Osmond Road reserve which provides direct linkage through the Southern Hills Face network at a reasonable grade (5.8% average). The trail has the potential to link many trails through a higher level of signage, but road crossings and an abrupt end near the Mt Osmond Golf course reduces trail connectivity. The trail could be extended along the roadside to connect with other trails toward the south of the zone.
  - The Southern Hills Face Zone contains several key mining heritage sites in Wheal Gawler Reserve and Mine Chimney Reserve which are of State and Local Heritage Significance. Existing signage is limited and does not provide an understanding of the historical landscape. The development of more comprehensive and interactive heritage interpretation could enhance the trail user experience and promote an understanding of the history of the Burnside Council.

# RECOMMENDATIONS, MAPS & ACTION PLAN

## RECOMMENDATIONS

The maps on the following pages provide an overview of the proposed improvements recommended for the trails network based on the results of the trail audit, review of consultation findings and further research.

Below is the action plan formulated from the recommendations, which covers the next 5 years, with year one being this financial year 2021/22.

The actions are split into categories and have been assessed for delivery, priority, resourcing and budget.

Some of the actions require additional staff resourcing that is over and above the capacity of the single FTE currently undertaking the entire Conservation and Land Management function. It is therefore recommended that additional resourcing is considered to successfully deliver the action plan.

Some actions require an additional budget which will be subject to the annual business plan and budget process. Successful completion of the action plan will require adequate funding to be made available



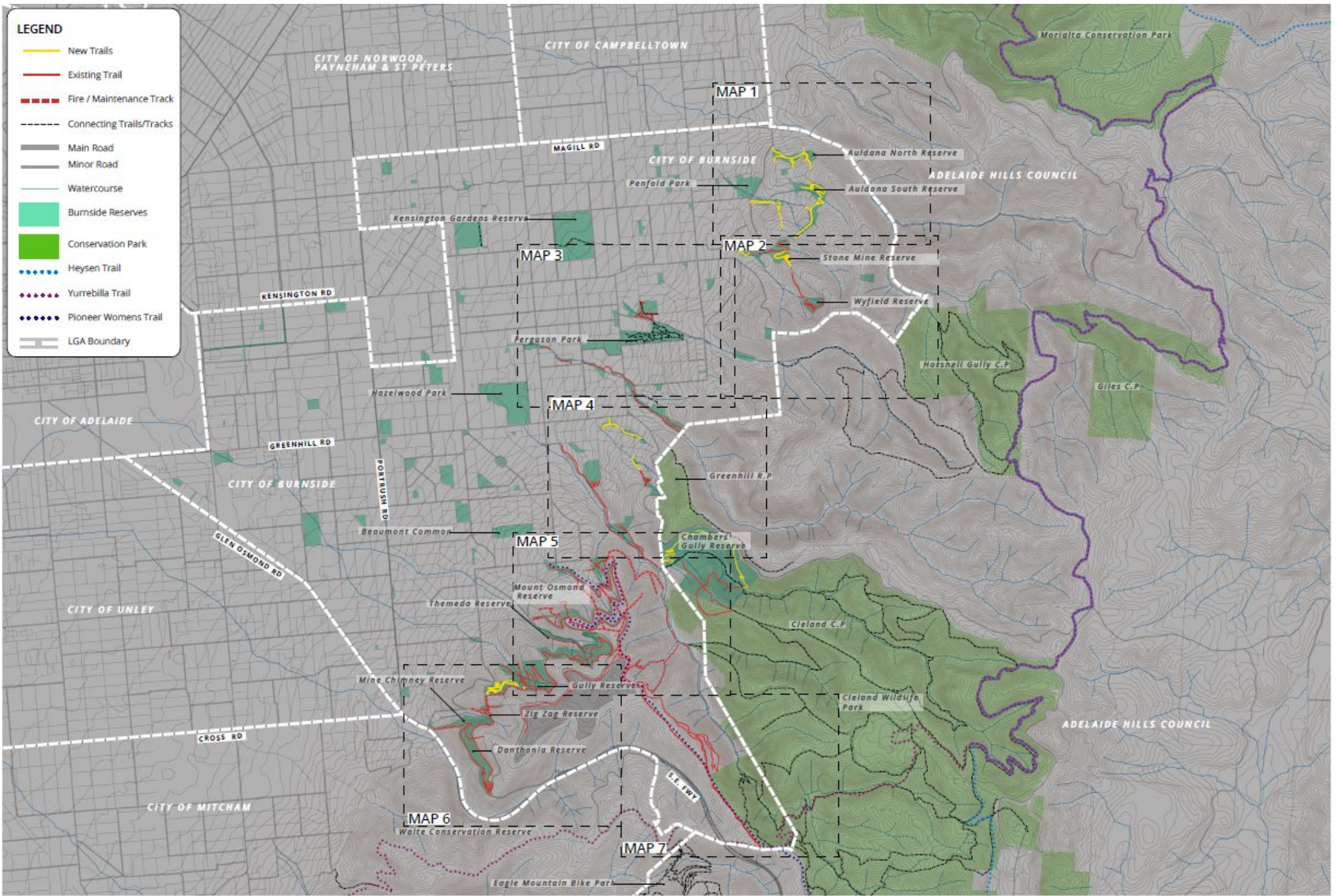
## Hill Face Trails: Action Plan 2021 – 26

Category	Actions	Timeframe	Priority	Notes, Time / Costs indication
<b>Trails Maintenance</b>	Define management sectors mapped by GIS.	Complete	High	COB internal staff costs. (Subject to staff resources).
	Conduct an annual survey of trail conditions.	Annually in Autumn	High	COB internal staff costs (Subject to staff resources). 5 days annually.
	Based on annual survey results conduct annual trail maintenance for priority sectors. <ul style="list-style-type: none"> <li>Scope of works including mapping of priority trail segments.</li> <li>Contractor engagement, briefing and monitoring.</li> </ul>	Annually in Autumn-Winter	High	Subject to annual analysis. <b>\$\$\$</b>
	Identify specific locations or sectors for remedial surface treatments. <ul style="list-style-type: none"> <li>Scope of works including mapping of priority trail segments.</li> <li>Contractor engagement, briefing and monitoring.</li> </ul>	Annually	High	Subject to analysis. Potential for additional budget bids. <b>\$\$</b>
<b>Trail Wayfinding</b>	Redesign and implement updated trail wayfinding signage to Australian Standards.			
	<ul style="list-style-type: none"> <li>Mt Osmond Trails (Women's Pioneer Trail)</li> </ul>	1 - 2 years	High	<b>\$\$\$</b>
	<ul style="list-style-type: none"> <li>Southern Hills Reserves (Gully, Themeda, Danthonia, Chimney and Zig Zag Reserves)</li> </ul>	1 - 2 years	High	<b>\$\$\$</b>
	<ul style="list-style-type: none"> <li>Chambers Gully Reserve</li> </ul>	1 - 2 years	High	<b>\$\$</b>
	<ul style="list-style-type: none"> <li>Second Creek Trails</li> </ul>	3 - 4 years	Medium	<b>\$\$\$</b>
	<ul style="list-style-type: none"> <li>Northern Hills Reserves (Magill Stonemine, Wattle Park, Wyfield etc.)</li> </ul>	3 - 4 years	Medium	<b>\$\$\$</b>
<b>Trails Head Signage</b>	Mt Osmond Trails (Women's Pioneer Trail)	1 - 2 years	High	<b>\$\$</b>
	Gully-Wheel Gawler	1 - 2 years	Medium	<b>\$\$</b>
	Second Creek Trails	3 - 5 years	Medium	<b>\$\$</b>

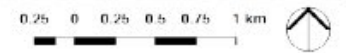
	Waterfall Gully – Chambers Gully	3 - 5 years	Medium	\$\$
	Northern Hills (Penfold Park)	5+ years	Low	\$\$
	Chimney Reserve	5+ years	Low	\$\$
<b>Urban Link Signage</b>	Second Creek Trails	3 - 5 years	Medium	\$
	Northern Hills Trails (Penfold Park)	5+ years	Low	\$
	Danthonia Reserve	Complete		
<b>Construct New Trails</b>	Wattle Park – Magill Stonemine	1 - 2 years	Medium	\$\$
	Auldana North	3 - 5 years	Medium	\$\$\$
	Auldana South	3 - 5 years	Medium	\$\$\$
	Gully – Wheal Gawler	3 - 5 years	Low	\$\$\$
	Zig Zag Reserve	5+ years	Medium	\$\$\$
	Northern Hills small reserves (Sylvaner, Traminer, Verdelho)	5+ years	Low	\$\$
	Magill Stonemine – Knox Terrace	5+ years	Low	\$\$\$\$
<b>Develop New Interpretive Signage</b>	Magill Stonemine Reserve	3 - 5 years	Medium	\$\$
	Chimney Reserve (Wheal Augusta Mine)	3 - 5 years	Medium	\$\$
<b>Shared Trails – Upgrade existing trails to shared use standard.</b>	Wattle Park – Magill Stonemine	3 - 5 years	Low	\$\$\$
	Waterfall Gully Roadside Trail	5+ years	Medium	\$\$\$\$
	Women’s Pioneer Trail	5+ years	Medium	\$\$\$\$
<b>Mapping and Resources</b>	Updated trails pamphlets.	1 - 2 years	High	\$
	Electronic versions of trails pamphlets and maps.	1 - 2 years	High	\$\$
	Explore the use of Trails Aps to replace printed maps.	1 - 2 years	Medium	\$\$
<b>New Trails Facilities</b>	Investigate locations for additional trail facilities, including on newly constructed trails.	3 - 5 years	Low	Subject to staff resources.
<b>Volunteer Trail Care</b>	Expand volunteer trail care opportunities.	1 - 2 years	High	Subject to staff resources.

Costing indications    \$    <\$5,000    \$\$    \$5,000 -10,000    \$\$\$    > \$10,000    \$\$\$\$    > \$50,000

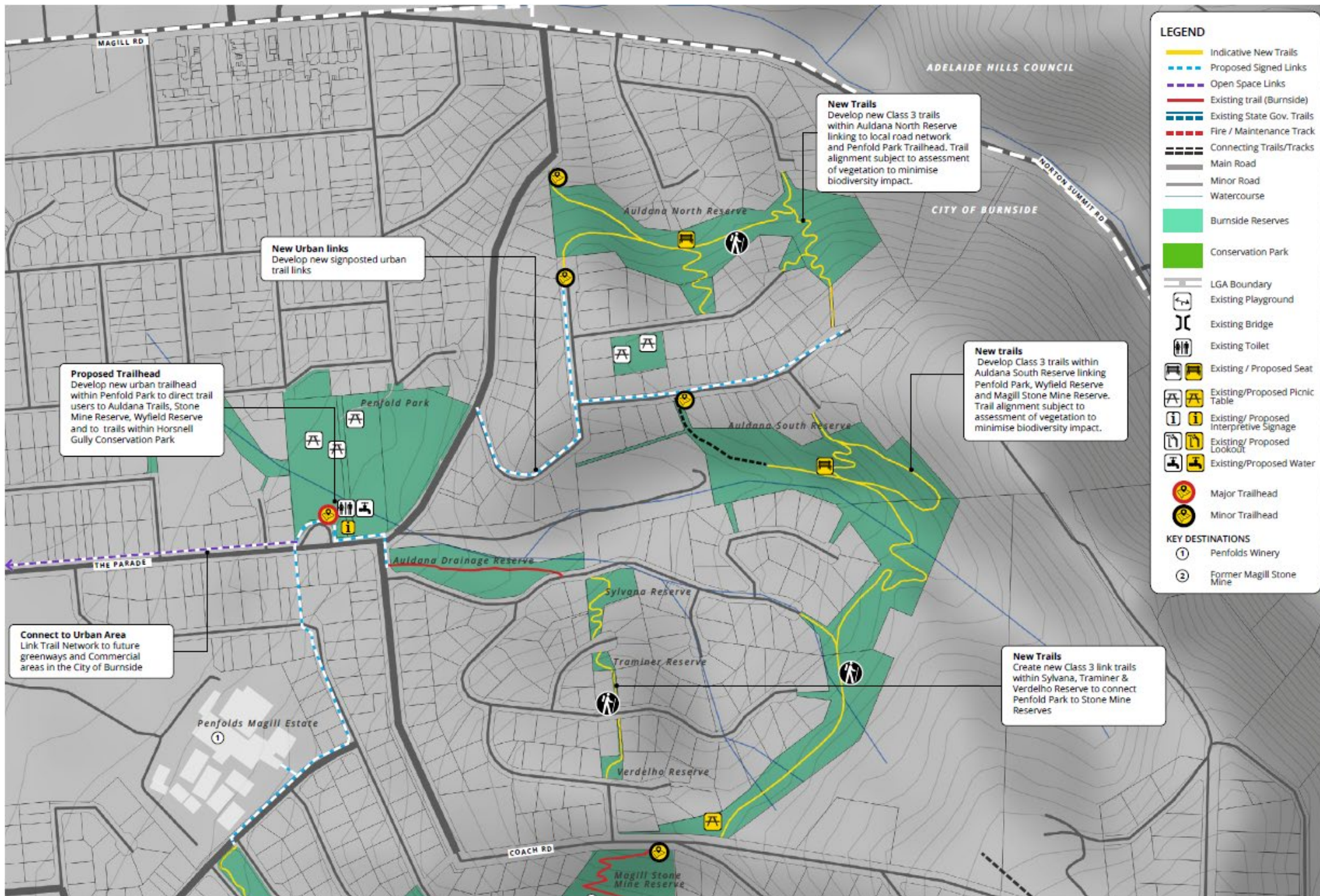




**BURNSIDE TRAIL AUDIT**  
KEY PLAN







**LEGEND**

- Indicative New Trails
- Proposed Signed Links
- Open Space Links
- Existing trail (Burnside)
- Existing State Gov. Trails
- Fire / Maintenance Track
- - - Connecting Trails/Tracks
- Main Road
- Minor Road
- Watercourse
- Burnside Reserves
- Conservation Park
- LGA Boundary
- Existing Playground
- Existing Bridge
- Existing Toilet
- Existing / Proposed Seat
- Existing/Proposed Picnic Table
- Existing/ Proposed Interpretive Signage
- Existing/ Proposed Lookout
- Existing/Proposed Water
- Major Trailhead
- Minor Trailhead

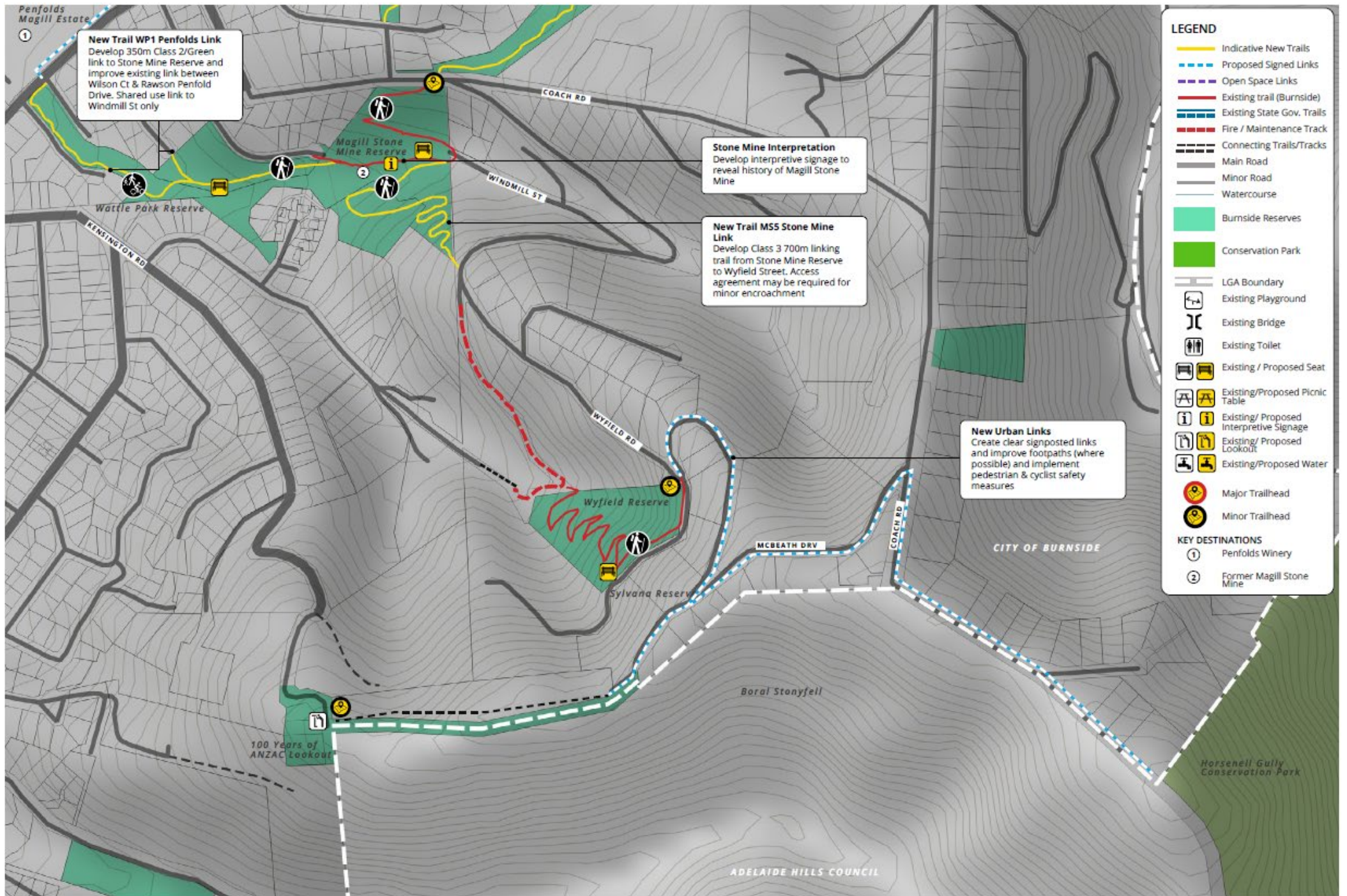
**KEY DESTINATIONS**

- ① Penfolds Winery
- ② Former Magill Stone Mine

**BURNSIDE TRAILS**  
MAP 1: SKYE & AULDANA

Walk Only   
 Shared Use   
 Cycling Only   
 0 40 80 120 160m





**LEGEND**

- Indicative New Trails
- Proposed Signed Links
- Open Space Links
- Existing trail (Burnside)
- Existing State Gov. Trails
- Fire / Maintenance Track
- Connecting Trails/Tracks
- Main Road
- Minor Road
- Watercourse
- Burnside Reserves
- Conservation Park
- LGA Boundary
- Existing Playground
- Existing Bridge
- Existing Toilet
- Existing / Proposed Seat
- Existing/Proposed Picnic Table
- Existing/ Proposed Interpretive Signage
- Existing/ Proposed Lookout
- Existing/Proposed Water
- Major Trailhead
- Minor Trailhead

**KEY DESTINATIONS**

- ① Penfolds Winery
- ② Former Magill Stone Mine

**New Trail WP1 Penfolds Link**  
 Develop 350m Class 2/Green link to Stone Mine Reserve and improve existing link between Wilson Ct & Rawson Penfold Drive. Shared use link to Windmill St only

**Stone Mine Interpretation**  
 Develop interpretive signage to reveal history of Magill Stone Mine

**New Trail MSS Stone Mine Link**  
 Develop Class 3 700m linking trail from Stone Mine Reserve to Wyfield Street. Access agreement may be required for minor encroachment

**New Urban Links**  
 Create clear signposted links and improve footpaths (where possible) and implement pedestrian & cyclist safety measures

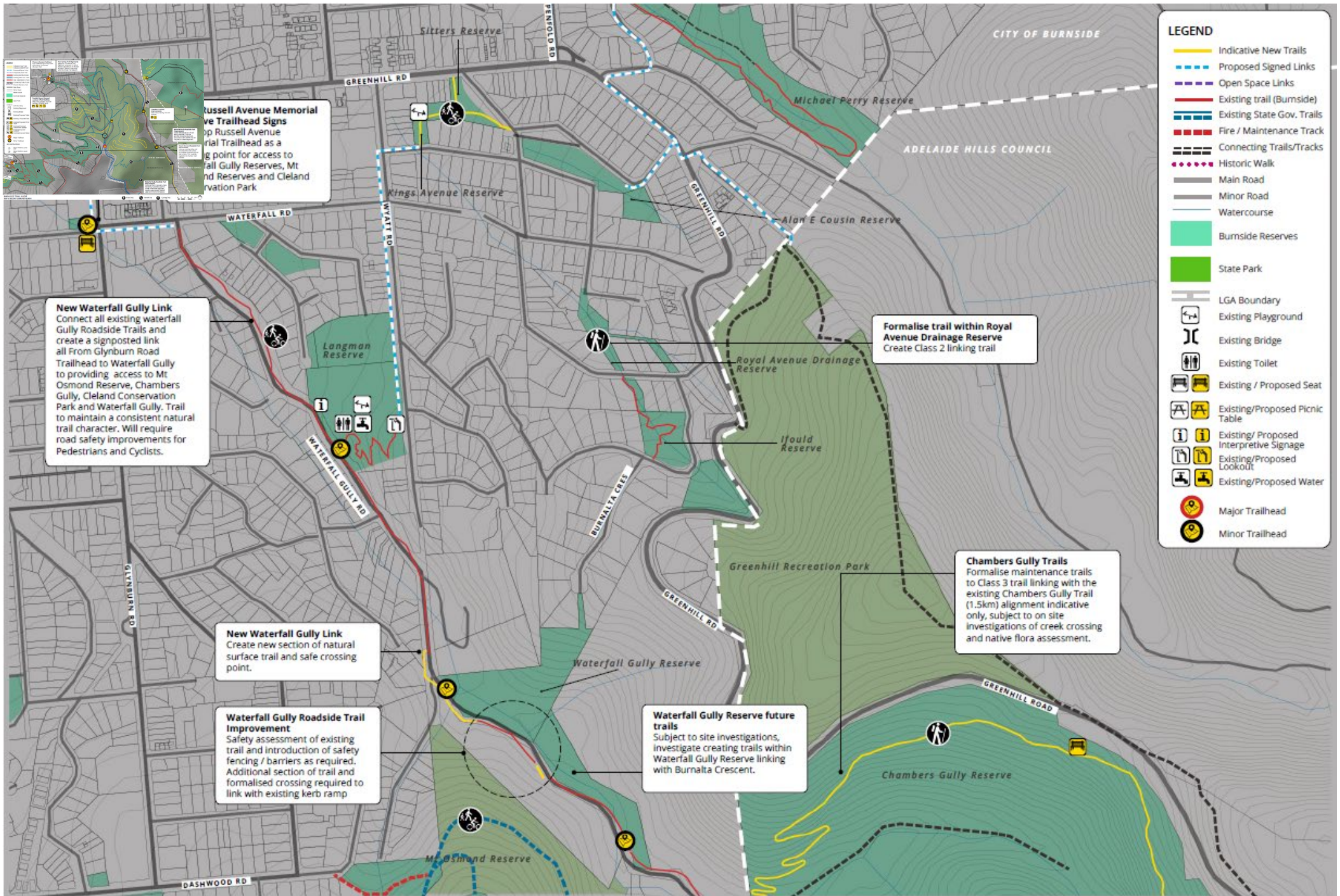
**BURNSIDE TRAILS**  
 MAP 2: SKYE & AULDANA





BURNSIDE TRAILS  
MAP 3: SECOND CREEK





**LEGEND**

- Indicative New Trails
- Proposed Signed Links
- Open Space Links
- Existing trail (Burnside)
- Existing State Gov. Trails
- Fire / Maintenance Track
- Connecting Trails/Tracks
- Historic Walk
- Main Road
- Minor Road
- Watercourse
- Burnside Reserves
- State Park
- LGA Boundary
- Existing Playground
- Existing Bridge
- Existing Toilet
- Existing / Proposed Seat
- Existing/Proposed Picnic Table
- Existing/Proposed Interpretive Signage
- Existing/Proposed Lookout
- Existing/Proposed Water
- Major Trailhead
- Minor Trailhead

**Russell Avenue Memorial Trailhead Signs**  
 Propose Russell Avenue Memorial Trailhead as a starting point for access to all Gully Reserves, Mt Osmond Reserves and Cleland Conservation Park.

**New Waterfall Gully Link**  
 Connect all existing waterfall Gully Roadside Trails and create a signposted link from all From Glynburn Road Trailhead to Waterfall Gully providing access to Mt Osmond Reserve, Chambers Gully, Cleland Conservation Park and Waterfall Gully. Trail to maintain a consistent natural trail character. Will require road safety improvements for Pedestrians and Cyclists.

**New Waterfall Gully Link**  
 Create new section of natural surface trail and safe crossing point.

**Waterfall Gully Roadside Trail Improvement**  
 Safety assessment of existing trail and introduction of safety fencing / barriers as required. Additional section of trail and formalised crossing required to link with existing kerb ramp

**Waterfall Gully Reserve future trails**  
 Subject to site investigations, investigate creating trails within Waterfall Gully Reserve linking with Burnalta Crescent.

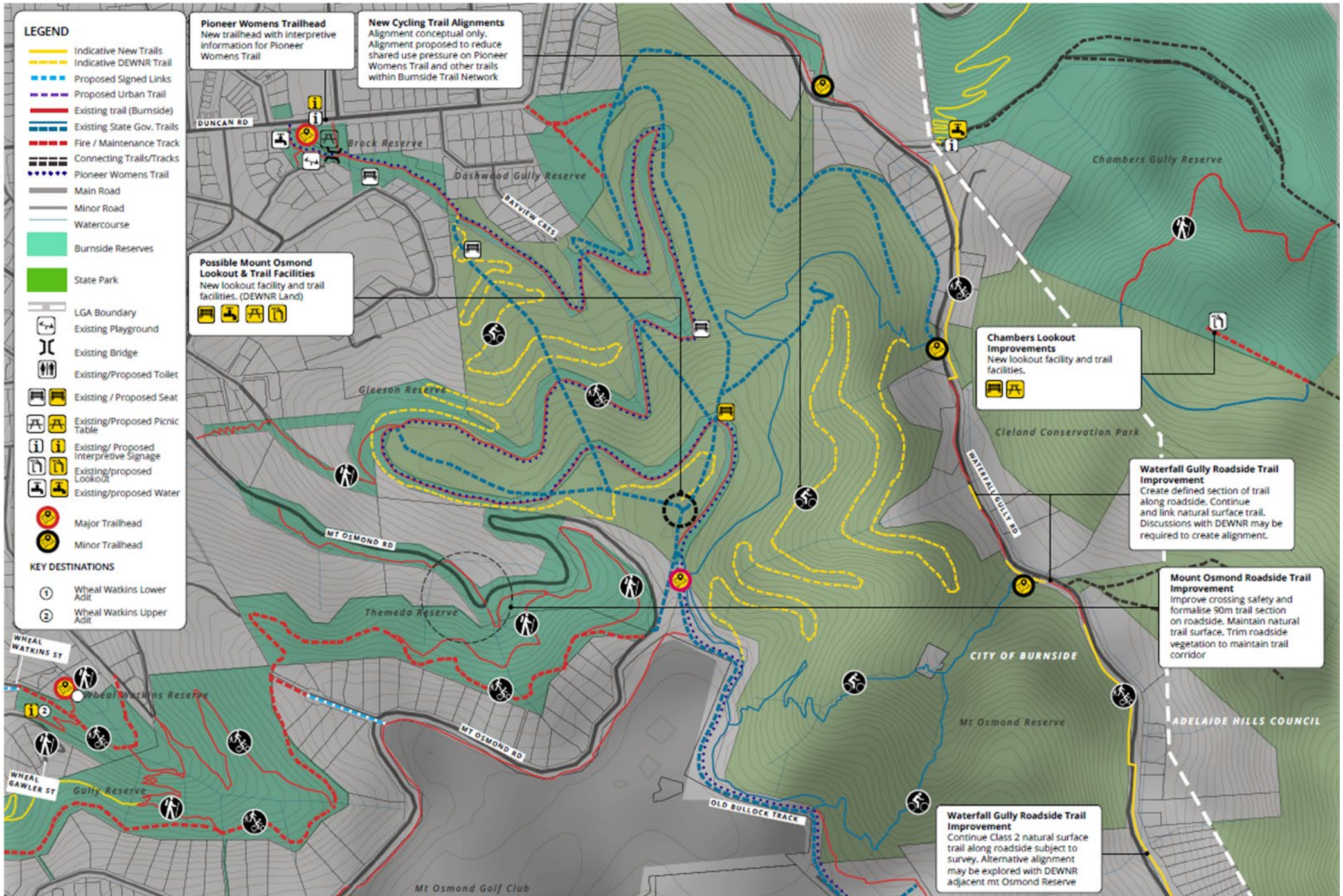
**Formalise trail within Royal Avenue Drainage Reserve**  
 Create Class 2 linking trail

**Chambers Gully Trails**  
 Formalise maintenance trails to Class 3 trail linking with the existing Chambers Gully Trail (1.5km) alignment indicative only, subject to on site investigations of creek crossing and native flora assessment.

**BURNSIDE TRAILS**  
**MAP 4: WATERFALL GULLY NORTH**

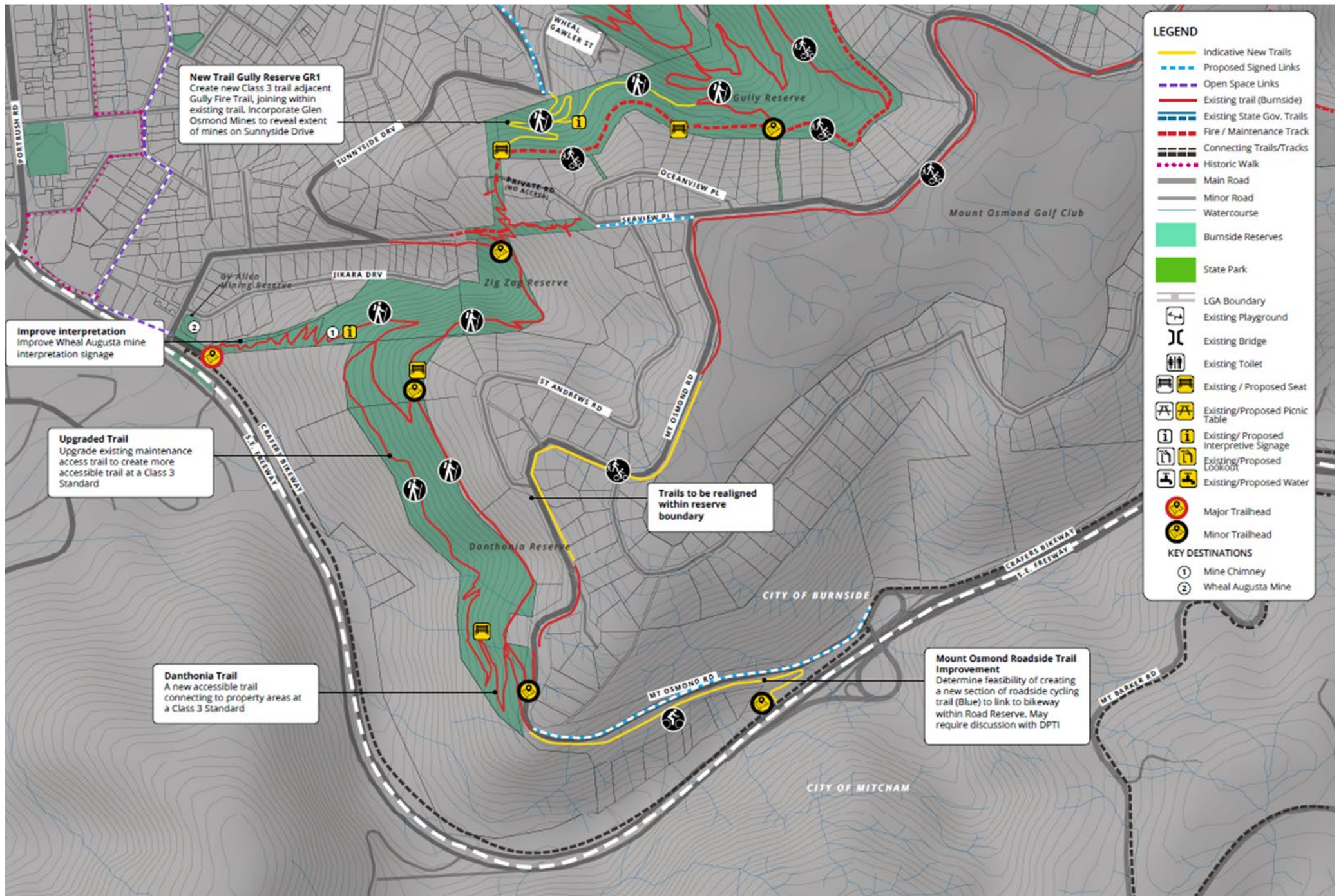
Walk Only
 Shared Use
 Cycling Only
 
 0 40 80 120 160 m





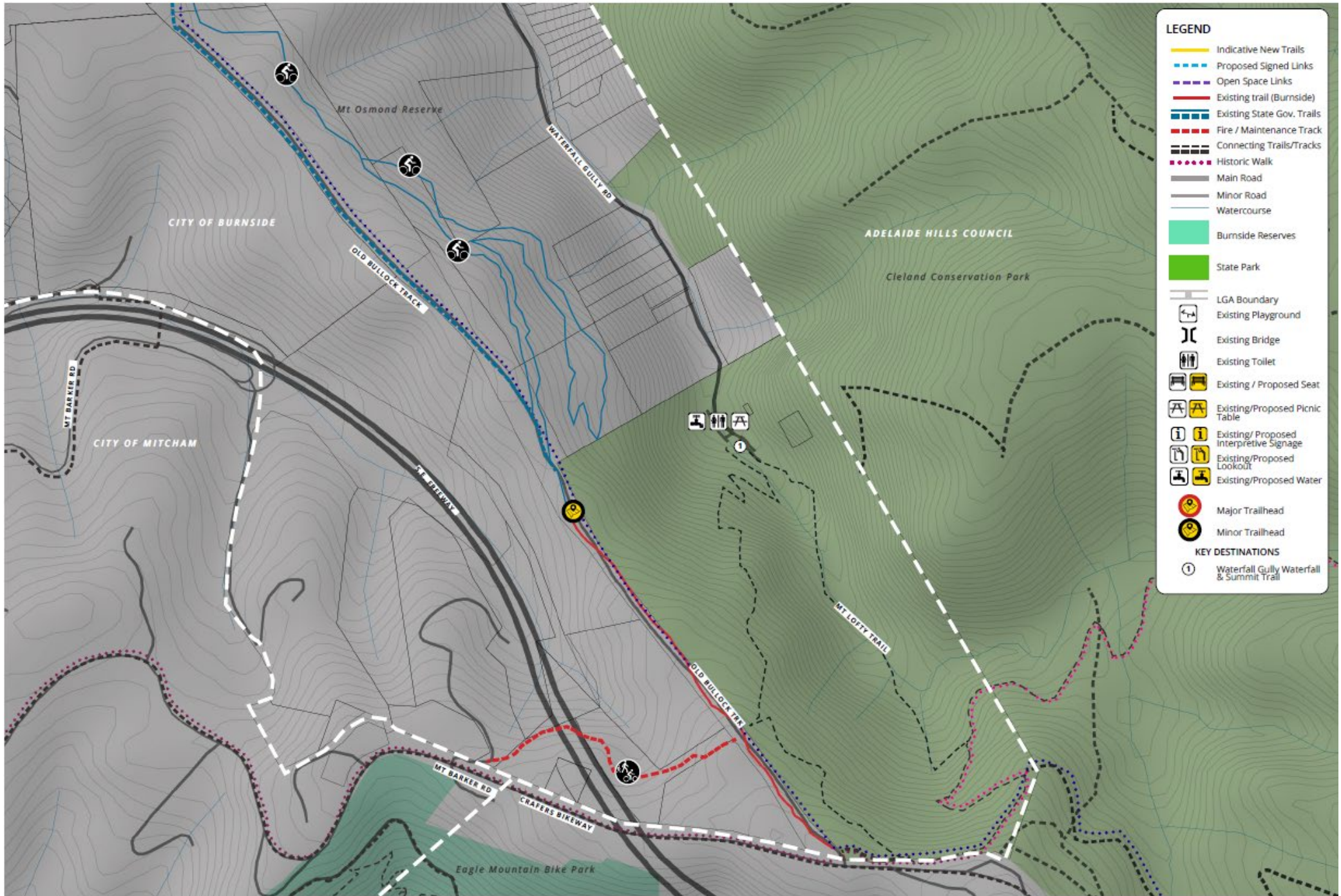
BURNSIDE TRAIL AUDIT  
MAP 5: MOUNT OSMOND NORTH





BURNSIDE TRAILS  
MAP 6: MOUNT OSMOND SOUTH





**LEGEND**

- Indicative New Trails
- - - Proposed Signed Links
- - - Open Space Links
- Existing trail (Burnside)
- Existing State Gov. Trails
- - - Fire / Maintenance Track
- - - Connecting Trails/Tracks
- . . . Historic Walk
- Main Road
- Minor Road
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- Existing / Proposed Seat
- Existing/Proposed Picnic Table
- Existing/Proposed Interpretive Signage
- Existing/Proposed Lookout
- Existing/Proposed Water
- Major Trailhead
- Minor Trailhead
- KEY DESTINATIONS**
- 1 Waterfall Gully Waterfall & Summit Trail

BURNSIDE TRAILS  
MAP 7: WATERFALL GULLY SOUTH

Walk Only
 Shared Use
 Cycling Only



# APPENDIX A: TRAIL CLASSIFICATIONS

## AUSTRALIAN STANDARDS FOR WALKING TRAILS

Australian Standard AS 2156.1 2001 guides appropriate ratings for trails and signage. The Standard outlines six classes of trails that can be used to provide classification information for trail users, providing clear information on the expected trail conditions, grades, required physical ability and facilities which must be conveyed with clear signage and information. Currently, the majority of trails within the Burnside Council are classified as Class 3 or lower.




The Standard also guides the design and the appropriate level of maintenance required for land managers. The trail class is generally determined by the least developed element on the trail, except in the case of long trails where multiple classifications may be necessary. Below is a summary of the trail classifications applicable to the Burnside Council trail network.

Class	Description	Width	Grades & Accessibility	Signage	Facilities
Class 1	Opportunity for large numbers of visitors, including those with reduced mobility, to undertake walks which are provided with a high level of interpretation and facilities. Users can expect abundant opportunities to learn about the natural environment through interpretive signs or brochures. Users can expect frequent encounters with others. Generally, a broad, hard-surfaced track suitable for wheelchair use. Width	1200mm	Generally, per AS1428 Standard (1 in 14 gradient). Steps allowed if ramp access provided.  Users need no previous experience.	Frequent interpretive and management signage.  Directional arrow signage at intersections.	Trail facilities may include lookout platforms, seats and barrier rails.  Trailhead facilities generally include toilets, picnic facilities, car parking, drinking water and information shelters
Class 2	Opportunity for large numbers of visitors to walk easily in natural environments which are provided with a moderate to high level of interpretation and facilities. Users can expect to learn about the natural environment with moderate to abundant opportunities to learn through interpretive signs or brochures. Users can expect frequent encounters with others. Generally, a modified or hardened surface.	900mm +	Generally, no steeper than 1:10, minimal use of steps.  Users need no previous experience.	Signs for management or interpretation maybe be used frequently.  Directional arrow signage at intersections	Trail facilities may include lookout platforms, seats and barrier rails.  Trailhead facilities may include toilets, picnic facilities, car parking, drinking water and information shelters.
Class 3	Opportunity for visitors to walk in slightly modified natural environments requiring a moderate level of fitness and where the provision of interpretation and facilities is not common. Users can expect opportunities to observe and appreciate the natural environment with limited provision of interpretive signage. Users can expect occasional encounters.	Varies, 1200mm or less	May exceed 1:10 for short sections but generally no steeper than 1:10. Steps may be common.  Users need no bushwalking experience and a minimal level of specialized skills.  Users may encounter hazards.	Direction signage, but limited management and interpretation signage.	Generally, no trail facilities are provided.  Trailhead facilities may include toilets, picnic facilities, car parking, drinking water and information shelters.

Class 4	<p>Opportunity for visitors to explore and discover relatively undisturbed natural environments along defined and distinct tracks with minimal (if any) facilities. Users can expect opportunities to observe and appreciate the natural environment without the provision of interpretive signage. Users can expect opportunities for solitude with few encounters with others.</p> <p>The surface is generally distinct without major modification.</p>	Varies	<p>The gradient is only limited to environmental and maintenance considerations.</p> <p>Users require a moderate level of specialised skills such as navigation.</p>	<p>Minimal signage for management and directional purposes.</p> <p>Trailhead facilities may include toilets, picnic facilities, car parking, drinking water and information shelters.</p>	
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## IMBA TRAIL CLASSIFICATION GUIDE

The IMBA (International Mountain Bike Association) Trail Difficulty Rating System is a basic method used to categorize the relative technical difficulty of mountain bike trails or shared trails. The IMBA Trail Difficulty Rating System is intended to help trail users make informed decisions, encourage visitors to use trails that match their skill level, manage risk and minimise injuries and aid in the planning of trails and trail systems. The system was adapted from the International Trail Marking System used at ski areas throughout the world.

	Very Easy	Easy	Intermediate	Advanced	Extreme
Description	Likely to be a fire road or wide single track with a gentle gradient, smooth surface and free of obstacles. Frequent encounters are likely with other cyclists, walkers, runners and horse riders.	Likely to be a combination of fire road or wide single track with a gentle gradient, smooth surface and relatively free of obstacles.  Short sections may exceed these criteria. Frequent encounters are likely with other cyclists, walkers, runners and horse riders	Likely to be a single trail with moderate gradients, variable surface and obstacles.	Likely to be a challenging single trail with steep gradients, variable surfaces and many obstacles. Single-use and direction  Optional lines XC, DH or trials	Extremely difficult trails will incorporate very steep gradients, highly variable surface and unavoidable, severe obstacles.  Single-use and direction Optional lines  XC, DH or trials
Symbol	 White Circle	 Green Circle	 Blue Square	 Black Diamond	 Double Black Diamond
Trail Width	2100mm plus or minus 900mm	2100mm plus or minus 900mm	600mm plus or minus 300mm for tread or bridges.	300mm plus or minus 150mm for tread and bridges. Structures can vary	150mm plus or minus 100mm for tread or bridges. Structures can vary
Trail Surface	Hardened or smooth	Mostly firm and stable	Possible sections of rocky or loose tread.	Variable and challenging.	Widely variable and unpredictable
Average Trail Gradient	Climbs and descents are mostly shallow. Less than 5% average.	Climbs and descents are mostly shallow but may include some moderately steep sections.  7% or less average.	Mostly moderate gradients  but may include steep sections. 10% or less average.	Contains steeper descents or climbs. 20% or less average.	Expect prolonged steep, loose and rocky descents  or climbs. 20% or greater average
Maximum Trail Grade	Max 10%	Max 15%	Max 20% or greater	Max 40% or greater	Max 40% or greater
Level of Trail Exposure	Firm and level fall zone to either side of the trail corridor	Exposure to either side of the trail corridor includes downward slopes of up to 10%	Exposure to either side of the trail corridor includes downward slopes of up to 20%	Exposure to either side of the trail corridor includes steep downward slopes or freefall	Exposure to either side of the trail corridor includes steep downward slopes or freefall

Obstacles	No obstacles	<p>Unavoidable obstacles to 50mm (2") high, such as</p> <p>logs, roots and rocks. Avoidable, rollable obstacles may be present.</p> <p>Unavoidable bridges 900mm wide.</p> <p>Short sections may exceed the criteria.</p>	<p>Unavoidable, rollable obstacles to 200mm (8") high, such as logs, roots and rocks.</p> <p>Avoidable obstacles to 600mm may be present. Unavoidable bridges 600mm wide. The width of the deck is half the height.</p> <p>Short sections may exceed the criteria.</p>	<p>Unavoidable obstacles to 380mm (15") high, such as</p> <p>logs, roots, rocks, drop-offs or constructed obstacles.</p> <p>Avoidable obstacles to 1200mm may be present. Unavoidable bridges</p> <p>600mm wide.</p> <p>The width of the deck is half the height.</p> <p>Short sections may exceed the criteria.</p>	<p>Large, committing and unavoidable obstacles to</p> <p>380mm (15") high. Avoidable obstacles to 1200mm may be present.</p> <p>Unavoidable bridges 600mm or narrower. The width of bridges is unpredictable.</p> <p>Short sections may exceed the criteria.</p>
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