ANTHONY BURTON & ASSOCIATES

ENVIRONMENTAL
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Isaacs Ridge

Trails Plan 2015

Prepared by Anthony Burton & Associates for Territory and Municipal Services

23 November 2015

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ENVIRONMENTAL RECREATIONAL PLANNING FACILITATION

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Anthony Burton & Associates

Anthony Burton – Principal

Principal - Mr Anthony Burton is a member of the Planning Institute of Australia (PIA), an Environmental Scientist and is awaiting the awarding of his PhD with Western Sydney University. He has 15 years experience as a planner with the ACT Government, the non-government sector and now in private practice.

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1 A VISION FOR TRAILS IN ISAACS RIDGE

The vision statement is a synthesis of the values, ideas and aspirations generated by the community and other stakeholders who took part in the consultation process with a view to generating the Isaacs Ridge Trails Plan 2015.

The vision statement is intended to provide the ACT Government and the community with an aspirational focus, to guide the planning, development and management of trails Isaacs Ridge.

1.1 VISION STATEMENT

Isaacs Ridge will be a reserve that meets the recreational needs of local community and visitors in a fair and equitable way. The community will be able to walk, run and ride on a community managed trail network that is consolidated, safe and appropriate.

1.2 GOALS

Arising from the vision the following goals have been identified for Isaacs Ridge:

Goal 1: That the existing downhill trails on Isaacs Ridge are to be consolidated and upgraded to ensure that they are appropriate and safe. These trails will allow for this form of higher impact outdoor recreation and facilitate low key (club level) mountain bike events.

Goal 2: Provide a plan that identifies the aspiration to expand the trail network in a fair and equitable way to meet the broader recreational needs and desires of the community while managing and minimizing potential conflict between users.

Goal 3: To engage the community in the ongoing maintenance of the recreational facility.

2 INTRODUCTION

Anthony Burton & Associates were appointed to develop a trails plan for a low key pedestrian and cycling trail network within the Isaacs Ridge reserve.

The trails plan aims to creatively:

- manage Downhill Mountain Biking
- use multi-use trails to link pedestrians and cyclists through the special purpose sections of the reserve;
- maintain, and where possible enhance the existing equestrian network and user experience;
- identify and develop priorities of trail construction;
- have reference to the wishes of the community as identified in the “Consultation Report Isaacs Ridge Mountain Bike Trail Upgrade Project 2015” prepared by Canberra Town Planning for Territory and Municipal Services
- allow for flexible and organic trail design that meets the needs of the intended users and the evolving on-ground character of the landscape;
- consider the functional links with the suburb of Isaacs, the existing trail network including the Canberra Centenary Trail and the existing community path network
- allow Territory and Municipal Services to engage a suitably qualified and experienced trail building organisation to build aspects of the trail network identified in the trails plan; and
- assist Territory and Municipal Services to provide efficient and effective ongoing maintenance of the reserve and its assets including the trail network by identifying the use of materials and designs that are durable.

This project will incorporate the following:

Functional Analysis

The functional analysis includes an analysis of the project site and how it currently functions. It looks at existing trail and path use and desire lines. The functional analysis has been used to illustrate opportunities and constraints for pedestrian, cyclist and maintenance vehicular circulation. Consideration of equestrian movement, while outside of the scope of works, has also been identified.

The trail plan will:

1) Incorporate a design intent report that articulates the intent of the proposed design and explains how the design meets the objectives of the client and the design requirements identified by the client;
2) Identify the Design Requirements for trails within the Isaacs Ridge Reserve; and
3) Provide information that conveys the design intent, highlights significant issues such as grading and illustrates key design elements.

3 BACKGROUND

Parks and Conservation service identified that the existing downhill mountain bike networks within Isaacs Ridge reserve were a safety concern that needed to be addressed. The ACT Government has provided capital upgrade funding in 2015-16 to upgrade the trail network within the reserve and has engaged Anthony Burton & Associates to develop this Isaacs Ridge Trail Plan. Isaacs Ridge is a small reserve that caters for local residents and a small number of visitors. Canberra Off-Road Cyclists (CORC) wish to hold a series of small-scale events utilising the downhill trails on the ridge in the future?

3.1 PROJECT OBJECTIVES AND OUTCOMES

The aim of the report is to identify proposed trail alignments that meet the needs of all stakeholders including the ACT Government, local residents and all trail users, and result in paths and trails that are functional, safe, and attractive and in keeping with the design intent for the reserve. It is based on a site analysis, community consultation and the professional expertise of AB&A.

4 FUNCTIONAL ANALYSIS

4.1 ABOUT ISAACS RIDGE

Isaacs Ridge is a nature reserve located in the south east of Canberra, close to the suburbs of Isaacs and O'Malley in the Woden Valley. The Isaacs Ridge Long Gully pine plantation is located adjacent to the Isaacs Ridge Nature Reserve. The land is managed by Parks and Conservation Service (PCS), a division of Territory and Municipal Services (TAMS), itself a Directorate of the ACT Government.

4.2 LOCATION

The site encompasses Block No. 159 Jerrabomberra and Block 6 Section 593 Isaacs and abuts Long Gully Road and the suburbs of Isaacs and O'Malley.

4.3 SITE CONTEXT

The landscape of the ridge is rocky and steeply rolling with a major ridgeline dividing it. Much of the site is highly disturbed in nature with 23 Hectares of ACT Forestry commercial pine plantation. Significant works have been undertaken in parts of the reserve by Parks and Conservation Service and the local Parkcare group to remove woody weeds and re-establish vegetation endemic to the site. The majority of the trails identified within this report fall within the existing commercial pine plantation. All trails remain on the western side of the ridgeline.

4.4 COMMUNITY CONSULTATION

The following are the recommendations based upon the Consultation Report Isaacs Ridge Mountain Bike Trail Upgrade Project prepared by Canberra Town Planning.[1]

- There is wide support for the ongoing use of Isaacs pines for a variety of recreational activities including informal use and organised events. The trails masterplan needs to acknowledge all of these forms of recreation and seek to avoid conflicts wherever possible.
- Specifically, the master plan needs to acknowledge walkers, runners, equestrians and people on bikes.
- From the outset, the project was described as a 'mountain bike trails upgrade'. There is sufficient support among the community to pursue the upgrade of downhill trails to a level that allows them to be sanctioned for events. There is also sufficient support for the construction of a limited amount of cross country style trail, but not a full mountain bike park. The master plan should reflect this.
- There is no clear plan for the pine forest area. It is currently being managed as a productive forest but it is of marginal value for harvest. The community enjoys the amenity it provides and a change in the forest management to focus on amenity should be formalised.
- The ongoing management of the pine trees by Forestry within PCS should be considered. If the trees are taken out of production then the apparent role of Forestry will be diminished, however management of the estate by Forestry makes a clear distinction between the areas that are available for higher intensity recreation and those being managed for conservation outcomes.
- Irrespective of the management responsibilities, a vegetation management plan and succession planning for the site should be undertaken. Some of the highest amenity pine areas will reach the end of their safe lifespan over the next 20 years. Replacement planting needs to be considered relatively soon to retain this amenity.
- Consider removing the jumps over the management trails as one of the first pieces of work. This would remove the focal point for many of the safety concerns. As an alternative, they could be fenced off only for use during races or special events. CORC has indicated that significant trail features could be constructed within the pine forest, so there is no specific need for them to be at the management trails.
- Consider pruning and thinning work in the pines prior to any trail construction works to avoid subsequent disturbance of the trails.
- The most significant risk of user conflict will occur where downhill mountain bike trails cross the management trails. To reduce the risk of conflict it is suggested that up to four crossing points are agreed and that in those locations the trails are carefully designed and constructed to ensure a slow approach speed (using tight corners or technical trail features) and generous sight lines.
- Once the crossing points are agreed, the trail maintenance group could be given relatively generous licence to construct trail within the pine forest areas, subject to sustainable trail design codes etc.
- CORC have expressed a desire to review trail alignments and the trail management report prior to finalisation. It is recommended that all stakeholders be given this review opportunity.
- Planning for equestrian uses on a broader scale should be undertaken to ensure the equestrian community's needs are met with respect to adequate trail loops. Ongoing liaison with the equestrian community will be needed to review the proposed master plan and the proposed arrangement for trail crossing points.
- The Equestrian community would like routes made available so that riders from agistment areas either to the north or south of Isaacs Ridge can undertake a loop during a ride. This might mean continuity of the equestrian trail around the private agistment property in the north east part of the reserve, and providing a loop route in the southern part of the reserve.

- None of the stakeholders identified any significant needs for infrastructure to support the hosting of events. The primary area for improvement is the need for car parking and ensuring car parking entry onto Long Gully road is safe as this is an 80km/hour zone. This access point should be reviewed by Roads ACT or a consultant engineer.
- Liaise with and provide proposed trail routes to ACT orienteering so they can plan for their event at Easter 2016.
- Numerous individuals and CORC are keen to be involved in trail construction and maintenance works. There is an opportunity to run a trail building workshop as part of these works, as an opportunity to teach people how to build safe, sustainable trails and choose suitable alignments. This may also help in minimising unauthorised trail building.

4.5 CONSTRAINTS

Works are to be undertaken within the pine plantation only with no works to be undertaken within the Nature Reserve.

In early 2016 a significant orienteering event will be undertaken within the reserve. No work within the reserve north of the downhill bowl should be undertaken prior to this event.

4.6 EXISTING FACILITIES

4.6.1 Forests

Isaacs Ridge has 23 Hectares of commercial pine plantation and significant areas of native vegetation that are identified as forming part of the Canberra Nature Park reserve system.

4.6.2 Management Roads

Isaacs Ridge has one sealed and numerous unsealed gravel roads designed to allow

- Maintenance of the site;
- Ensure appropriate fire protection;
- Maintenance vehicles to attend to the communications towers; and
- Provide for recreation in the reserve.

These existing roads currently form the backbone for the majority of the recreation use within the reserve and are used by walkers, runners, equestrians and bicycle riders.

4.6.3 Pedestrian Facilities

There are several informal desire lines within the reserve.

The Centenary Trail does run through the reserve utilising existing maintenance trails identified above. The Centenary Trail is a 145km self-guided, non-motorised loop trail for walkers and touring cyclists that showcases Canberra and takes users on a journey between urban and rural environments past iconic sites and hidden treasures. The Centenary Trail crosses into Isaacs Ridge from Long Gully Road and traverses the lower slopes of the ridge exiting into the Mount Mugga Reserve to the north. A detour, allowing pedestrians access to the ridgeline is located approximately half way along the ridge.

4.6.4 Cycling Facilities

There are several existing degraded downhill mountain bike trails within the reserve. These are mainly (but not entirely) located in the southern section of the reserve There are also the remnants of a cross country mountain bike trail system that was heavily utilised in the early to late 90's prior to significant logging of the area. Other recreational cycling takes place on the existing management trails. As identified above the Centenary Trail does run through the reserve.

4.6.5 Equestrian Facilities

Several government horse paddocks and agistment properties bound the reserve. There are a series of marked equestrian trails leading to and within the reserve forming an incomplete loop of Isaacs Ridge. Equestrians are currently allowed to ride only on these marked trails.

5 DESIGN REQUIREMENTS

5.1 DESIGN INTENT

The intent of the Isaacs Ridge Trail Plan 2015 is to provide a framework for fair and equitable access to all users. It will identify the potential for different recreational user groups (with a particular focus on the downhill mountain bike user group) and identify facilities required to meet these needs. Based upon community consultation undertaken as part of this project [1] facilities and trails will be kept at a low key level aimed at local Canberra based visitors to the park.

The plan will identify:

- One way downhill trails – mountain bikes only;
- The existing equestrian trails are maintained ensuring that they continue to provide for safe and equitable equestrian use within Isaacs Ridge and that they continue to provide connections to the broader equestrian trail network;
- Bi-directional trails that can form a loop or series of loops that cater for walkers, runners and mountain bike riders;
- The need for facility signage – directional, information and compliance;
- Linkages with the existing trail network, in particular the Centenary Trail [2]; and
- An aspirational trail network that meets the needs of users.

Upgrading and construction of trails will be prioritised, with some aspects of this report considered aspirational.

5.2 DESIGN STANDARDS

Unless otherwise specified, all design, documentation and construction for this project must be in accordance with the:

- Trail Solutions: IMBA's Guide to Building Sweet Singletrack, International Mountain Bicycling Association (IMBA), June 2004
- Managing Mountain Biking: IMBA's Guide to providing Great Riding, International Mountain Bicycling Association (IMBA), 2007.
- IMBA – Australia Trail Difficulty Rating System, IMBA – Australia 2012
- All construction work must comply with current and relevant Australian /New Zealand Standards which are available at www.standards.com relevant to working in a non-urban reserve area.
- The construction work must also comply with standards, guidelines, Acts and Ordinances currently in force in the ACT and relevant to working in a non-urban reserve area.
- All construction work must be undertaken in accordance with the relevant (to working in a non-urban reserve) environment protection measures outlined in: *Environment Protection Guidelines for Construction and Land Development in the ACT 2007* http://www.environment.act.gov.au/environment/environment_protection_authority/business_and_industry/environment_protection_guidelines

5.3 KEY ISSUES

5.3.1 Managing conflict between users – walkers, mountain bikes, horses and vehicles

All trails will need to be designed with either multiple users in mind and/or to minimise potential conflict, particularly at designed interaction points, on single use trails. Trails designated as multi-use trails should be designed for pedestrians and bicycle riders traveling in multiple directions. Those multi-use trails located closer to the suburbs will have a greater focus on passive users (such as walkers) while those further up the ridgeline will be designed with more active users such as runners, longer distance hikers and cyclists in mind (but are not exclusively for this more active use).

Downhill mountain bike trails will be designed as single-use, one-way trails.

- User conflict is to be managed through the use of signage (minimal), trail design and natural obstacles designed to reduce the speed differentials between users. The use of bollards, rails and the like is discouraged.
    - Most trails will be designed to be narrower trails (<1200mm). These types of trails are what was identified in the community consultation and have the added benefit of reducing the speed differential of users (particularly bicycle riders). When combined with choke points utilising the natural landscape, trees within the reserve and local rocks potential speed differentials (on multiple use tracks) will be kept to a minimum.

- Directional signage should be kept to a minimum but the should incorporate information that reminds users that (most) trails are multi-use and of the code of conduct expected emphasising respect for all other users;
- Trails that approach road crossings will, where possible, rise to meet the road to slow bicycle riders down prior to crossing management tracks (note this will not be the case with the downhill bike trails crossing the upper management track)

- Trail and maintenance track crossing points have been kept to a minimum and, in most instances, have been designed to slow faster users prior to crossing. These crossing points will need to be sign posted for all users so that they are aware of potential that they may encounter other forest users.
- Equestrians – trails have been designed to minimise the interaction between other users and equestrian users. There are several sections where the trails are shared and these should incorporate adequate sign positing of the user hierarchy. Further signage that identifies how users should approach horses should also be included at key locations and trail heads.

6 RECOMMENDATIONS

6.1 TRAILS PLAN

The community consultation indicated wide support for the ongoing use of Isaacs Ridge pines for a variety of recreational activities including walking, running, horse riding and bike riding, for informal use and organised events. There was sufficient support among the community to pursue the proposed upgrade to the downhill mountain bike trails to support club level events and for a limited number of cross country style trails, but not a full mountain bike park.

Based upon the broad consultation an aspirational plan (Appendix 8.1) is proposed that recommends a series of different trail types that could be upgraded or constructed within the reserve and low key facilities to support this use:

- Two dedicated downhill trail corridors generally following existing alignments.
- A multi-use spine - cross country style recreational trail that caters for walkers, runners and bike riders and can become a new link/section of Centenary Trail.
- Active user trails – more challenging cross country style recreational trail that caters for more advanced runners, walkers and bike riders.
- Day to day user car parking facilities at Shepherdson Place and event only car parking on the closed section of road behind Shepherdson place.
- Information signage with details on access, trails, appropriate reserve behaviour and user interaction.
- A series of informal rest areas.
- An equestrian linking trail proposed along the southern boundary.

The aspirational plan is intended to provide the Parks and Conservation Service with a plan to guide future trail work in the reserve. Priority trail work is identified under 6.2 Trail Alignments as a direct response to the need to upgrade the existing downhill trails.

6.2 TRAIL ALIGNMENTS

Detailed descriptions of the recommended trail types and priority for construction are provided.

Each trail will be described in detail using the following:

- **Identifier:** Trails will have a unique identifier.
- **Description:** Describes the nature of the trail and what users are likely to see.
- **Length:** Identifies the total length of the trail.
- **Trail type:** Downhill, Multi-use, Active-user.
- **Design:** Width, slope and gradient, all access etc.
- **Issues:** Road crossings, rocks, bridges, steep side slopes etc.
- **IMBA Rating:** Rating from white (family), Green (easy), Blue (intermediate), Black Diamond (Advanced), Double Black Diamond (very advanced).
- **Construction Rating:** Difficulty of construction
- **Priority:** Priority of construction
- **Cost:** Potential cost of trail (using commercial rates)

6.2.1 Downhill trail corridors

Isaacs Ridge has a number of opportunities and constraints for a downhill trail system. While relatively steep and containing an abundance of rocks and rock features, the slope itself is relatively short. To make the most of the slope and comply with the wish for a number of downhill opportunities, the design alignments have been designed as twin a braided trail system (Appendix 8.4).

A braided system such as this allows for a number of separate lines providing opportunities for different courses and rider progression while minimising road crossings to 4 points across the entire downhill network. The downhill trails are divided into two separate corridors, an easier southern corridor (identified as orange in Appendix 8.4) and a more advanced northern corridor (identified as teal in Appendix 8.4). Note that while the southern corridor is identified as easier, there are many features within this section that could be designed to a Double Black Diamond level that could challenge the very best riders.

This Plan proposes construction of one main line within each of the downhill corridors as part of the first stage work (Plate 1). The proposed braided system could be further developed over time based on the success of the two main lines in managing safety of all recreational users, usage patterns and demand.

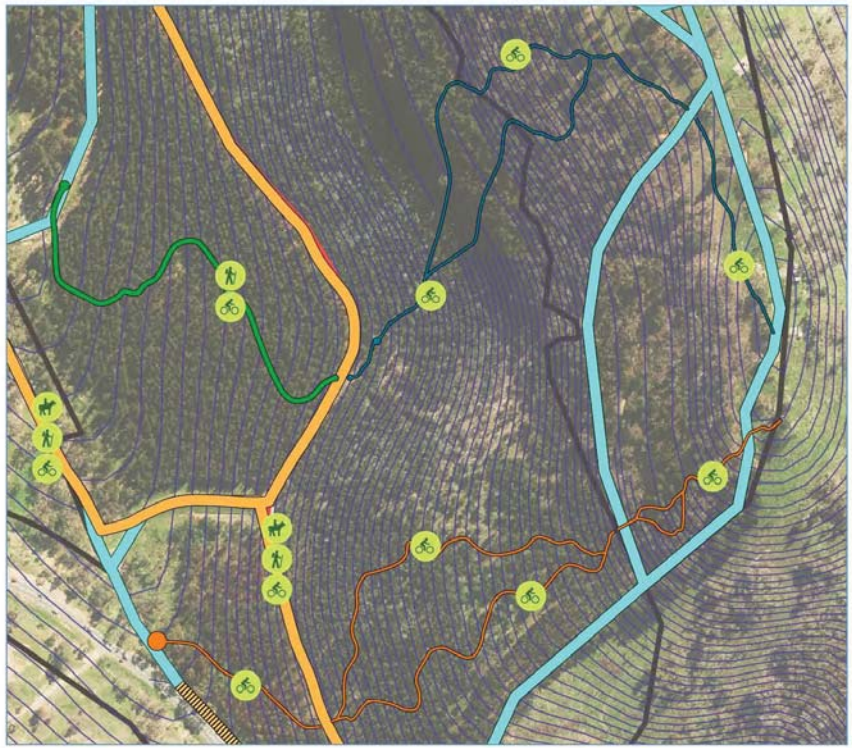


Plate 1 Downhill bowl corridors – main corridor lines

6.2.1.1 Southern Downhill Corridor – main line

- **Description:** The line described here is the central, 2nd most southerly line (Plate2 and Appendix 8.2, orange) of the southern bowl alignment and follows an alignment similar to an existing (little utilised) downhill trail. Starting among boulders at the highest point of the southern end of the ridge the trail begins by heading south down the slope towards long-gully road down. Crossing immediately into natural vegetation's the trail enters boulders where a series of drop-offs, jumps and rock gardens should be constructed. The trail should follow close to the fall line and weave through trees making use of a series of rock gardens to check speed and act as a filter for riders. An existing downhill alignment makes use large rock drop-off before crossing the upper management track 15m north of the existing road crossing. There are a series of potential lines through this section of forest that could provide trails from an intermediate (Blue Square) level right through to potential very advanced (Double Black Diamond) lines. The use of the rocks in this area will allow for the development of B and C lines allowing for rider progression). After crossing the management track the trail should continue to meander down hill making use of a series of rock gardens and could incorporate a series of smaller berms, off camber turns and jumps to add to the experience. The trail crosses the lower management track, using an existing rock shelf. The final 150m makes use of the slope and could incorporate a series of berms. The construction of this trail will allow for a series of other lines to be constructed to the north and south completing the braided nature of this section.
- **Length:** 730m
- **Trail type:** Downhill only, one-way.
- **Design:** 900mm to 1.2m, between 6% and 25%.
- **Issues:** This trail has many significant rock features including rollovers, drop-offs and jumps. It has two road crossings at 120m and at 600m.
- **IMBA Rating:** Blue (intermediate) if all B and C lines are included, Black Diamond (Advanced), Double Black Diamond (very advanced).
- **Construction Rating:** 3 to 5. The middle and bottom sections of this trail are relatively easy to construct. The top section offers significant challenges including significant slopes, many rocks and significant boulders
- **Priority:** This is a priority 1 trail.
- **Cost:** The major spine of this route could be constructed for between $45 and $75 per metre (at commercial rates). At just over 730m long (above the second management track crossing) this trail would cost ~$40,000 and include jumps, drop-offs, some berms, significant rock gardens and rock rollovers.

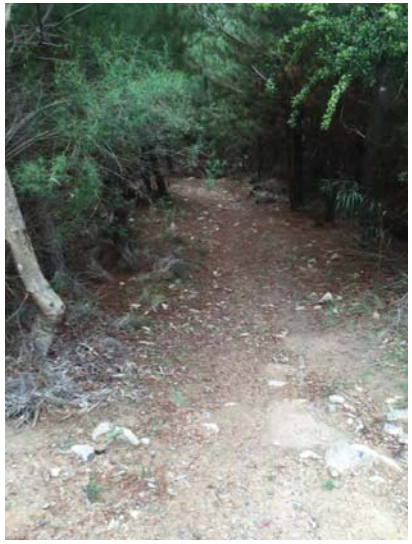


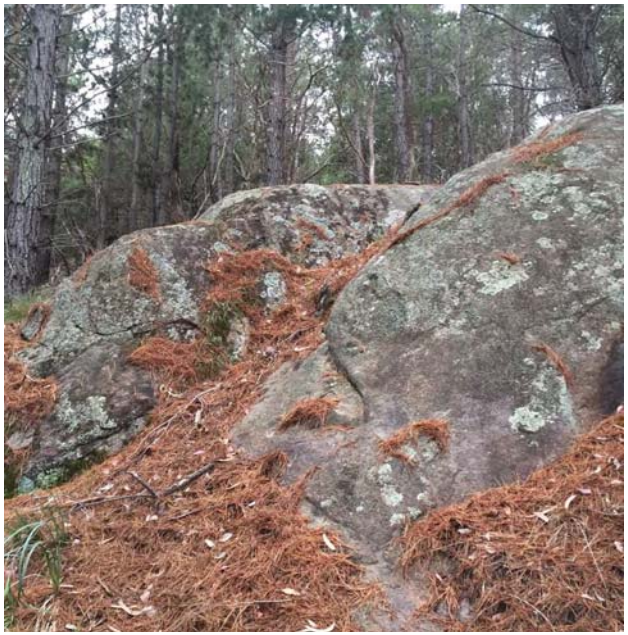
Plate 2 Southern Downhill Corridor start and entry to after the upper management track

6.2.1.2 Northern Downhill Corridor

- **Description:** Starting at a similar point to the southern corridor downhill the trail parallels the existing ridgeline management track for 250m. The trial crosses the upper management track and, the aspiration here is for the trail to split into four lines. The trial describes here is the 2nd most northerly line (Plate 3 and Appendix 8.2 - Downhill bowl alignment, Teal). Following close to the fall line the trail makes use of a large rock shelf with a 1m high rock drop-off (Plate 5) there are opportunities for B and C lines allowing for rider progression). This shelf acts as a filter for riders to identify the nature of the trail they will be riding. Making the most of the slope riders traverses the hillside riding through a series of significant rock gardens. Following these rock garden riders will negotiate a large rock rollover before negotiating a series of sweeping turns through younger pine trees. The final 100m of this trail is on a gentler slope allowing riders to slow prior to crossing the management track. The final 350m are on a more gentle slope allowing riders to cruise to the along a multi-user trail to finish point on the cut-off drain at the base of the ridge. The construction of this trail will allow for a series of other lines to be constructed to the north and south completing the braided nature of this section.
- **Length:** Identifies the total length of the trail, (and length of new build and exiting if there are existing trails used) – 250, 600, 350
- **Trail type:** Downhill only, one-way.
- **Design:** 900mm to 1.2m, between 4% and 25%.
- **Issues:** This trail has many significant rock features including rollovers, drop-offs and jumps. It has two road crossings at 250m and at 850m.
- **IMBA Rating:** Blue (intermediate) if all B and C lines are included, Black Diamond (Advanced), Double Black Diamond (very advanced).
- **Construction Rating:** 3 to 5. The top and bottom sections of this trail are relatively easy to construct. The middle section offers significant challenges including significant slopes, many rocks and significant boulders
- **Priority:** This is a priority 1 trail.
- **Cost:** The major spine of this route could be constructed for between $60 and $75 (at commercial rates). At just over 800m (above the second management track crossing) long would cost ~$60,000 and include jumps, drop-offs, some berms, significant rock gardens and rock rollovers.

Plate 3 Rock drop-off and rock garden Northern Corridor Downhill

Plate 4: Road Crossing Point for the Spine and the Northern Corridor Downhill Section



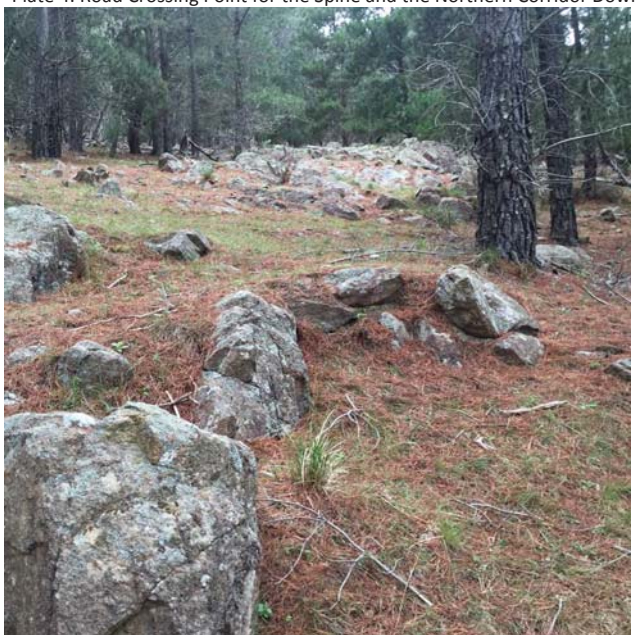


Plate 5: Examples of Rock drop-offs, rollovers and rock gardens in the Northern Corridor Downhill Section

6.2.2 Multi-use trail – The Spine loop

A multi-use spine (See Appendix 8.5) that climbs partway up the Ridge, making use of rock shelves, large trees and views to the west before it loops back towards the management trails at the bottom of the ridge (see plate 7). Designed for gentle climbing and descending, this trail is aimed at lower impact users including walkers and bicycle riders. It is not designed and should not be used as a downhill mountain bike trail.

The spine loop offers residents, walkers and cross-country bike riders an opportunity to climb the majority of the way to the top of Isaacs Ridge on a relatively gentle slope. Starting at the cut-off drain at the base of the Northern Downhill Corridor this trail makes use of the gentler slopes at the base of the ridge and follows the proposed finish to the northern downhill. Once the trail crosses the management trail it turns north and gradually climbs the ridgeline until it reaches its highest point over a large open valley three quarters of the way to the top of the ridge. Here there are beautiful views north-west over the Woden Valley and the Brindabella's (see Plate 8). The trail splits here to allow users access to the north of Isaacs or to the higher slopes of the ridge where it crosses the management track and loops back to the south taking in a higher line that then drops to complete the loop near the northern downhill corridor.

This Plan proposes construction of a section of the Spine loop referred to as the *Parallel Active User Path* (see Plate 6) as a priority two for construction as part of the first stage work. The remaining segment of trail that would form the loop is ranked as a Priority 3 and could be further developed over time based on usage patterns, land management and demand.

6.2.2.1 The Spine Loop – The Parallel Active User Path

The parallel active user path

- **Description:** The parallel active user path offers residents, walkers and cross-country bike riders an opportunity to parallel the maintenance road and equestrian trail. Starting at the cut-off drain at the base of the Northern Downhill Corridor this trail makes use of some of the gentler slopes at the base of the ridge and follows the finish of the northern downhill alignment. This trail will need signposting to identify to bicycle riders and walkers that it is shared and bidirectional trail, however, the open nature of this section of forest affords good sightlines that should allow all active users to use this trail. Once the trail crosses the management trail it turns north and gradually climb a short distance before paralleling the equestrian trail along the steep lower slopes of Isaacs Ridge cutting through numerous rock outcrops and over several small gullies. The trail traverses a large rock platform affording rewarding views back over the suburb of Isaacs. Here the trail splits to allow users access to the higher slopes of the ridge on the existing management trail, with a further linking section heading north west to service residents in the northern sections of Isaacs, taking users from the lower management trail to the rock platform identified above. This section of trail could be used to divert Canberra Centenary Trail users off the equestrian trail (See Plate 6).
- **Length:** 1300m. Linking trail is a further 600m.
- **Trail type:** Multi-use.
- **Design:** 1.2m to 1.8m, between 4% and 12%.
- **Issues:** This trail has many significant rock features, steep side slopes and several smaller gullies to cross. Given the nature of the train this trail will need to be constructed by professional trail building company.
- **IMBA Rating:** Green (easy), Australian Walking Track Standard Grade 3.
- **Construction Rating:** 4 to 5. This section offers significant challenges including significant slopes, many rocks and significant boulders
- **Priority:** This is a priority 2 trail.
- **Cost:** This trail could be constructed for between $35 and $75 per metre (at commercial rates).

6.2.2.2 The Spine Loop – continuation

- **Description:** This refers to the section of the Spine Loop that continues from the point where the parallel active user path splits continuing the trail to the higher slopes of the ridge where it crosses the management track and then loops back through the pines to the south taking in a higher line that then drops to complete the loop near the northern downhill corridor.
- **Length:** 1300m (total length of the loop is 2600m).
- **Trail type:** Multi-use.
- **Design:** 1.2m to 1.8m, between 4% and 12%.
- **Issues:** This trail has many significant rock features, steep side slopes and several smaller gullies to cross. It crosses management trails in 3 separate locations including one equestrian route twice. Given the nature of the terrain this trail will need to be constructed by professional trail building company.
- **IMBA Rating:** Green (easy).
- **Construction Rating:** 4 to 5. This section offers significant challenges including significant slopes, many rocks and significant boulders
- **Priority:** This is a priority 3 trail.
- **Cost:** The Spine Loop could be constructed for between $35 and $75 per metre (at commercial rates).

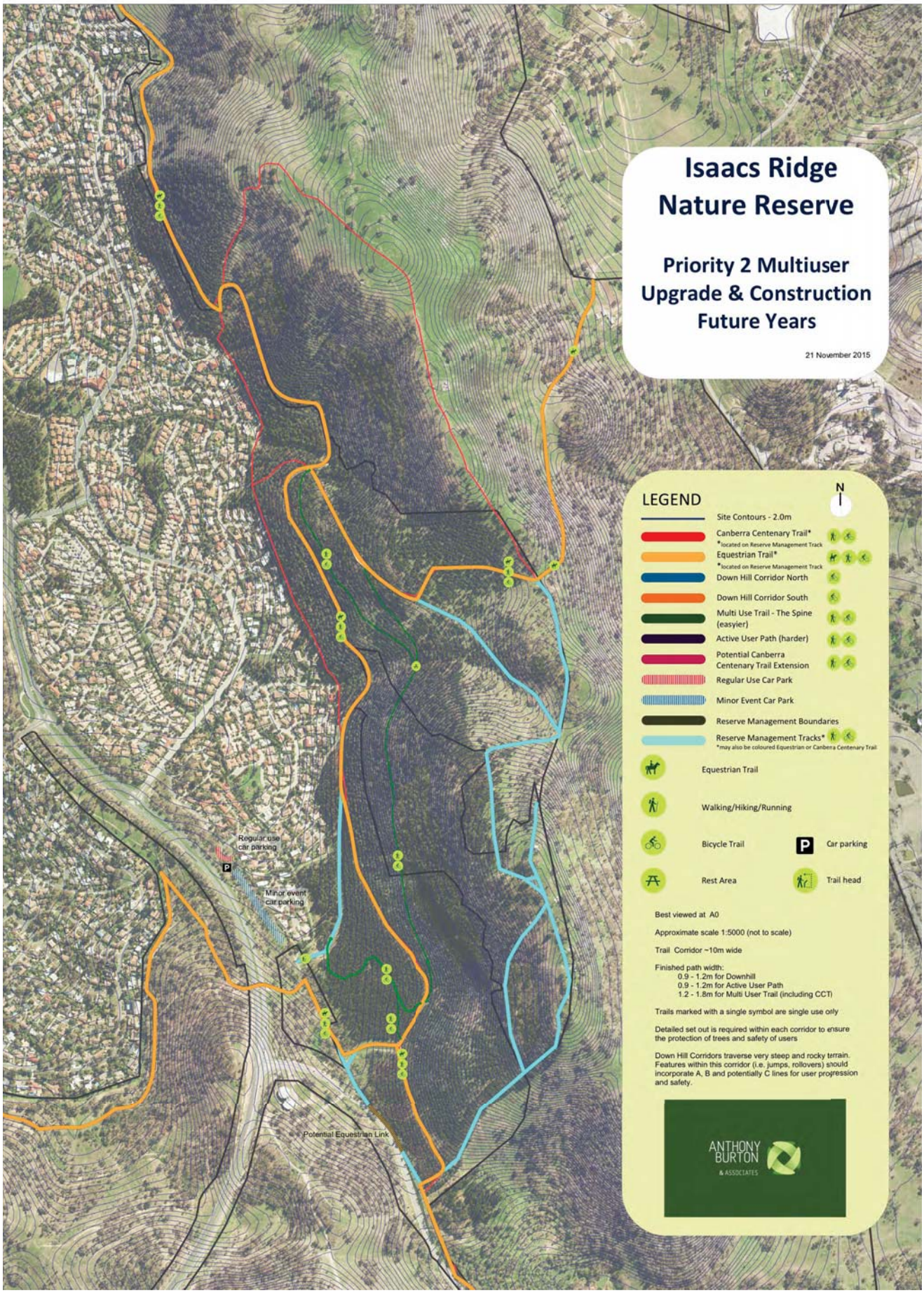


Plate 6 Parallel Active User Path

Plate 7: Typical country the both active user and the Spine would go through on Isaacs Ridge

Plate 8: Views west the Brindabella's

6.2.3 Active User trails

The active user trails include a number of more challenging cross country style recreational trails that cater for more advanced runners, walkers and bike riders (See Appendix 8.6).

- **Description:** Many of the active user trails require construction of the Spine Loop (see Appendix 8.5) and use the slope on the ridgeline to climb up and down to add a more challenging walk, ride or run.
- **Length:** up to 2500m.
- **Trail type:** Multi-use.
- **Design:** 0.9 to 1.2m, between 4% and 20%.
- **Issues:** These trails have many significant rock features, steep side slopes and several smaller gullies to cross.
- **IMBA Rating:** Blue (intermediate) if all B lines are included, Black Diamond (Advanced), Australian Walking Track Standard Grade 4.
- **Construction Rating:** 4 to 5. These sections offer significant challenges including significant slopes, many rocks and significant boulders. Construction technique for these trails should be predominately by hand to keep a more natural feel identified by the community through consultation.
- **Priority:** These are priority 3 trails.
- **Cost:** These trails could be constructed for between $60 and $75 per metre (at commercial rates). Total cost for this trail is in the vicinity of $130,000.

Plate 9 – Example of a more active trail potential finish (Alan Vogt, Kowalski Brothers TrailWorks). As well as constructed sections of trail Active User Trails will make use of existing rock features such as this.

6.2.4 Potential Extension to the Canberra Centenary Trail

The CCT Extension could occur if either the upper or lower section (the Parallel Trail) of the Spine Loop is constructed.

- **Description:** The CCT continues on from the upper section of The Spine, heading north and continuing to climb through the native sections of the Northern section of the ridge. This section has not been described in detail as it requires the construction of new trail within an area outside of the area of works and it identified as a priority 3 trail.
- **Length:** 860m (to the top of the ridge). 2000m northern face of the ridge.
- **Trail type:** Multi-use.
- **Design:** 1.8m, between 4% and 12%.
- **Issues:** This trail will need to be constructed by professional trail building company.
- **IMBA Rating:** Green (easy), Australian Walking Track Standard Grade 3.
- **Construction Rating:** 3. This section offers significant challenges including significant slopes, many rocks and significant boulders
- **Priority:** This is a priority 3 trail.
- **Cost:** The Spine could be constructed for between $35 and $45 per metre (at commercial rates). Total cost for this trail should be a maximum of $116,000. This is at the higher end of the cost estimate.

6.2.5 Equestrian Trails

All existing equestrian links within the reserve are to be retained. Trail crossing points are to be designed to ensure the safety of equestrians and other users. Further consultation with the equestrian community should be undertaken to better understand and meet their specific needs.

There is the potential for a short link between the south-eastern entry to the reserve and the lower fire road. Consideration should be given to constructing this section as a short bypass.

6.2.6 Existing management roads

Isaacs Ridge has many existing management roads, which are perfect recreational and fitness use. All of these trails should continue to be maintained to their current high standards. While not identified on the plates above these roads will be used to help make a variety of recreational loops suitable for many users including runners, walkers, riders and equestrians. Equestrian users will continue to be able to utilise the existing equestrian trails. Options for an additional equestrian trail may be further explored.

6.3 TRAIL CONSTRUCTION

6.3.1 Construction methodology and role of volunteers

Trail upgrade and construction throughout Isaacs ridge could be undertaken with a combination of professional trail builders and a team of dedicated volunteers. The preference of those who participated in the consultation was for a more natural hand built feel to the trails within Isaacs Ridge. Therefore, where possible the majority of the trails (unless otherwise specified) should be upgraded and constructed with a minimum of machinery.

The formation of a cooperative volunteer trail maintenance group (a park care group), similar to those formed for Bruce Ridge (Friends of Bruce Ridge) and Majura Pines (Majura pines Trails Alliance) is recommended. This volunteer group should undertake on-going trail maintenance. Parks and Conservation Service staff and/or trail professionals should undertake semi-regular audits of the trails to ensure that an appropriate standard of repair is maintained.

The volunteer group would primarily be responsible for the management of all non-management tracks within the reserve consistent with the Isaacs Ridge Trails Plan. In practical terms this would include the maintenance of existing trails, construction of any new trails and the closure of trails under a work plan agreed to by the land manager.

6.3.2 Initial Downhill alignments

A professional trail builder, using a combination of both machine and hand built practices, should undertake the upgrade and construction of the initial downhill alignments. Major features of these downhill trails should be constructed by professional trail builders to ensure safety and that a quality, well constructed and sustainable product is achieved. A small number of volunteer coordinators should work closely with the professional company to assist in both guiding trail design and to learn appropriate techniques for the further construction of the aspirational braided downhill trails.

Volunteer coordinators should then work closely with Parks and Conservation Service to build a core volunteer group to maintain these trails to an appropriate standard.

6.3.3 Multi-Use Trail alignment (and Possible Centenary Trail Extension)

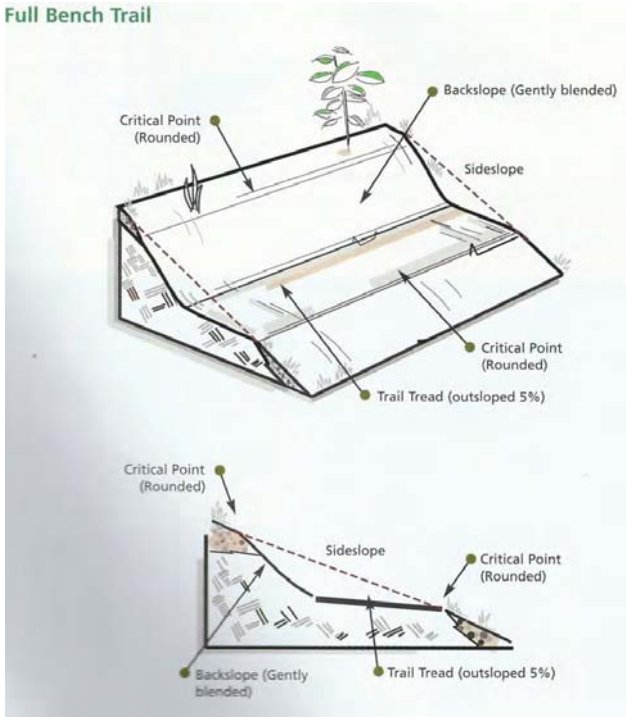
A professional trail building company should undertake the construction of the multi-use spine. This trail should be constructed with a reasonably broad tread (~1200-1500mm tread width). As it traverses steep and rock slopes it

will require mechanised trail construction to achieve an appropriate finish. The volunteer trails group would undertake ongoing maintenance of this trail. Note: The installation of bridges or other engineered infrastructure on this trail must only be undertaken by suitably qualified and licenced professional builders.

6.3.4 Earthworks and erosion control, cut and fill, retention

Trail construction requires earthworks and vegetation clearing, both of which have the potential to result in environmental harm. Therefore erosion control and cut and fill retention must be addressed to minimise negative impacts of trail construction.

- Full bench cuts require cut and fill. As the topography of the site is predominately sloping terrain, material that is cut from the upper slope should be deposited on the downslope. The cut batter should be made to a stable grade (which will depend on the soil type the trail is running through). Given all multi-use trails should be full bench trails the need for fill batter should be minimal. However, if needed, any fill batter should be well compacted to avoid erosion and slumpage. Vegetation is not to be incorporated in any fill used on any of the trails or trail features (including berms and jumps).



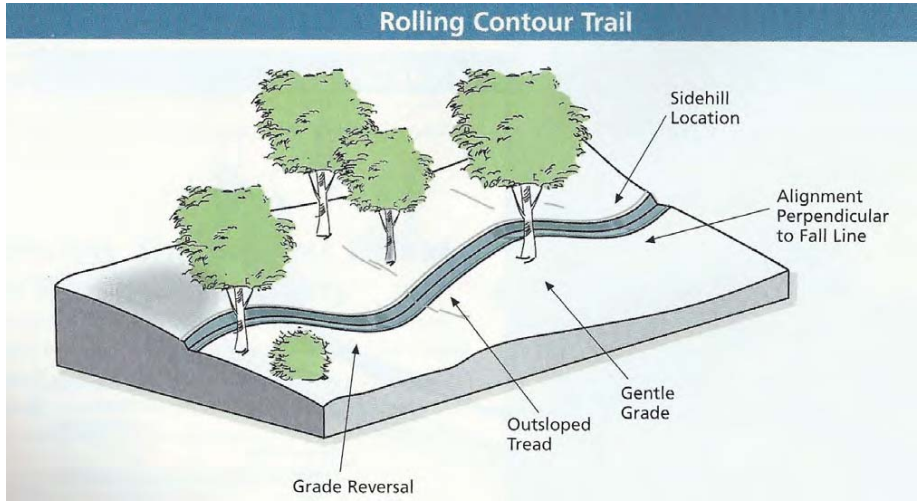


Plate 10 and Plate 12 Source: *Trail Solutions: IMBA's Guide to Building Sweet Singletrack*, International Mountain Bicycling Association (IMBA), June 2004

- Multi-use trails should be constructed using a rolling contour design to minimise the need for physical drains. A rolling contour design is a path that gently traverses a side-slope and is characterised by gentle grade reversals (undulations). The tread of a rolling contour trail has an out-slope of ~5%. If and where drains are needed, they are to be installed during construction and where the fill batter is at the lowest height (at the lowest point of a grade reversal).
- During construction water may need to be slowed down and dispersed off the side of the trail. Where this occurs the contractor and the volunteer group will need to incorporate silt traps in conjunction with ground cover (where available). This will allow sediment and nutrients to be filtered out of the water and will reduce pollution and erosion. It will be the contractors' (and where appropriate the volunteers groups) responsibility to ensure that silt traps are secured and located appropriately.
- Approvals for significant construction may require an Environment Protection Authority-approved Erosion and Sediment Control Plan.

6.4 FACILITIES

6.4.1 Car parking

Much car parking for formal event and informal usage takes place on the road verge on Long Gully Road. This informal car park located on a fast section of road and may see users cross double white lines to either enter or exit the car park. There is a very strong recommendation that this practice be actively discouraged and parking encouraged at a different location.

This plan recommends the encouraging of parking at Shepherdson Place, Isaacs. The advantages of parking in this location include:

- An existing informal parking area with space for approximately 10-12 vehicles. This area would need to be formalised to ensure that regular parking did not impact existing trees.
- There is scope to utilise the old Long Gully Road (at the head of Shepherdson Place) for proposed minor event parking. This area is currently gated, incorporates a sealed road and has parking available for between 90 and 120 vehicles. Little work will be required in this space other than the gating of the southern end to ensure that event vehicles do not encroach on the existing community path.
- Formalisation of these areas should be considered as a Priority 1 development.

6.4.2 Signage

While the trails described here are designed for local users that does not preclude the need for good signage. Good signage can be the difference between a good trail experience and a great trail experience. It provides a level of trail safely, reassures users by reinforcing their location, lets them know how to get to their destination, provides for the rules of the trail and improves overall trail experience. Good signage lets the user form a picture of an area, links area and key landmarks in a logical way, and improves person's ability to move easily and safely between locations.
Good signage provides an appropriate level of information that allows people to;

- Get to their destination safely and understand the commitment they need in terms of time and effort to get there; and
- Get more from their journey by diminishing risk and enabling them to appreciate their surroundings.

The incorporation of signage within the reserve should be considered as a Priority 1 development.

Signage needs consistency, predictability, relevance and compatibility.
The principles for design of directional signage should incorporate the application of a flexible and rational approach, within the established framework (as defined by TAMS Design Standard 13 and TAMS Design Standard 25).
There are several standards that need to be reflected in any signage strategy.

- AS 2156.1–2001 Walking tracks classification and signage provides a classification system for walking tracks and should form the basis for trail signage.
- As per TAMS Design Standard 13, signage for pedestrians and cyclists is to be sited so as to be visible and legible with particular regard to the eye height and sight lines of these users. Signage should be placed as low as possible to permit good visibility by pedestrians and cyclists
- Signage should also meet AS1742.
- Signage guidelines developed for the Canberra Centenary Trail should also be considered as many users will be familiar with this system of signage.

Signage Principles

The principles of good signage include:
Consistency

- Trail users will look for consistency between signs from one point to the next on their journey. A consistent branding, colour, shape and format will reassure the user that they are going the right way. As such the design themes are to be consistent with those used throughout lands managed by TAMS Parks and Conservation Service.
- Type face and branding of signage is to be determined by the Parks and Conservation Service but should be consistent across the entire network (preferably across the entire Park and Conservation Service)

Predictability

- Trail users will appreciate the predictable and coherent placement of signage. Users should be able to predict with confidence when and where the next sign along their journey will be.
- Signage should be located at key decision points (defined here as the intersection of two or more routes, an example of which are trail junctions and road crossings.
- Interpretative signage (where deemed appropriate) should be located at a logical position within the forest (i.e. a rest stop or particular view).

Relevance. Signage must provide information that is at least one of the following;

- User type (i.e. multi-use, single use bike, single use equestrian or walking only)
- The directional and/or distance;
- The presence of risk factors- warning signage.
- Interpretive signage, aimed at increasing the users understanding of the local environment.

- Information on the network/orientation signage.
- Information on acceptable behaviour

Compatibility - The signage must contribute to the experience of the journey and avoid sign clutter. Signage should fulfil the following criteria:

- Meet the relevant Australian Standards (AS1742)
- Be visually attractive and sympathetic to the environment;
- Incorporate information that is easily understood;
- Use simple construction and strong materials that are vandal resistant and that age well or minimally;
- Be designed to allow a person travelling less than 15km/h to understand the meaning of the sign (directional and warning signs) from 3m away; and
- In key locations, such as trailheads, be easily accessible for people with impaired mobility or vision (AS1428.1).

Plate 13: Example of small mapping signage placed at strategic locations (Bruce Ridge)

Signage Types

There are five types of trail signs that should be incorporated into the trail system:

- Information signs provide information relating to the trail and its use, including:
  - Personal safety precautions
  - Environmental protection (minimal impact practices)
  - Skill and fitness level required
  - Specific conditions.
- Descriptive signs specify information necessary for the safe and enjoyable use of the trails. Signs should be large enough to be read at some distance and may include:
  - The type of trail (e. g. loop, or recommended direction)
  - The effect of weather conditions (i.e. trails may be slippery when wet)
  - Elements of interest, trail conditions or difficulties (e.g. facilities, slippery rocks)
  - The opening and closing hours of the trail

- The distance to designated point
- An estimated completion time
- The direction of the initial course of the track
- A graphic image/map for orientation.

- Interpretive signs add interest to the trail and conveys educational material about the reserve. The inclusion of interpretative signage along the trails within Isaacs ridge (particularly the downhill trails) is considered a lower priority but will provide interest for casual users on the shared use trails and the Canberra Centenary Trail.
- Warning or risk signs play an important role in risk and safety management of recreational areas such as trails for three principal reasons:
  - They inform users of dangers, safety issues and other relevant information
  - They offers some protection to the land manager who is required to warn users of dangers, prohibitions and other safety information
  - Further investigations through design and construction will determine specific locations for warning signage along the trail alignments.
  - Warning or risk signs advise users to particular danger or risk and should include the following information:
    - Appropriate pictogram identifying the hazard
    - statement of danger or hazard
    - statement of consequence
    - statement of precautionary action.

- Regulatory and code of conduct signs.
  - Regulatory signs specify legal requirements and regulations associated with the use of a trail.
  - Code of Conduct Signage
    - Recognising that users will join the trails at any number of points, distance and direction signs should be installed at all trail entrances. This will provide information to users joining the trail at locations other than at trailheads and will provide additional information for users already on the trail.
    - The full code of conduct signage should be installed the nominated trail head to inform all users about appropriate behaviour when sharing the trails to alleviate potential conflict between different trail users - i.e. cyclists give way to pedestrians and equestrians (when appropriate).

Trailhead Signs

TAMS have recently installed trailheads at Majura Pines and Bruce Ridge. These trail heads inform users of activities, code of conduct, the nature of the reserve and provide maps to the area. These trail heads should form the basis for trailhead signage within Isaacs Ridge.

6.4.3 Rest areas and viewing platforms

A series of low-key, rest areas placed within the reserve to allow users to rest, enjoy the view and socialize. It is anticipated that these facilities should take the form of informal seating arrangements, such as strategically placed logs and rock rather than more formal benches and tables. Consideration to the visual appeal of the site and the location of trail facilities should be given when siting rest facilities.

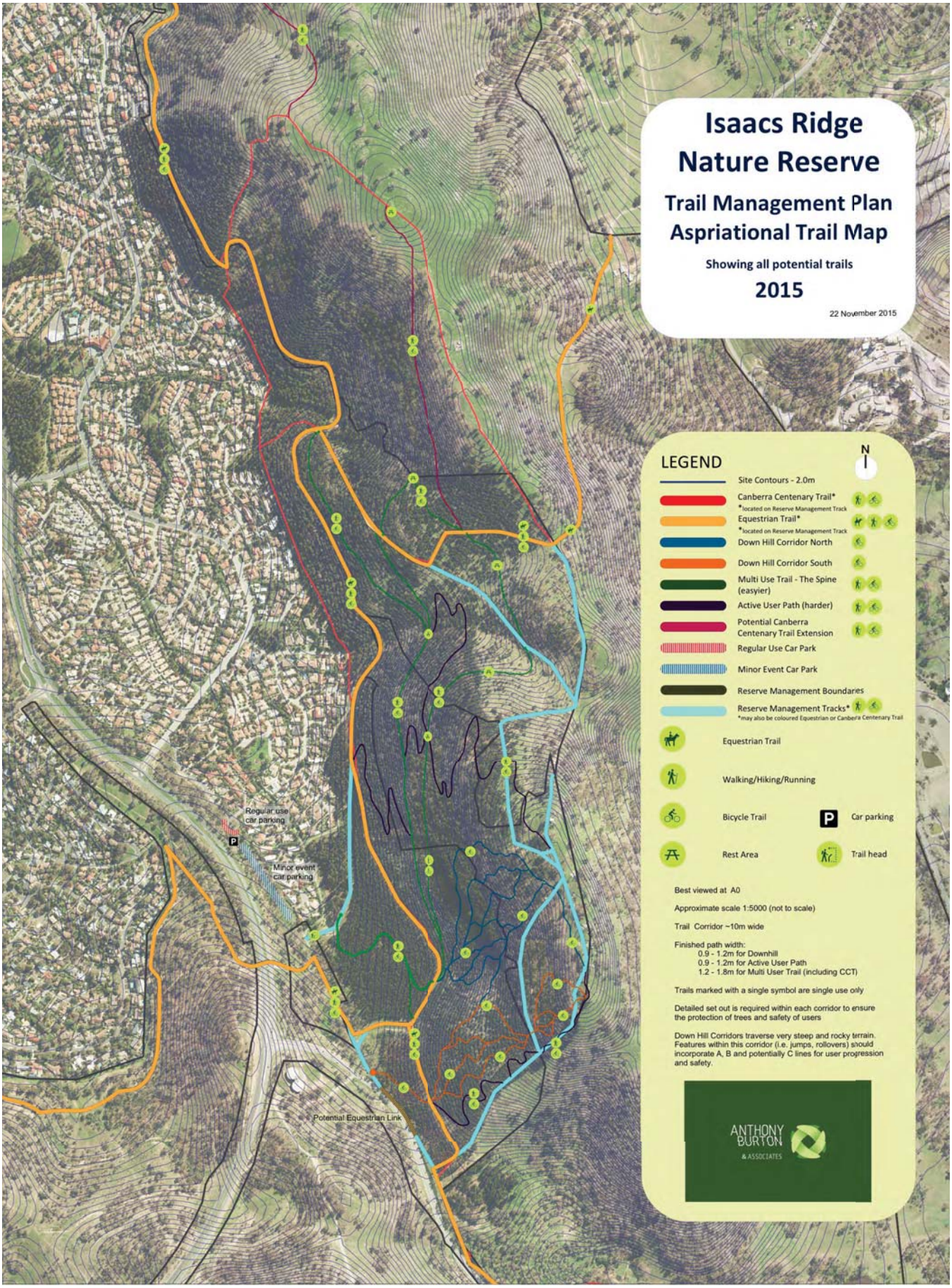
7 CONCLUSIONS

There is clearly a strong level of community support for the development of appropriate fair and equitable trails within Isaacs Ridge. The easily accessible, disturbed and sloping nature of the site, is of particular interest to active recreational users. This means that the is a demand for equestrian trails, walking, hiking and running paths and for opportunities for cross country and downhill mountain biking.
The next steps are the:

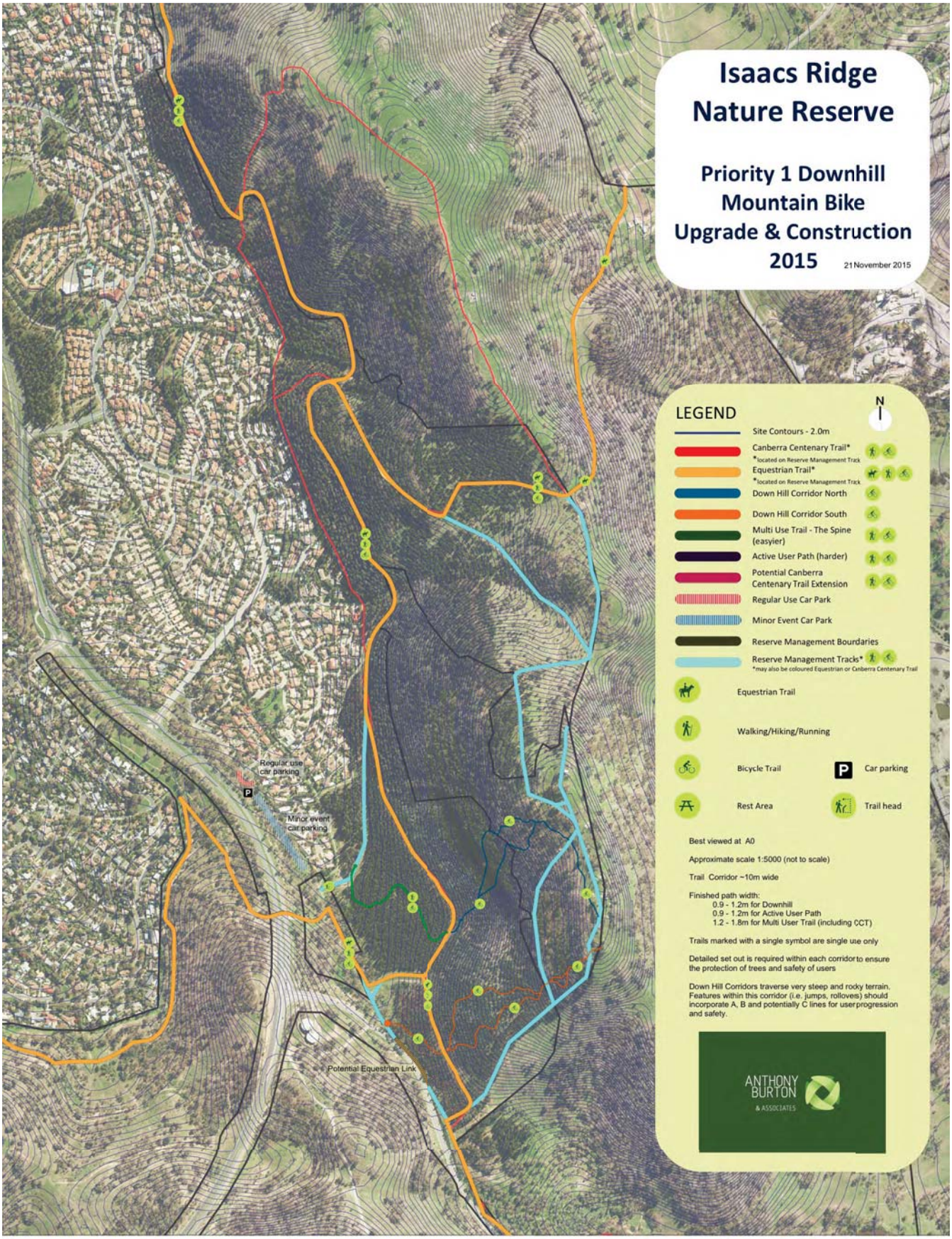
- Agreement by government and the community to the recommendations of the Isaacs Ridge Trails Plan;
- The engagement of the community to take the Trails Plan forward and implement its recommendations (including the formation of a volunteer based trails management group);
- Engagement of a suitably qualified and experienced contractor to undertake construction works; and
- The development of an implementation schedule that identifies:
  - All priority 1 recommendations, particularly the formalisation of safe and appropriate car parking, and downhill trail infrastructure should be undertaken as part works funded in the 2015/16 financial year.
  - All priority 2 and aspirational recommendations be should considered as part of this implementation schedule in the first year (if there is available funding) and, if there is no available funding in 2015/16 be undertaken (subject to funding and community support) in the out years.

8 APPENDIX

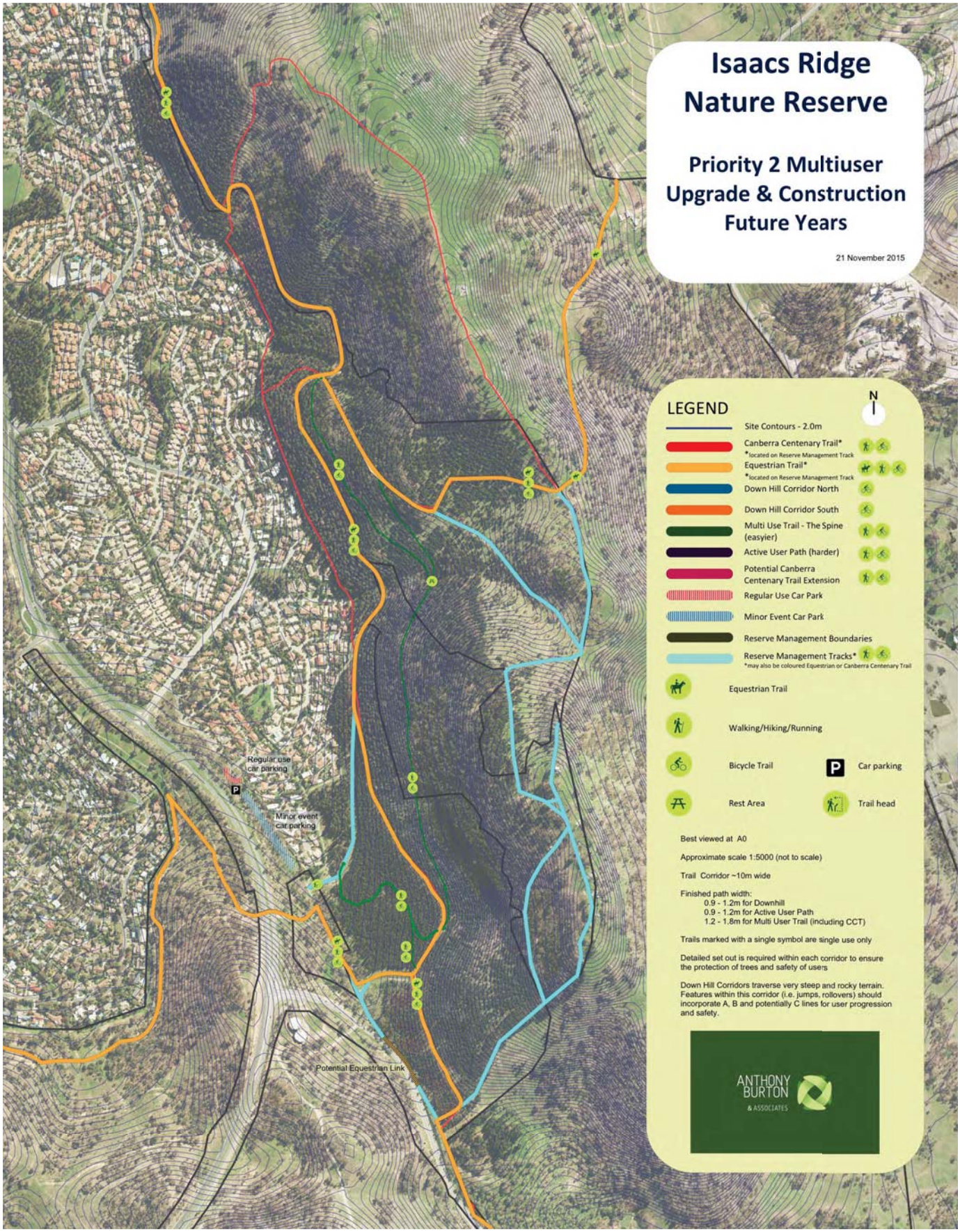
8.1 TRAILS PLAN - ASPIRATIONAL



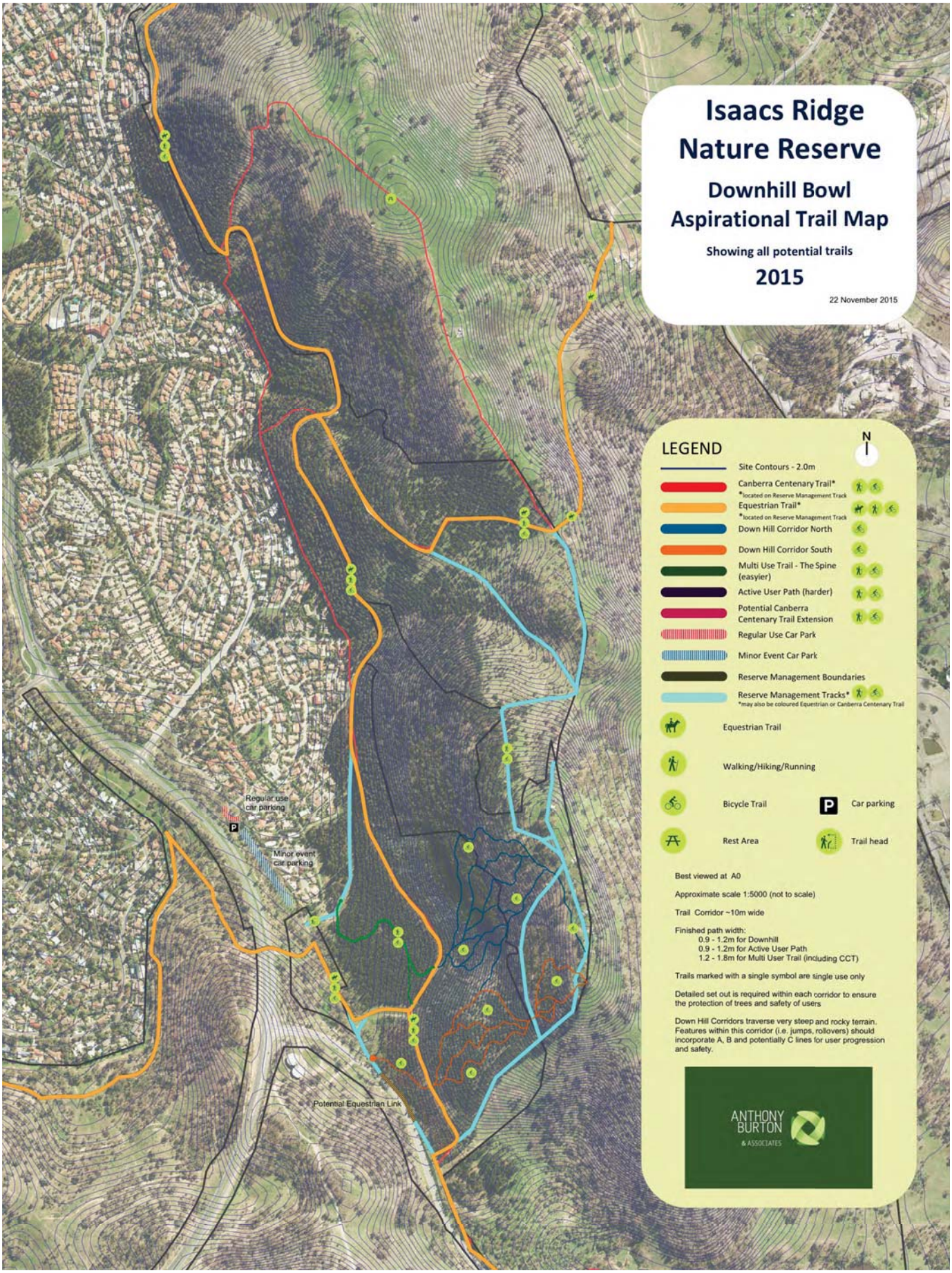
8.2 PRIORITY 1 DOWNHILL TRAILS



8.3 PRIORITY 2 MULTI-USE TRAILS

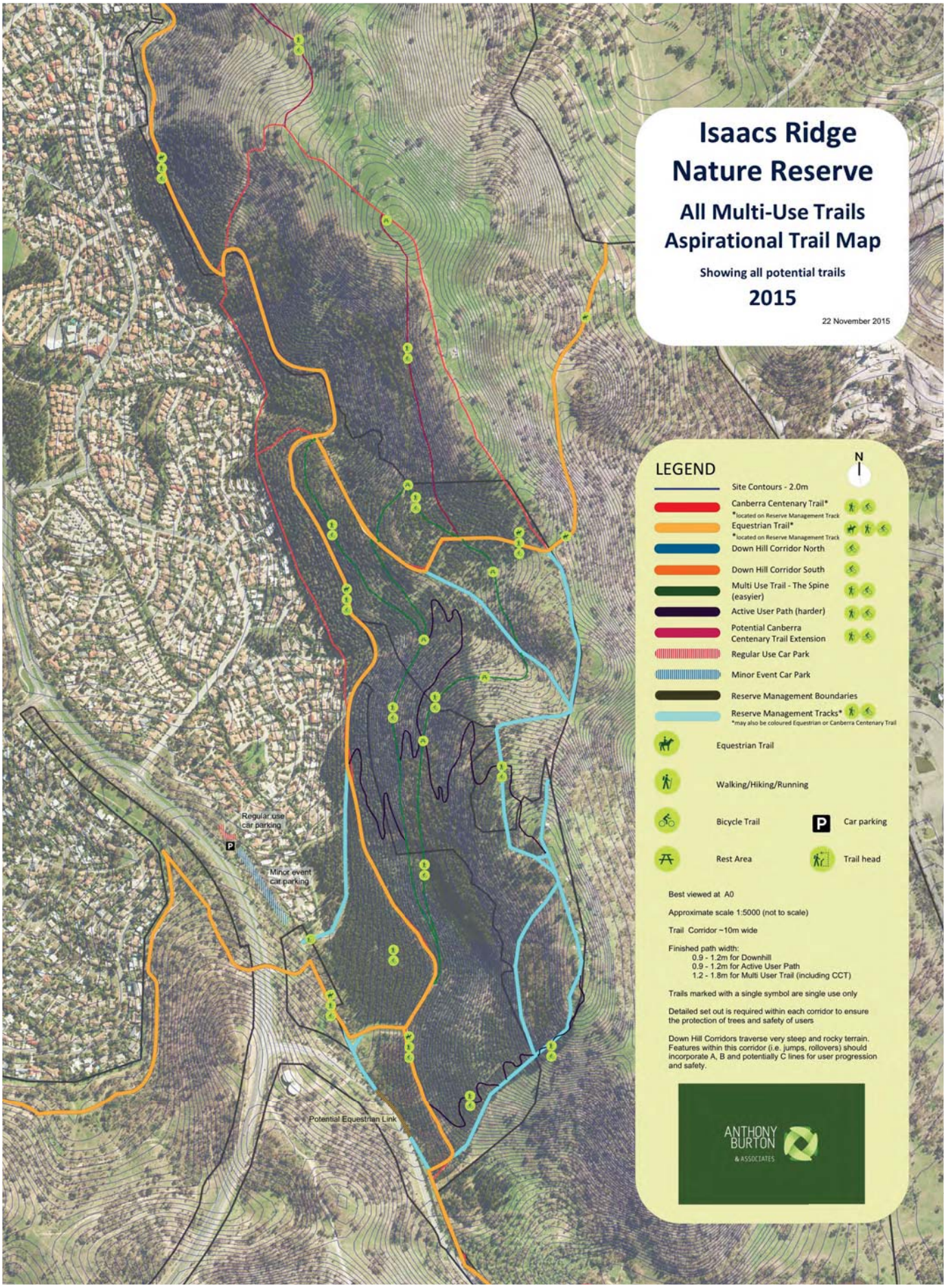


8.4 ASPIRATIONAL DOWNHILL TRAILS



8.5 THE ISAACS SPINE LOOP – Aspirational Multi-Use Trail

8.6 ASPIRATIONAL MULTI-USE TRAILS



8.7 CONSULTATION REPORT

9 REFERENCES

[1] Watson H, Tanner K. Consultation Report Isaacs Ridge Mountain Bike Trail Upgrade Project. Canberra: Territory and Municipal Services, 2015.
[2] Burton AJ. Isaacs Ridge Recreation Facility Community Engagement and Concept Plan. Canberra: Anthony Burton & Associates, 2014.

Further references including, but not limited to, the following were used to inform the plan but are not specifically referenced throughout the plan:

- Managing Mountain Biking: IMBA's Guide to Providing Great Riding
- Sustainable Recreational Trails - Guidelines for the Planning, Design, Construction and Maintenance of Recreational Trails in South Australia
- Integrating trail condition assessment with recreation demand modeling of mountain bikers in the Research Triangle, North Carolina
- Trail Solutions: IMBA's Guide to Building Sweet Singletrack
- IMBA – Australia Trail Difficulty Rating System, IMBA – Australia 2012
- Bike Parks: IMBA's Guide to New School Trails
- Design Standards for Urban Infrastructure 25: Urban Park and Open Space Signage, 2009
- Australian Standard Walking tracks Part 2: Infrastructure design
- Cycle Trail Design Guide
- Equestrian Design Guidebook for Trails, Trailheads and Campgrounds