



Toowoomba and Lockyer Valley Escarpment Mountain Bike Master Plan

Toowoomba Regional Council & Lockyer Valley Regional Council
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Document Overview

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1 Executive Summary

Over the past several years, mountain bike riding has continued to experience exponential growth; including significant growth in mountain bike tourism across Australia. Despite this growth, the supply of high-quality, formal mountain bike infrastructure development has failed to pace with growing user numbers, with many riders turning to informal trail development as a way of accessing the volume and style of trails they wish to ride.

Dirt Art has been engaged by the Toowoomba Regional (TRC) and Lockyer Valley Regional (LVRC) Council's to undertake a consultancy and design project, investigating the potential for further mountain bike trail development on the Toowoomba Escarpment. The project has investigated existing formal and informal trails, trail usage patterns, and has undertaken extensive consultation to establish current demand and usage patterns. Land manager, stakeholder and community consultation has formed a significant component of the project, with the final recommended developments reflecting community wants and needs.

Key project tasks included:

- Identify, assess, ground-truth and GIS map trails (through review of existing network and proposing new trails) and supportive infrastructure required to enable region to become a nationally significant mountain biking destination
- Identify potential sites for, along with a high-level concept plan for a major 'bike hub' at Withcott
- Identify, assess, ground-truth and GIS map the TET trail (and b-line where appropriate) along the Toowoomba urban fringe
- Undertake a high-level economic feasibility for mountain bike tourism
- Develop a set of guiding principles and a standard process for developing and maintaining trails
- Develop recommendations / solutions for creating a crossing over the Warrego Highway
- Identify and review of uplift shuttling options
- Identify and review options for accessing non-Council land (e.g. acquisition, leasing, easement or other forms of tenure)
- Develop project cost estimates
- Undertake community consultation
- Undertake TRC Councillor Information Session and LVRC Councillor Workshop presentations on draft report

The Toowoomba Escarpment area offers a compelling opportunity for development as a major mountain bike destination, with a range of key attributes that would contribute to the potential success of the project, including but not limited to;

- Elevation opportunities
- High-quality views and natural environments
- Availability of services and amenities
- Proximity to major population areas
- Climate

A glaring lack of high-quality mountain bike destinations in Queensland (particularly South East Queensland), is a major contributor to the potential of the project. Unlike most other states, Queensland arguably does not have any mountain bike destinations that would be considered genuinely nationally-significant.

The project has targeted the development of a wide range of new trail projects, focusing on the following key trail types;

- Stacked loop trail opportunities
- Trails maximising vertical descent
- Trails that cater for beginner and advanced audiences
- Trails that provide potential for the hosting of a wide range of local, state, national and international events

The project proposes to develop a network of new trails and corresponding infrastructure that will establish the Toowoomba Escarpment as a nationally-significant mountain bike destination. With the correct delivery approach and supported by a high-quality marketing campaign, *Dirt Art* believe Toowoomba has the potential to attract significant mountain bike visitation.

Dirt Art has carefully considered the present and future expectations, wants, and needs of the mountain bike visitor market to determine trail types, access nodes and recommended amenities and facilities that will maximise visitation and length of stay. The proposed master plan has been structured to provide maximum economic benefit opportunities to both TRC and LVRC municipal areas, and principally the towns of Toowoomba and Withcott. This has been achieved through the proposed development of;

- A diverse network of high-quality trails
- Enough trail volume to attract multi-day stays
- In demand trail experiences
- Visitor access nodes that directly interface with commercial services such as food and beverage and accommodation suppliers
- Showcasing strong natural values and appealing environments

The estimated economic impact of the project is as follows;

VISITOR TYPE	SPEND	VOLUME	TOTAL
Day	\$ 40.00	25000	\$ 1,000,000.00
Visitor nights	\$ 190.00	50000	\$ 9,500.00
		Direct Impact	\$ 10,500,000.00
		Indirect Impact (1.9x multiplier)	\$ 20,055,000.00

The report proposes a clear pathway towards developing a truly world-class network of trails, that will elevate Toowoomba to one of Australia's most recognised mountain bike destinations.

2 Introduction

2.1 Project Overview

Dirt Art has been engaged by TRC and LVRC to develop a mountain bike trail master plan ('the plan') that will guide the future management and development of mountain bike and shared use trails on the Toowoomba and Lockyer Valley Escarpment. The plan aims to provide a pathway towards development of a broad range of mountain bike experiences that will cater to local wants and needs, while also attracting significant interest and visitation from non-local riders.

2.2 Key Objectives

The key objective of this report is to develop a mountain bike plan that;

- Defines Toowoomba and Locker Valley's current place within the Queensland mountain bike destination industry
- Considers the social and community values of the target area
- Is environmentally sensitive and sustainable
- Provides cost-effective construction conditions
- Minimises land tenure complexity, and streamlines assessments and statutory approvals
- Maximises direct and indirect economic opportunities and benefits
- Provides maximal community benefit and engagement

2.3 Methodology

The project has engaged the following methodology;

2.3.1 Literature Review

A summary of all reports and relevant literature reviewed can be found in Section 3.2. The following reports were reviewed;

- Toowoomba Regional Council - 2010 Regional Strategic Sport and Recreation Plan
- Toowoomba Regional Council - Draft Sport, Active Recreation & Healthy Living Plan 2019-26
- Toowoomba Regional Council - Framework for Ecologically Sensitive Development of Natural Areas in the Toowoomba Region
- LVRC Sport & Recreation Plan
- Toowoomba Mountain Bike Club Strategic Plan
- Toowoomba Jubilee Park Protected Flora Report
- Queensland Mountain Bike Strategy

2.3.2 Consultation

Dirt Art has undertaken significant consultation through the project. A list of groups, organisations and individuals consulted with can be found below.

Consultation included;

- A public survey
- Community workshops
- Stakeholder workshops
- Stakeholder site visits
- One-on-one workshops

A detailed consultation summary can be found in Section 11.

2.3.3 Field investigation

2.3.3.1 Overview

Field investigation of existing and potential development areas was undertaken by *Dirt Art* staff between the 26th June and 9th November 2019. This field investigation included ground truthing of new proposed trails.

This field investigation involved the assessment of existing trails, including, formal mountain bike trails, informal mountain bike trails, and walking trails.

Field inspection has also been undertaken to develop concept trail alignments, which has involved the assessment of a number of potential development sites.

A detailed summary of existing trails can be found in Section 10.

2.3.3.2 Concept trail development

Using a comprehensive opportunities and gap analysis, a number of concept trail alignments have been prepared. These alignments aim to address key network gaps, as well as opportunities for establishment of high-quality trail experiences. Concept trail alignments have been developed in areas that provide the lowest possible conflicts with environmental, historical and cultural values.

Dirt Art utilised extensive desktop analysis and in field investigation to where possible avoid areas with high environmental values, including the avoidance of mapped areas of dry rainforest.

A detailed summary of the concept development process can be found in section 10.

2.3.3.3 Ground truthing

Ground truthing of all trails has been completed to establish the viability and quality of all proposed trails. The ground truthing process was completed between 4th-9th November.

The ground truthing process involved the adjustment of some initially proposed trail concepts.

3 Background Analysis

3.1 Overview

Dirt Art has undertaken a comprehensive background analysis for the project. This analysis has included review of a wide range of existing documents, plans and survey data.

3.2 Previous Key Reports

3.2.1 Toowoomba Regional Council- Regional Strategic Sport and Recreation Plan

Report title	Toowoomba Regional Council- Regional Strategic Sport and Recreation Plan
Author/s	Ross Planning
Date	May 2010

The project recommends a terrain park be developed within Jubilee Park; the park is proposed to service mountain bike trails and parkour users. While Dirt Art support the ongoing development of Jubilee Park as a major mountain bike hub, the proposed development caters for an incredibly small audience and is not considered a development priority for the site.

3.2.2 Toowoomba Regional Council - Draft Sport, Active Recreation & Healthy Living Plan 2019-26

Report title	Toowoomba Regional Council - Draft Sport, Active Recreation & Healthy Living Plan 2019-26
Author/s	Otium Planning Group
Date	2019

The Sport, Active Recreation & Healthy Living (SARHL) Plan 2109-26 identifies mountain biking as one of the top 10 outdoor recreation pursuits across most ages and genders. The SARHL Plan 2019-26 also identifies that Jubilee Park and Redwood Park 'meets the criteria', and are suitable parks for mountain biking to occur.

3.2.3 Toowoomba MTB Club Strategic Plan

Report title	Toowoomba Mountain Bike Club Strategic Plan
Author/s	Various
Date	2019

The Toowoomba Mountain Bike Club have a long history of supporting trail development and maintenance within the target area. The club has developed a strategic plan, which outlines key objectives for trail development across the next 5+ years.

Dirt Art has reviewed the plan and broadly supports the concepts proposed by the club, with some minor revisions to improve network functionality in a tourism context. In the interests of developing a consistent strategic approach, the proposed concepts have been incorporated into this master plan.

3.2.4 Toowoomba Jubilee Park Protected Flora Report

Report title	Toowoomba Jubilee Park Protected Flora Report
Author/s	Red Leaf Environmental
Date	May 2018

The Toowoomba MTB Club engaged Red Leaf Environmental to undertake a flora report for the Jubilee Park as requirement for proposed future trail development.

The report notes that the Jubilee (and Redwood) Park areas fall within the Protected Areas Trigger Map, and as such require additional flora studies and legislated processes prior to commencing trail construction. The report notes that there were no protected flora species found within the area of the proposed trail and as such, no further action (beyond formal notification) was required.

3.2.5 Queensland Mountain Bike Strategy

Report title	Queensland Mountain Bike Strategy
Author/s	Common Ground Trails
Date	May 2018

In 2018, Mountain Bike Australia (MTBA) commissioned a state strategy to provide a framework for ongoing mountain bike development and management in Queensland.

The report notes that mountain bike trails in South East Queensland trail networks have received between 50-300% growth across the past three years, showing the significant demand for mountain bike trail opportunities.

The report discusses the concept and requirements of a trail town. Notably, all recommended requirements and attributes of a trail town are readily available for the Toowoomba Escarpment project.

The report notes that the Toowoomba Escarpment and the broader region has good opportunity and deliverability for future mountain bike trail development. Notably, the report and project were high-level in nature, and did not move to the level of assessing specific on-site opportunities or characteristics.

3.2.6 TRC Open Space Strategy 2016

Report title	Toowoomba Regional Council Open Space Strategy
Author/s	Toowoomba Regional Council
Date	February 2016

The report provides a strategy document for the management of open space within the Toowoomba Region. Key extracts from the report include;

- Recreation: Open Space supports both passive and active recreation and leisure providing an opportunity to experience and appreciate nature
- Bushland areas: The report notes; *Bushland parks offer a recreation function that can be supported through the integration of basic facilities such as parking, signage, trail establishment etc. There are also active recreation roles that integrate well with retention of bushland such as mountain bike trails and endurance orienteering.*

3.2.7 TRC Trails Network Strategy 2016

Report title	Trails Network Strategy
Author/s	Tredwell
Date	August 2016

The report provides a high-level regional trails strategy or the Toowoomba Region. Key extracts from the report include;

- Benefit of trails: the report notes the significant community benefits associated with trail networks
- Extreme to mainstream: The report notes a shift of adventure-based sports (such as mountain biking) from extreme to mainstream
- Trail access: the report notes that 50km of trails are currently accessible to mountain bikes in the Toowoomba Region
- Point-of-difference: the report notes that the regions point of difference for mountain biking is its terrain, which is suitable for all styles of riding (including downhill)
- The Toowoomba Escarpment Trail (TET): the report recommends progressing the TET, beginning with trail sections that are easiest to implement

3.2.8 TRC Framework for Development of Ecologically Sensitive Areas in the Toowoomba Region

Report title	Framework for Development of Ecologically Sensitive Areas
Author/s	Redleaf Environmental
Date	August 2016

The report provides a framework for assisting in the development of ecologically sensitive areas. Key extracts from the report include;

- Objective: The objective of the framework is to ensure that natural areas are managed and developed in a way that maintains their ecological integrity while allowing for low impact or nature-based recreation opportunities for the community
- Natural values assessment: the report notes the importance of comprehensive natural values assessments prior to undertaking development

3.2.9 LVRC Sport and Recreation Plan

Report title	Lockyer Valley Sport and Recreation Plan
Author/s	Lockyer Valley Regional Council
Date	Current

The report provides a high-level regional recreational plan for the Lockyer Valley Region. Key extracts from the report include;

- BMX: the report notes that there are currently no BMX racing facilities in the municipality, and that there is a group hoping to form a club in the region to undertake this type of racing. Should this club be formed, they will require an appropriate facility to undertake this activity.
- Withcott: the report notes a number of recreational assets in the town of Withcott. While none of these existing or proposed facilities is mountain bike-focused, none of these facilities will be adversely affected by the proposed mountain bike trail development.

4 The Mountain Bike Market Overview

4.1 The Mountain Bike Market - National and Local

4.1.1 Overview

The following market profile draws upon research and anecdotal observations from a wide range of sources. The information draws heavily upon the Australian Mountain Bike Market Profile Survey, undertaken by *Dirt Art* in 2014, 2016 and 2018.

4.1.2 History

Mountain biking has been well established in Australia since the early 90's, though the sport only really began to prosper in the mid-late 90's, which saw a period of some of the first purpose-built mountain bike infrastructure in Australia. In 2004 some of Australia's first large-scale mountain bike parks were developed, namely Glenorchy Mountain Bike Park in Tasmania and Mount Stromlo in Canberra. Prior to these developments, mountain biking was taking place largely on existing walking trails and on informal trails created by the riders themselves.

Between 2005 and present day there have been significant advances in mountain bike technology, which is contributing to defining the type of riding experience achievable for and desired by riders. While some trends in riding have come and gone, the disciplines of downhill and cross-country have remained albeit with some blurring between these styles of riding with the emergence of the all-mountain and enduro bicycle.

4.1.3 Current market

The current mountain bike market is dominated by longer travel, dual suspension mountain bikes, broadly referred to as all-mountain, trail, or enduro bicycles. This style of bike is incredibly capable at both climbing and descending and has effectively increased the capability of the average rider.

Currently riders are seeking a broad range of experiences from local urban and peri-urban trails through to remote wilderness style longer distance riding experiences. Generally speaking, the mountain bike tourist market is seeking adventure experiences in more remote natural environments, involving longer distance loops or point-to-point trails. Trails proximate to urban areas are typically most popular with local riders because of their accessibility and convenience, though may be ridden by visitors drawn to an area for other experiences.

Research indicates that the current demographic of riders is predominately male, with an age of 25-45 years and a high disposable income.¹ This market is a key target for tourism as they are seeking longer, 'destination-based' stays and typically seek out high quality dining and accommodation options.

4.1.4 Current participation and economic data- Australia

Current participation data for mountain biking in Australia is distinctly lacking due, in the main, to the nature of the activity itself. However, as new commercial venues emerge more data is becoming available. Traditionally the recording of trail usage numbers has been a relatively rare practice, though in a current climate often characterised by particularly frugal government and corporate investment this practice is increasing being used to justify investment in trails. Sample data from some of Australia's key mountain bike destinations can be found below;

Maydena Bike Park (Tasmania) Maydena Bike Park is Australia's largest gravity-focused bike park, with 80km of trails suiting a predominantly enduro market. The park has hosted 25,000 uplift days and brought an estimate total 35,000 visitors to the town in its first year of operation. With a broadening focus towards trail-based riding and beginner friendly trails, visitation at the park is likely to increase significantly through later years.

Blue Derby (Tasmania) Blue Derby is Australia's highest profile mountain bike trail destination, with a focus on intermediate trail riding with limited up-lift opportunities. Derby has been in operation for close to 5 years, and reportedly hosted over 30,000 riders in 2018. The town is seeing a dramatic transformation, with several new business opening across tour, retail and food and beverage sectors.

Mount Buller (Victoria) have invested over \$2m over a four-year period in developing predominantly all-mountain and cross-country mountain bike trails. Data for the resort (as of June 2014) recorded a total rider count of 40,000 – 50,000 visitors over a nine-month period.²

You Yangs (Victoria) have recorded rider numbers of approximately 150,000 per annum in 2011, though a higher true count is expected due to the various entry points used for the park.³

¹ Koepke, J. (2005) Exploring the Market Potential for Yukon Mountain Bike Tourism, Cycling Association of Yukon, Canada, page 5.

² September to May, private communication

³ Data provided by Parks Victoria staff July 2011.

4.1.5 Current Participation and economic data - Southern Hemisphere

Internationally, New Zealand is Australia's closest competitor in the mountain bike tourism market. While New Zealand offers a significant volume of trails, not all trails are necessarily of a world-class standard, often involving poorly constructed volunteer-built trails, fire trails and access roads to add volume to trail distances. Examples of participation in an international context can be seen below;

Rotorua (North Island, New Zealand) is perhaps New Zealand's most recognised and loved mountain bike destination. The 150km+ trail network is regarded around the world for its fast, flowing trails through a working pine forest. Research by APR consulting found that approximately 33% of visitors to the forest in 2007 were Australian.⁴ It was recently reported that mountain bike activity in Rotorua is generating \$10.2m per annum, as opposed to the \$4.6m (one time) in export revenue potentially generated by logging the forest.⁵

Queenstown (South Island, New Zealand) is one of the Southern Hemisphere's leading mountain bike destination. Queenstown has a gravity-based bike park (Skyline Queenstown), along with a number of other regional cross country and all mountain trails. The region is renowned for its iconic long-format descending trails, such as Rude Rock, Corrotown and Skippers Canyon.

A 2017 report by TRC Tourism found that mountain biking contributed over \$25m per year to the local economy.

4.1.6 Current participation and economic data - Northern Hemisphere

Whistler Mountain Bike Park (Canada) is arguably the world's most recognised mountain bike park, offering one of the highest volumes of trail in one venue anywhere in the world. The Whistler Bike Park received approximately 200,000 riders per year (through its green season), but it is estimated that a similar volume of users rides the surrounding valley trail network annually.

A 2016 report commissioned by the Whistler Off Road Cycling Association (WORCA) found that mountain biking contributed over \$79m p.a. to the regional economy of British Columbia. The report also found that over 500,000 individual rides were undertaken in the region in 2016.⁶

Park City, Utah (United States of America) offers hundreds of miles of single-track across a number of riding areas. All riding styles are catered for across public trails, and commercial gravity-based bike parks. This IMBA Gold level mountain bike destination received over 1m visits in 2014.

⁴ Recreational Use and Economic Impact of Whakarewarewa Forest (2009 Update), APR Consultants

⁵ The New Zealand Herald January 17th 2012, Bikes bring more money than wood from Rotorua forest

⁶ CSTA Economic Impact of Mountain Biking 2016

Oregon (United States of America) has a significant cycle tourism industry. Cycle tourism (predominantly mountain biking) was worth over \$400m to the state in 2013, with cycle tourist spending on average 20% more than general tourists.⁷

4.1.7 The future

4.1.7.1 General

The sport of mountain biking has continued to see sustained and exponential growth both in Australia and overseas. With current demand for high-quality riding opportunities still far exceeding supply, there exists significant potential to see excellent return on investment when developing world-class mountain bike trails and facilities.

Dirt Art suggest that the all–mountain category of riding will continue to grow, resulting in an increasing demand for more challenging, descending-focused riding. *Dirt Art* suggests that the next five years will see a huge increase in demand for chairlift or shuttle accessed descending cross–country and all–mountain trail experiences. Many of the major recent and underway mountain biking trail developments focus on these experiences (e.g. Mt Buller Epic, Hollybank Juggernaut, Blue Tier, Derby’s Black Stump Shuttle Trails, Thredbo AM Descent and Valley Trail) which are reflective of the increasing demand for this style of descending cross–country / all–mountain trail.

4.1.7.2 E-bikes

While traditional bike technology is likely to continue to stabilise, the rapid emergence of the E-bike is likely to have a significant impact on the sport. In *Dirt Art’s* view, E-bikes will never replace the traditional mountain bike, but as technology improves the bikes will become a much more common feature on the trails. E-bikes make the sport more accessible to newer and less-capable riders and increase the ride duration and the accessible elevation range for more experienced riders.

The growth in use of E-bikes will have a distinct benefit to areas such as the West Coast, as vast landscapes and large mountains will typically result in longer climbs and commutes. E-bikes will allow riders to access significant elevation ranges without the need for vehicle shuttles (most E-bikes will provide pedal assistance for up to 2,000 metres of climbing).

It is important to recognise the distinction in E-bikes between high-powered throttle assisted bikes and lower-powered pedal-assisted bikes. Pedal assisted bikes have no additional impacts on trails, whereas throttle powered bikes are illegal in most public areas and will cause significant additional damage to trails.

The trail network proposed for the Toowoomba project has been developed to cater for E bikes, future proofing the trail network should this category of bikes continue to grow.

⁷ Information provided by Destination Oregon.

With numerous sustained climbs and descents, the proposed network will have strong appeal for E-bike riders.

4.2 Mountain bike tourism

4.2.1 Mountain bike tourism markets

Tourists engaging in mountain biking can be divided into two distinct categories, the 'complementary market'; those who engage in mountain biking as a complementary activity (not as a primary motivator or sole purpose for travel), and the 'enthusiast market' those who have travelled with mountain biking being the primary or sole reason for their trip.

4.2.2 Complementary mountain bike tourism markets

Mountain bike riding as a complementary activity has risen dramatically in popularity in recent years, as the sport has moved beyond the 'extreme sport' image of the past, and more towards the accurate perception of the sport as a safe, inclusive and fun 'adventure' activity.

Complementary visitation is a key component of a successful government-backed mountain bike destination as it allows the capture of a much larger target audience, and promotes longer stays, and increased travel party size. Complementary tourists include valuable family markets, who will often stay longer and spend more than solo and small group tourists.

The emergence of mountain biking as a commercially viable complementary activity has been driven largely through the development of safer, more beginner-friendly trails, and by the growing number of commercial operators including the sport in their activity programs. Commercial viability of mountain biking as a complementary activity requires a lower volume of trail than for the enthusiast market, though the required quality and maintenance demand of trails will be higher. As a complementary activity, mountain biking offers genuine avenues for commercial return, while also potentially lengthening the duration of stay for existing guests. In addition to this, targeted marketing may draw in guests that may otherwise have travelled to an alternative location.

Successfully targeting the complementary tourism market involves careful consideration and delivery against the following key areas;

- High-quality beginner-friendly trails
- A structured progression in difficulty through trail types
- A good volume of smoother flow style trails
- Access to high-quality hire bikes
- Comprehensive and easily interpreted trail signage
- Access to a variety of formal and informal non-riding activities

- Access to a good range of accommodation and food and beverage opportunities.

The proposed new trails network at Toowoomba has significant potential to cater for a complementary audience, with a number of trail and uplift trail opportunities suitable to beginner riders.

4.2.3 Enthusiast tourist market

The enthusiast market is defined as mountain bike tourists for whom mountain biking is the primary motivator/purpose for their travel. The enthusiast market seeks out new and exciting mountain bike destinations, and typically travel multiple times annually to engage in mountain biking.

The mountain bike enthusiast market is typically populated by 25-45-year-old males with a high disposable income, who are seeking opportunities to travel to destinations with the primary purpose of going mountain bike riding.

While mountain bike riding may be the primary travel motivator, the availability of alternative activities will still influence this traveler as they will often look for destinations where they can viably travel with family, their spouse or non-enthusiast travelling companion/s.

The mountain bike enthusiast is typically travelling for multi-day stays and is seeking unique and high-quality trail experiences. These users will typically seek higher volumes of trail, as they will often ride 30-40km+ per day.

Successfully targeting the enthusiast tourism market involves careful consideration and delivery against the following key areas;

- High quality trails
- Unique and iconic environments
- Iconic signature trail experiences
- High volumes of trails
- A good supply of intermediate to advanced trails

Dirt Art suggests that the Toowoomba Escarpment trails will be well suited to an enthusiast rider audience, for the following reasons;

- Existing and proposed new trails target an intermediate-advanced audience
Landscape, terrain and elevation are better suited to an intermediate-advanced audience

5 The Queensland Mountain Bike Destination Market

5.1 Overview

Queensland currently has limited destination mountain bike infrastructure development, with all but two destinations (Atherton Forest MTB Park and Hiddenvale Adventure Park) essentially developed with a focus on servicing a predominantly local audience.

The South East of Queensland is one of the largest continuous urban developments in Australia, housing a population of approximately 3.6m people. Despite this large and growing population base, the development of high-quality riding destinations a servicing this regional market remains minimal.

When looking to a potential audience outside of Queensland, the state has a number of appealing attributes for the visiting rider, including but not limited to;

- Climate
- Proximity to major population areas (ease of access on eastern sea board)
- Mountainous areas
- High quality natural environments

The state is currently lacking high-quality, destination-focused developments, providing a key opportunity to capture regional, state, national and potentially international rider visitation.

5.2 Key Destinations

5.2.1 Nerang

Location	Nerang, Queensland
Development status	Open
Trail volume	~60km (~20km formal/40km informal)
Trail types	Trail, enduro
Estimated visitation	75,000

Nerang is one of the busiest trail networks in South East Queensland, servicing a large audience of riders with a relatively minimal trail volume, which remains largely driven through volunteers.

Trail quality and consistency in the area varies greatly, and generally becomes even less consistent the further trails are away from the main entry portal at Hope Street.

A general lack of elevation (~180m maximum, but less than 90m uninterrupted) limits the potential future development of the area as a major trail destination, though the area does possess a number of areas that would facilitate high quality trail development.

5.2.2 Atherton

Location	Atherton, Queensland
Development status	Open
Trail volume	60km
Trail types	Trail, enduro
Estimated visitation	25,000

Atherton was and remains Queensland’s first and only public mountain bike destination that has been developed with a focus on tourism and economic development. The destination was developed as a nationally-significant trail destination, though appears to be achieving a more regional level of visitation. The reasons for this visitation result are likely; relatively generic environments and natural values, general lack of utilization of maximum uplift opportunities, lack of trail volume.

5.2.3 Daisy Hill

Location	Daisy Hill Brisbane
Development status	Open
Trail volume	24km
Trail types	Trail, enduro
Estimated visitation	55,000

Daisy Hill is the primary trail network servicing the Greater Brisbane area, with a population of 3 million people. The trail network at Daisy Hill focuses on a beginner to intermediate trail riding audience, and is generally lacking the style and difficulty of trails to attract a regional or state audience.

5.2.4 Boomerang Bike Park

Location	Mudgeeraba
Development status	Open
Trail volume	11km
Trail types	Downhill, jump, enduro
Estimated visitation	Unknown

Boomerang Bike Park is Queensland’s most recognised gravity-focused commercial bike park. The park is open periodically on a pay-for-use basis, and also includes a commercial uplift service. The park caters for a predominantly advanced audience, and is renowned for its large jump features.

5.2.5 Smithfield

Location	Smithfield, Cairns
Development status	Open
Trail volume	20km
Trail types	Trail, enduro, downhill
Estimated visitation	20,000

Smithfield MTB Park is one of Australia’s original formal mountain bike destinations. The park has been developed utilising a combination of volunteer and professional construction. The network is difficult to navigate for visiting riders, and suffers from inconsistencies in trail quality and grading. While offering a number of fantastic riding trails, the park lacks the trail volume and general quality to operate a state-significant level.

5.2.6 Hiddenvale Adventure Park

Location	Grandchester
Development status	Open
Trail volume	110km
Trail types	Trail, enduro
Estimated visitation	20,000

Hiddenvale Adventure Park is one of Queensland’s most recognised and high-profile commercial bike parks. Offering a mix of enduro and trail focused riding, the park also provides an uplift service for some trails.

5.2.7 Mount Joyce

Location	Wyaralong Dam, Queensland
Development status	Open
Trail volume	60km
Trail types	Enduro, trail, downhill
Estimated visitation	15,000

Mount Joyce was developed as part of the Wyaralong Dam Project, and includes a large network of trails catering to a broad riding audience. The destination appears popular with local and regional riders, though does not have the trail volume, and quality, nor the ancillary facilities required to attract a state-significant audience.

6 Mountain Bike Destination Hierarchy

6.1 Overview

Mountain biking has been driving visitation into small regional areas for several years now, though the focus on mountain biking as an effective driver of tourism and economic development is relatively new. Destinations such as Blue Derby (Tasmania) have proven that small towns can be reinvigorated with mountain biking spearheading this change.

The below hierarchy has been developed by *Dirt Art* to assist in positioning trail developments to an appropriate audience, providing clarity on funding and operational models for land managers.

Notably, the benchmark for mountain bike destinations is not a static or quantitative benchmark. With some \$100m+ set to be invested in mountain bike trail development in Australia across the next 2-3 years, benchmarks are likely to increase.

Dirt Art suggest recognition of the following considerations;

- Trail quality will always be more important than trail quantity
- Gravity-based trail networks are a rarer commodity and as such, the trail volume benchmark for these trail destination types is lower
- Travelling riders have a strong preference for riding in high-quality natural environments
- Elevation opportunities are extremely important, and often provide an insurmountable point-of-difference against other more urban-based trail destinations

Dirt Art recommend that ~100km of trails be developed at the Toowoomba Escarpment (including existing trails), ensuring that trail volume meets expectations for a nationally-significant destination.

6.2 Nationally-Significant Destination

The idea of a nationally-significant mountain bike destination is relatively new, with the first destinations notionally meeting this benchmark only in the past three years. A nationally-significant mountain bike destination generally possesses the following key characteristics;

- 80+km trail volume
- Trails catering for green circle to double black diamond difficulty
- Capacity to host national and/or world-level events
- High-quality, comprehensive trail signage system
- A high-quality entry gateway (quality signage, pump track etc.)
- 300m+ elevation opportunity
- Uplift opportunity

- Very high-quality natural environments
- A local bike store/s
- A minimum of two market-appropriate food outlets within 10 min drive from trails
- Market-appropriate accommodation meeting supply demands during peak season
- A funded formal trail maintenance program with specific, trained human resources

6.3 State-significant Destination

State-significant trail destinations cater for a more state-wide audience, though notably will generally attract national visitation, particularly when other regional or other high-quality trail opportunities are available nearby. A state-significant mountain bike destination generally possesses the following key characteristics;

- 60+km trail volume
- Capacity to host national or regional level events
- Uplift opportunity
- Trails catering for green circle to black diamond difficulty
- High-quality, comprehensive trail signage system
- 200m+ elevation opportunity
- Good quality natural environments

6.4 Regionally-Significant Destination

Regionally-significant trail destinations cater for a more regionally-focused audience, though notably will generally attract national visitation, particularly when other regional or other high-quality trail opportunities are available nearby. A regionally-significant mountain bike destination generally possesses the following key characteristics;

- 20+km trail volume
- Capacity to regional level events
- Trails catering for green circle to black diamond difficulty
- High-quality, comprehensive trail signage system
- 100m+ elevation opportunity

6.5 Local-Level Destination

A local-level mountain bike destination services a smaller, local market, and will generally hold low appeal for visiting riders. These destinations are generally constructed utilising primarily local volunteer labour. A locally-significant mountain bike destination generally possesses the following key characteristics;

- <20km of trails
- Capacity to hold local-level (club) events
- A functional signage system

7 Toowoomba and Lockyer Valley Escarpment's Position as a Mountain Bike Destination

7.1 Overview

Toowoomba currently operates at a level that would be considered a regionally-significant mountain bike destination. The current trail network offers a number of attributes not currently available at other regional level mountain bike destinations (such as Nerang), including;

- Elevation opportunity
- Uplift opportunity

Despite this, the trail network does not currently provide a high enough trail volume or quality to attract significant outside visitation.

The location and key attributes of the Toowoomba Escarpment provide a significant opportunity for development of a major mountain bike destination, which would service a regional, state and national audience. If the correct development approach is enacted, *Dirt Art* believe Toowoomba has significant potential for establishment of a nationally-significant trail destination.

7.2 Current mountain bike tourism behaviours in South East Queensland

Mountain bike tourism is currently a very immature market in South East Queensland, with little to no major mountain bike destinations. In comparison to states such as Tasmania and Victoria, Queensland has little established trail product that would attract visiting riders.

While data surrounding intrastate mountain bike tourism is unavailable, it is likely that reasonable levels of visitation are being achieved from outside of the immediate surrounding areas, for a number of destinations such as but not limited to; Atherton, Hiddenvale Adventure Park, Boomerang Farm and Nerang.

Dirt Art believe interstate and any international destination visitation would currently be extremely limited, with a current likely focus around North Queensland (Cairns and Atherton), particularly during the winter season.

7.3 Local usage patterns

Dirt Art has anecdotally assessed local usage patterns through the assessment of existing trail usage volumes and observed behavior during site visits. It would appear that based on trail difficulty breakdowns of existing trail, that upper level intermediate riding is the local user focus, though notably, local riders have voiced a strong desire for a greater

volume of easy (green circle) and much harder (black and double black) trail development. It is likely that trail development to date has been undertaken to cater to the largest possible rider audience, resulting in a very high percentage of intermediate (blue square) trails.

8 Site Analysis

8.1 Location

The Toowoomba/Lockyer Valley region is located to the west of the city of Brisbane within a 90-minute drive.

The proposed potential development area resides on the eastern face of the Toowoomba and Lockyer Valley Escarpment and includes a number of predominantly council-owned and managed bushland areas.



8.2 Land Tenure

The vast majority of the project area is held under management of the TRC. The land tenure for the project is unique in a mountain bike trail development context, where high-quality development sites are typically managed by parks agencies.

The land tenure for the project provides for a potentially simplified development pathway, that in most cases will not require the establishment of access agreements, leases and licenses.

8.3 Topography

Average slopes	20-40%
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The topography across much of the site is conducive to high-quality, cost-effective trail development. Areas of the site do feature steep to extremely steep slopes (60%+), which have been avoided for any new proposed trail development.

8.4 Geology

The predominant soil type on site features a very high clay content. The soils on site are relatively friable, and do not tend to perform well in wet conditions. It is likely that some trail sections will require imported surfacing to allow for year-round riding where required. *Dirt Art* suggest that beginner-focused trails close to the Bridge Street trail head will benefit from surfacing, ensuring a smooth riding experience for beginner riders, and an all-weather riding opportunity for all riders. Any imported gravel material should be from a formal quarry and be certified weed free.

Surrounding the ex-quarry area, large tracts of quarry rock spoils are evident, lying in most cases on extreme slopes. These areas have been avoided for any proposed new trail development.

8.5 Climate

Average annual rainfall	724mm (www.bom.gov.au)
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Toowoomba has a temperate climate, which results in generally dry winters and summer periods with periodic heavy to extremely heavy rain. Dry periods in summer will often lead to extremely dusty trail conditions with corresponding trail damage, while wet summer conditions currently render some areas of the trail network un-rideable.

8.6 Elevation Opportunity

Total elevation range	~275m
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The total elevation range at Toowoomba Escarpment provides an excellent range of elevation opportunities, which are spread across the eastern face of the Toowoomba Escarpment.

The elevation opportunities available allow for a broad range of recreational and racing-focused trails, which include all riding and racing categories. While the elevation range is on the cusp of capacity to host national and world-level downhill events, with the right planning and construction approach, *Dirt Art* believe the venue does have this capacity.

8.7 Values

The Toowoomba Escarpment is a popular public land asset, which is utilised actively and passively by a wide range of users. The escarpment has areas of strong natural value, particularly in dark, shaded areas of the site.

Located directly on the urban fringe, the area has a range of competing values and a diverse range of user groups. For the most part there appears to be limited conflict between user groups, though some instances of user conflict have been reported to TRC.

It will notably be important to ensure that future mountain bike trail development proceeds in a way that is sensitive to the values of the site.

8.7.1 Natural Values

Areas of the existing and proposed project area feature high natural values (flora and fauna), particularly in dark, shaded areas, and in riparian areas. The project area includes pockets of dry rainforest. A number of native fauna species are also known to inhabit the Escarpment area.

Dirt Art has carefully considered the natural values of the site when choosing trail alignments and potential development areas. *Dirt Art* has worked to sensitively and sustainably showcase the higher value natural areas of the project site, without compromising their values. The inclusion of these high-value, more visually appealing areas is highly-important to the creation of a high-quality experience that will attract visiting riders. Many of these areas also typically feature soil types that will provide increased sustainability and trail surface functionality.

Dirt Art has utilised GIS environmental data and comprehensive site inspections to develop trail corridors that minimise impacts on natural values. Notably, the trail corridors proposed allow for flexibility to adjust final trail tread locations to avoid areas of higher natural values, or specific habitats for flora and fauna species. An *Environmental Constraints Map* is available at Appendix 4, which details areas of high environmental sensitivity – predominately remnant ecosystems.

Dirt Art recommend that areas of higher natural value are included in the new trails network where possible without compromising environmental values, which will add significant appeal for visiting riders.

During the next phase of the project, a natural values assessment will be completed by appropriately qualified professionals. As a result of this process any proposed trail alignments may be adjusted as required to further minimise impacts on natural values. An environmental assessment has previously been undertaken for the Jubilee Park area; this assessment may require extension and/or amendment based on the proposed trail network. A new assessment will be required for the proposed trail network in the Redwood Park area.

8.7.2 Social Values

Toowoomba Escarpment site holds strong social values for a significant portion of the local and regional communities. The area is popular for a wide range of active and passive uses, including but not limited to;

- Walking
- Mountain biking
- Horse riding
- Trail running
- Sightseeing
- Geocaching
- Orienteering

The values held can be conflicting at times, particularly in the view of polar opposing values such as the respect of the escarpment for its untouched areas and quiet spaces, versus the desire to recreate in the area via more active means (such as mountain biking).

Dirt Art has worked to avoid conflict with existing users through the following key methodology;

- Extensive stakeholder group consultation
- Locating the bulk of proposed new trails in areas with extensive pre-established mountain bike use (Jubilee Park)
- Minimising trail volume in Redwood Park
- Locating trails in Redwood Park away from focus areas of known ecological sensitivity and conservation groups
- Proposing shared-use only on appropriate trails (climbing and some contouring trails)

Notably, the proposed trail network provides opportunities for walking on a number of proposed trails, providing a significant expansion of walking trail opportunities. All ascending trails in the proposed new trails network are proposed to allow for walking.

8.7.3 Cultural Values

8.7.3.1 Indigenous Cultural Values

While it is likely that there will be areas of Indigenous Cultural Heritage significance within the target area, detailed information was not available at the time of preparing this report.

Tabletop Mountain is notable for its recognised significance to the Indigenous community. This area is not proposed for any new trail development.

Consultation and formal assessments will form part of the final approvals process for the project.

8.7.3.2 European Cultural Values

Data and information area limited regarding the European heritage values of the site. It is known that an ex-depression camp is located in Redwood Park; during detailed trail design, this area will be avoided. Further investigation will be required as a component of the approvals process.

8.8 Bushfire Management

Bushfire management is of increasing concern across Australia, and notably conditions in the project area were extremely dry during the preparation of this report.

Construction of the proposed trail network will not generally involve the removal of canopy trees and will have no marked impact on the canopy structure. *Dirt Art* suggest that no tree above 150mm diameter at breast height (DBH) be removed, as such it is suggested that the project is unlikely to have a significant impact on bushfire management. All efforts are to be made to retain as many trees as possible, particularly native trees.

Dirt Art suggest that fire management be assessed by appropriately qualified persons/organisation during the assessments and approvals phase of the project.

8.9 Proposed Toowoomba and Lockyer Valley Commercial Bike Park

At the time of preparing this report, a group of local riders are in the process of proposing a commercial bike park. It is understood that this bike park intends to focus on uplift-assisted, gravity-focused riding, and will offer trails of high difficulty level.

Such a project would complement this proposed development by catering for a broader market of riding opportunities within the region.

8.10 Potential New Development Areas

Dirt Art has assessed a number of council-managed areas across the eastern face of the Toowoomba Escarpment for potential mountain bike trail development. As a result of this analysis, Jubilee Park and Redwood Park are considered to offer the best potential for trail development that will cater to a tourist and local audience. The old quarry at Bridge Road is perfectly located to service these two trail areas with a range of potential trails, parking and related infrastructure.

Dirt Art has also assessed the potential for trail development on private land parcels, which will be explored further in appendix three.

Detailed analysis of key potential development areas can be found below.

An overview map of key potential development sites can be found over the page.

TOOWOOMBA & LOCKYER VALLEY CONCEPT PLAN

Potential Sites Investigated // 20.01.20

Legend

Parklands

- Jubilee Park Area
- Redwood Park
- Murrumba Road Park
- Picnic Point Bushland Reserve
- Lions Park
- Heller Street Park
- McKnight Park
- JE Duggan Park
- Glen Lomond Park Area
- Tabletop Bushland Reserve Area

Jubilee Park Area

Redwood Park

Murrumba Road Park

Lions Park

Heller Street Park

Picnic Point Bushland Reserve

Tabletop Bushland Reserve

McKnight Park

JE Duggan Park

Glen Lomond Park Area

8.10.1 Jubilee Park

Jubilee Park is the current focus for trail development on the Toowoomba Escarpment, with the bulk of trails developed being driven by the Toowoomba Mountain Bike Club (TMBC), with assistance from trail contractors. The focus of trail development in the past has been lower on the escarpment close to Amos Rd, though more recent trail development has provided better connectivity to the primary access node at Bridge Road.

The area towards Amos Road is highly congested with trails, though a number of other adjacent areas have good potential for future trail development.

The TMBC have developed a strategic plan for a range of new trails in the Jubilee Park area- these concepts have been notionally included in this plan. *Dirt Art* has added a number of new trails to the TMBC’s proposal, further diversifying and adding volume and quality to the trail network.

While Jubilee Park has strong potential for future trail development, it should be noted that the area does not have the scope to develop the volume of trail required to successfully establish the Toowoomba Escarpment as a nationally-significant mountain bike destination.

Jubilee Park is suitable for the following trail-based infrastructure development;

Trail Type	Suitability	Recommended
Trail/XC trail development		
Enduro trail development		
Downhill trail development		
Pump Track		
Skills Park		
Shared-use trail/s		

Jubilee Park also does not have a viable shuttle uplift access route.

8.10.2 Bridge Street Quarry

The old quarry area off Bridge Street provides an appealing opportunity for mountain bike destination development. The site has a number of strategic advantages, including but not limited to;

- Proximity to current and future proposed trails
- Proximity to Toowoomba
- Adjacent to the current major access node for trails
- Significantly disturbed site (reduced natural values conflicts)
- Appealing views
- Significant parking and other non-trail infrastructure potential
- Minimal residential conflicts
- Uplift drop off capacity

The quarry area has significant potential as an event hosting space, with all key characteristics required to stage large, world-level events (including Olympic level cross country and Enduro World Series).

The Bridge Street Quarry is suitable for the following trail development;

Trail Type	Suitability	Recommended
Trail/XC trail development		
Enduro trail development		
Downhill trail development		
Pump Track		
Skills Park		
Shared-use trail/s		

8.10.3 Redwood Park

Redwood Park is situated immediately adjacent to Jubilee Park and represents a significant opportunity for future trail development. The site has a number of strategic advantages, including but not limited to;

- Proximity and connectivity to current and future proposed trails
- Proximity to Toowoomba
- Significant opportunity to connect to Withcott and provide the town with economic benefit
- Adjacent to the current major access node for trails
- Significant elevation opportunity
- Uplift opportunities
- Areas showcasing stronger natural values
- Appealing views

- Minimal residential conflicts

Dirt Art understands that the site is highly-valued for its natural values, particularly to a number of conservation-focused community groups. While some trail development has been proposed, it is suggested that with the right design and construction approach, this development can be completed sensitively and sustainably. There are several excellent examples in Australia of mountain bike trails in sensitive areas, which manage to showcase these higher quality vegetated areas with minimal impact on their natural values. It should also be noted that the destination mountain bike rider does seek trail in high-quality environments, as shown in essentially all Australia’s top mountain bike destinations.

The Redwood Park site has the potential to directly integrate into the Jubilee Park trail network, creating one large and vibrant trail destination.

Importantly, the Redwood Park site allows essentially direct connectivity to the township of Withcott, maximising economic impact to the LVRC area.

As an uplift shuttle opportunity, the Redwood Park site provides the most direct transport opportunity. Uplift opportunities will be analysed in section 36.

The Redwood Park site is suitable for the following trail development;

Trail Type	Suitability	Recommended
Trail/XC trail development	Green	Green
Enduro trail development	Green	Green
Downhill trail development	Green	Red
Pump Track	Red	Red
Skills Park	Red	Red
Shared-use trail/s	Green	Green

Dirt Art recommend that the success of the Toowoomba Escarpment as a nationally-significant mountain bike destination will require a volume of trail development in Redwood Park.

8.10.4 Picnic Point

The Picnic Point area is a popular destination for locals and visitors and includes a large visitor centre and restaurant. The area is constrained by a number of competing values, and as such, *Dirt Art* do not suggest it forms a major component in the proposed trail development.

Picnic Point is an important link in the Toowoomba Escarpment Trail (TET), and may also facilitate a smaller network of trails, which are separated from other trails and reserve users.

The Picnic Point area is suitable for the following trail development;

Trail Type	Suitability	Recommended
Trail/XC trail development	Green	Red
Enduro trail development	Green	Red
Downhill trail development	Red	Red
Pump Track	Red	Red
Skills Park	Red	Red
Shared-use trail/s	Green	Green

8.10.5 Murrumba Road Park

This site does not possess potential for mountain bike trail development. This recommendation is based on the following key considerations;

- Limited space
- Limited elevation opportunity
- Lack of suitable connectivity with existing and proposed mountain bike trails

8.10.6 Barry Griffiths park

This site does not possess potential for mountain bike trail development. This recommendation is based on the following key considerations;

- Limited space
- Limited elevation opportunity
- Lack of suitable connectivity with existing and proposed mountain bike trails

8.10.7 Lions Park

This site does not possess potential for mountain bike trail development. This recommendation is based on the following key considerations;

- Limited space

- Limited elevation opportunity
- Lack of suitable connectivity with existing and proposed mountain bike trails

8.10.8 Mcknight Park

McKnight Park is not recommended for the development of new mountain bike trail infrastructure, though notably the area forms a critical component of the TET trail alignment.

The McKnight Park area is suitable for the following trail development;

Trail Type	Suitability	Recommended
Trail/XC trail development		
Enduro trail development		
Downhill trail development		
Pump Track		
Skills Park		
Shared-use trail/s		

8.10.9 Culliford Drive park

This site does not possess potential for mountain bike trail development. This recommendation is based on the following key considerations;

- Limited space
- Limited elevation opportunity
- Lack of suitable connectivity with existing and proposed mountain bike trails

8.10.10 Doilibi Bushland Park

This site does not possess potential for mountain bike trail development. This recommendation is based on the following key considerations;

- Limited space
- Limited elevation opportunity
- Lack of suitable connectivity with existing and proposed mountain bike trails

8.10.11 J.E Duggan Park

J.E. Duggan Park is not recommended for the development of new mountain bike trail infrastructure, though notably the area forms a critical component of the TET trail alignment.

The J.E Duggan Park area is suitable for the following trail development;

Trail Type	Suitability	Recommended
Trail/XC trail development		
Enduro trail development		
Downhill trail development		
Pump Track		
Skills Park		
Shared-use trail/s		

8.10.12 Glen Lomond Park

Glen Lomond Park is somewhat distanced from the main trail area, though provides a range of natural values that would contribute significantly to the proposed trail network expansion. The area includes a large waterfall, which would be a very positive inclusion into the mountain bike trail network. The area also forms a valuable component of the Toowoomba Escarpment Trail.

The Glen Lomond area is suitable for the following trail development;

Trail Type	Suitability	Recommended
Trail/XC trail development		
Enduro trail development		
Downhill trail development		
Pump Track		
Skills Park		
Shared-use trail/s		

8.10.13 Tabletop Bushland Reserve

Tabletop Bushland Reserve offers a unique site, which provides value to the potential trail network expansion through its stunning views and unique topography. Notably, the reserve holds significant Indigenous cultural values.

This site does not possess potential for mountain bike trail development. This recommendation is based on the following key considerations;

- Indigenous cultural values
- Lack of suitable connectivity with existing and proposed mountain bike trails

8.10.14 Withcott

Withcott is a small town within the LVRC shire. The town borders TRC tenure and provides theoretical access into the lower areas of the current and potential future trail network. Limitations on the area achieving success as a major entry node for the trail network relate primarily to land tenure, with private tenure acting as a current barrier between the town at the bushland areas managed by TRC.

Dirt Art has proposed direct integration via trail to Withcott into the proposed Redwood Park trail system, and via vehicle utilising existing road easements.

The Withcott area is suitable for the following trail development;

Trail Type	Suitability	Recommended
Trail/XC trail development		
Enduro trail development		
Downhill trail development		
Pump Track		
Skills Park		
Shared-use trail/s		

Dirt Art recommend that the most optimal connectivity from the trail network into Withcott is via the south eastern corner of Redwood Park.

9 Access Nodes

9.1 Overview

A number of nodes areas are currently utilised by local and visiting riders. It would appear that the access on Bridge Street in Toowoomba is currently the most popular access, with rider volumes appearing to be spread fairly evenly across the other access points immediately adjacent to residential areas of Toowoomba. The access from the lower escarpment into Amos Road is utilised for events and appears popular (likely particularly for visiting riders travelling from the east).

The proposed primary access node at Amos Road has been extensively considered and subsequently not recommended for further development. *Dirt Art* recommend that Amos Road not be considered as a major access node for the trail network.

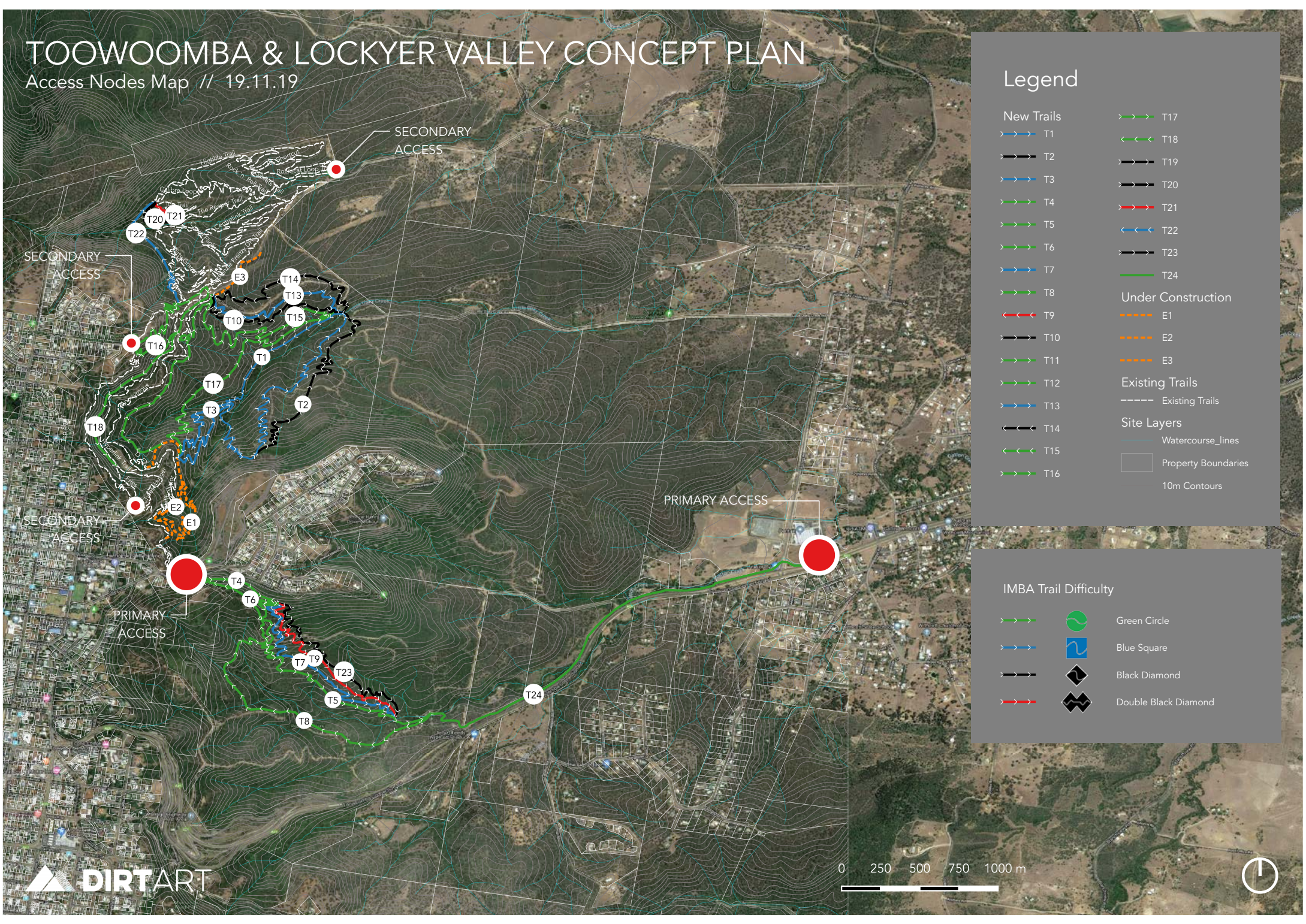
Many current and potential access nodes have potential constraints and impacts relating to residential areas, particularly those immediately adjacent to residential areas in Toowoomba.

A detailed analysis of access nodes can be found in Section 9.2.

An access nodes map can be found over the page.

TOOWOOMBA & LOCKYER VALLEY CONCEPT PLAN

Access Nodes Map // 19.11.19



Legend

- | | |
|-------------------|---------------------------|
| New Trails | ➤➤➤ T17 |
| ➤➤➤ T1 | ➤➤➤ T18 |
| ➤➤➤ T2 | ➤➤➤ T19 |
| ➤➤➤ T3 | ➤➤➤ T20 |
| ➤➤➤ T4 | ➤➤➤ T21 |
| ➤➤➤ T5 | ➤➤➤ T22 |
| ➤➤➤ T6 | ➤➤➤ T23 |
| ➤➤➤ T7 | ➤➤➤ T24 |
| ➤➤➤ T8 | |
| ➤➤➤ T9 | Under Construction |
| ➤➤➤ T10 | — — — — E1 |
| ➤➤➤ T11 | — — — — E2 |
| ➤➤➤ T12 | — — — — E3 |
| ➤➤➤ T13 | Existing Trails |
| ➤➤➤ T14 | — — — — Existing Trails |
| ➤➤➤ T15 | Site Layers |
| ➤➤➤ T16 | — — — — Watercourse_lines |
| | ▭ Property Boundaries |
| | 10m Contours |

IMBA Trail Difficulty

- | | | |
|-----|---|----------------------|
| ➤➤➤ | 🟢 | Green Circle |
| ➤➤➤ | 🟦 | Blue Square |
| ➤➤➤ | ⬛ | Black Diamond |
| ➤➤➤ | ⬛ | Double Black Diamond |



9.2 Primary access node opportunities

9.2.1 Overview

A summary of primary access node opportunities can be found over the page.

When proposing primary access nodes, *Dirt Art* has utilised the following considerations;

- Emergency management: Major access nodes need to provide opportunities to evacuate users quickly and easily should it be required (such as in a fire situation)
- Minimise residential conflict: Major access nodes must be located in areas that can provide access and parking via vehicle and bicycle, without causing unreasonable levels of residential conflict
- Convenient access: Major access nodes need to be convenient and functional access routes for the majority of trail users
- Connectivity from urban areas: Major access nodes will ideally provide direct connections via off-road trails to urban areas and amenities
- Viability with existing user patterns: Major access nodes need to consider existing user patterns and behaviours
- Access at upper and lower escarpment areas: A major entry portal at the top (Toowoomba) and bottom (Withcott) of the escarpment is essential
- Maximise economic benefits: Major access nodes must support tourism and economic benefit
- Access nodes must provide uplift accessibility: Major access nodes must allow for uplift opportunity
- Event capability: Major entry portals need to allow for the provision of major events
- Support local riders: Major entry nodes need to cater to local wants and needs, while meeting the expectations of the visiting rider

Dirt Art recommends that Bridge Road Quarry and Withcott form the two major access nodes for the project.

9.2.2 Major Access Node 1- Bridge Street Quarry

Bridge Street is the primary access node into the current trail network. At the time of the report it would appear that the area is under strain for parking during peak periods, though there does appear to be few (if any) obvious residential conflicts.

The Bridge Road Quarry access node provides the easiest, most functional access point into the trail network for most riders, and represents an obvious opportunity for future development as a primary trail entry node.

The area has the following current and proposed new infrastructure;

Infrastructure	Current	Proposed
Parking		
Shelter		
Signage		
Bike Wash		
Seating		
Toilets		
Drinking water		

A high-level concept for the Bridge Street Quarry area can be found over the page. This concept will need to consider the recommendation of the Bridge Street Quarry Feasibility Study 2018.

TOOWOOMBA & LOCKYER VALLEY CONCEPT PLAN

Jubilee Trailhead Concept // 18.11.19

Legend

Infrastructure >>> T16

Carparking >>> T17

Pump Track <<< T18

Skills Track >>> T19

New Trails >>> T20

>>> T1 >>> T21

>>> T2 <<< T22

>>> T3 >>> T23

>>> T4 >>> T24

>>> T5

>>> T6

>>> T7

>>> T8

<<< T9

>>> T10

>>> T11

>>> T12

>>> T13

<<< T14

<<< T15

Under Construction

----- E1

----- E2

----- E3

Existing Trails

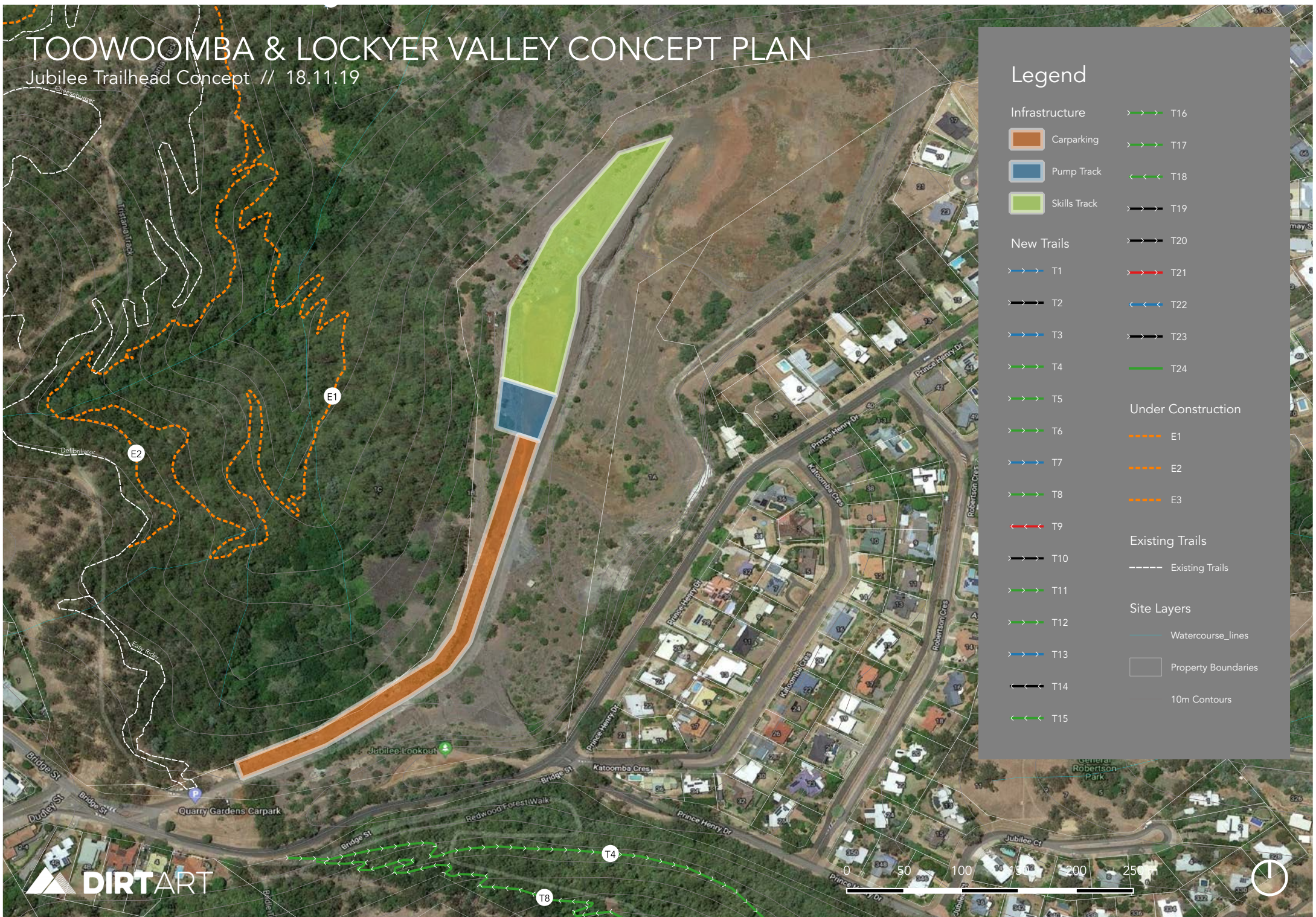
----- Existing Trails

Site Layers

Watercourse_lines

Property Boundaries

10m Contours



9.2.3 Major Access Node 2- Withcott

The development of a major access node connected to Withcott is a fundamental component of the project, ensuring that potential economic benefit is spread between the two municipalities. *Dirt Art* has proposed a major access node for the Withcott area, which provides near-direct connectivity with the town at a low elevation point, allowing trails to provide a maximum descending opportunity.

A proposed ~3km access trail connects the township to the proposed Redwood Park trail network. The option provides the most direct connectivity possible with the town, ensuring functionality for trail users and maximum potential economic benefit for the town.

The proposed Withcott entry node combined with the Bridge Street entry node provide functional major entry points at both the top and bottom of the escarpment.

A potential sites map for this proposed facility can be found over the page.

TOOWOOMBA & LOCKYER VALLEY CONCEPT PLAN

Potential Withcott Development Sites // 04.10.19



Infrastructure	Current	Proposed
Parking		
Shelter		
Signage		
Bike Wash		
Seating		
Toilets		
Drinking water		

Within the Withcott entry node, *Dirt Art* recommend developing an urban pocket park as close to the township as possible. This should if possible be located immediately adjacent to the highway to establish a 'street presence' for the trails. The site should look to develop a pump track, skills park, and major access trail and signage for the trail network, as well as providing for parking

A high-level concept for the Withcott Hub site area can be found over the page.

TOOWOOMBA & LOCKYER VALLEY CONCEPT PLAN

Withcott Trailhead Concept // 27.11.19



CONCEPT IMAGERY



SKILLS TRACK



ASPHALT PUMP TRACK



PLANTER BOX SEATING



PICNIC TABLES



SHELTER / BBQ AREA

9.3 Secondary access nodes

A number of secondary access nodes exist across the Toowoomba and Lockyer Valley Escarpment. In most cases these access nodes are located at the end of quiet residential streets with limited scope for parking, and notable potential residential conflict issues. These access nodes include, but are not limited to;

- Amos Road
- Harvey Street
- Wooldridge Street

Dirt Art recommend careful consideration of major trail development and related infrastructure in these areas due to the risk of significant access growth causing residential conflict. In most cases these are very small, quiet streets, where even minor increases in parking and access may cause significant issues. While new connecting trail is appropriate in some cases to facilitate more local access, *Dirt Art* do not recommend installing infrastructure such as pump and skills tracks in these areas where appropriate parking is not available, and/or where residential conflicts are likely.

Dirt Art suggest the following infrastructure at secondary access hubs;

- Parking
- Seating
- Shelter
- Drinking water

10 Existing Trails Overview

10.1 Overview

The target area currently has a network of purpose-built mountain bike trails, with the focus on formal trails being in Jubilee Park. The trails were developed by TMBC volunteers and by local trail contractors. Current trail condition varies greatly, ranging from very good condition through to very poor condition. A general overview of audit findings can be found in section 11.6.

10.2 Auditing Process

Dirt Art employ the below methodology to assess all trails. The step-by-step process provides a board analysis of the trails key characteristics and includes both a desktop and in field assessment.

1. Desktop analysis- This stage involves a desktop analysis of the trail, with the view to establishing environmental values, gradients, and fit within the broader trail network (if relevant). Desktop analysis will generally establish larger, more fundamental flaws in the trail.
2. In field analysis- All trails are reviewed in detail during a field assessment. The assessment may be completed on foot or on bicycle. The in-field analysis aims to establish trail issues such as; alignment, drainage issues and safety concerns.
3. Network analysis- Using desktop and in field analysis, *Dirt Art* will assess the trails value to the broader trail network.
4. Signage analysis- *Dirt Art* will assess the adequacy and appropriateness of trail signage during in field analysis.
5. Budget scope of works- The trail audit will conclude with an overview of key works and a suggested market rate budget for these works

10.3 Aims and Objectives

In undertaking any trail audit, *Dirt Art* are working to the following key objectives;

1. Improve user safety-
2. Improve the trail experience-
3. Improve environmental performance of the trail-
4. Provide objective advice around trail closure/s and network rationalisation-
5. Provide advice that allows land managers to effectively invest in priority trail projects

10.4 Ranking Criteria

10.4.1 Overview

To provide objectivity and clarity to the trail audit process, *Dirt Art* has developed an attribute ranking system for trail auditing. Each trail audited is ranked against 10 key criteria, which assess its performance against a wide range of qualitative and quantitative metrics. These 10 criteria are provided a score of 1-5, which results in a total score from 50 for each trail. *Dirt Art* recommend that trails scoring less than 25 should not be included in a formalised trail network.

10.5 Overview of Ranking Criteria

Sustainability: This criteria refers to the sustainability of the trail in the short, mid and long term. The trail is assessed for its capacity to manage water and rider traffic, with a focus on gradient versus soil type and rider behaviour. The capacity of the site to manage the trail use in the local climate is also considered. A low sustainability score does not necessarily mean that a trail should be closed, rather the sustainability issues in some cases may be easily and cost effectively addressed.

Ride Experience: This criteria refers to the trails capacity to provide a high-quality riding experience. This qualitative criteria assesses the ride quality across a wide range of trail types- no one trail style is considered to provide a higher quality experience than any other trail style.

Broad market appeal: This criteria refers to the capacity for the trail to cater for a broad market of riders. A low score for this criteria does not necessarily mean a trail is low quality, rather that the trail will cater only for a smaller market segment (notably small market segments may translate to strong visitation if that market segment is poorly catered for in the market)

Environmental Experience: This criteria refers to the environmental experience that the trail provides for the user. A strong environmental experience may include unique and appealing vegetation, views points and vistas, rivers and creeks and related attributes. A weaker environmental experience may include heavily disturbed areas, generic vegetation types and logged areas.

Value to Network: This criteria ranks the trail on the value it adds to the broader trail network. Trails that provide key connectivity and/or provide diversity in the network will score higher, whereas trails that are duplicated in alignment and style will generally score lower.

Environmental compatibility: This criteria refers to the compatibility of the trail with the environmental values of the site. Trails that have a significant detrimental impact on natural values will score low, whereas trails that do not impact on natural values will score higher.

This criteria also analyses a broad spectrum of natural values, including rare and endangered flora and fauna on site.

Social Compatibility: This criteria assesses the trails impact on the social values of the site. Trails that negatively impact on other trails and user groups, and/or trails that impact negatively on local residences will score low. Trails that do not negatively affect any other users or residents will score highly.

Heritage Compatibility: This criteria assesses the impact the trail may have on any known Indigenous or European cultural heritage values of the site. Importantly, this criteria only assesses against known rather than potential values.

Lifecycle Cost Rating: This criteria assesses the lifecycle costs of the trail. Trails will score low where lifecycle costs are higher, which may be due to a number of factors such as poor soil types, poor maintenance access and climatic factors.

Emergency Access: This criteria assesses the complexity of emergency access to the site, should it be required. A range of access methodologies are considered, including on trail, road and via air.

10.6 General Overview

The existing trail network is focused on the Jubilee Park area, where the TMBC has utilised volunteer and professional labour to develop a network of approximately 25km of purpose-built mountain bike trails. Generally speaking, these trails are in good functional condition, though this condition varies greatly between trails.

A number of key issues are evident relatively consistently throughout the existing trail network. These issues are summarised below;

- **Lack of network structure:** The existing trail network lacks core structure, including a lack of clear loop riding options, and a lack of obvious arterial climbs and descents.
- **Confused trail heads and intersections:** Most intersections and major trail heads feature a confusing network of trails, that in some cases also features significant braiding and duplication. While this is unlikely to be an issue for local riders, it is highly-problematic for visiting riders.
- **Inconsistent quality and style:** The existing trail network is highly varied, which is a positive attribute for the trail system. Within this though there is significant variability within trails, which is generally not seen as a positive attribute.
- **Lack of capitalisation on sustained climbing and descending:** The current trail network generally fails to take full advantage of sustained climbing and descending opportunities.

10.7 Trails Assessed

10.7.1 Easy Rider

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	42/50
--------------------	-------

Key Stats	
Length	500m
TDRS	Green Circle
Style	Flow
Formalisation status	Formalised
Recommendation	Retain- nil major works
Weather notes	Dry winter conditions

Trail Overview

Easy Rider is the trail that the majority of riders begin their ride with. Accessed from the Bridge Street trail head, the trail is a short, simple loop that caters to a beginner rider audience.

Aside from some gradients slightly exceeding those technically suitable for a Green Circle trail, the trail does not require any notable works.

10.7.2 Defibrillator

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	39/50
--------------------	-------

Key Stats	
Length	1600m
TDRS	Green Circle
Style	Flow
Formalisation status	Formal
Recommendation	Retain- nil major works
Weather notes	Dry winter conditions

Trail Overview

Defibrillator is a beginner standard flow trail that provides one of the major pieces of connectivity in the current trail network. The trail does feature some steeper corners that may challenge beginner riders, though is otherwise in good functional condition.

No significant works are recommended.

With the proposed addition of a new trail adjacent to Defibrillator, the trail is proposed to be changed to a single directional trail.

10.7.3 Cheeseburger

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	36/50
--------------------	-------

Key Stats	
Length	600m
TDRS	Black Diamond
Style	Flow/Jump
Formalisation status	Formal
Recommendation	Retain
Weather notes	Dry Spring conditions

Trail Overview

Cheeseburger is a steep, technical alignment suitable for advanced riders. *Dirt Art* recommends retaining the trail with no major works required.

10.7.4 Fries

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	36/50
--------------------	-------

Key Stats	
Length	340m
TDRS	Black Diamond
Style	Technical
Formalisation status	Formal
Recommendation	Retain
Weather notes	Dry spring conditions

Trail Overview

Fries is a steep, technical alignment suitable for advanced riders. *Dirt Art* recommends retaining the trail with no major works required.

10.7.5 Hyperlink

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	39/50
--------------------	-------

Key Stats	
Length	1500m
TDRS	Blue Square
Style	Flow
Formalisation status	Formal
Recommendation	Retain
Weather notes	Dry spring conditions

Trail Overview

Hyperlink provides essential connectivity between the major trail hub at Bridge Road with the current focus of the trail network closer to Amos Road.

Dirt Art suggests retaining the trail with no major works required.

10.7.6 D Ex.

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	33/50
--------------------	-------

Key Stats	
Length	215m
TDRS	Black Diamond
Style	Technical
Formalisation status	Formal
Recommendation	Retain
Weather notes	Dry spring conditions

Trail Overview

D Ex is a short, advanced level trail that provides an optional diversion for more experienced riders.

Dirt Art suggests retaining the trail with no major works required.

10.7.7 Anonymous

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	40/50
--------------------	-------

Key Stats	
Length	1900m
TDRS	Green Circle
Style	Flow
Formalisation status	Formal
Recommendation	Retain
Weather notes	Dry spring conditions

Trail Overview

Anonymous provides essential connectivity between the major trail hub at Bridge Road with the current focus of the trail network closer to Amos Road.

Dirt Art suggests retaining the trail with no major works required.

10.7.8 Mckenzie Frenzy

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	35/50
--------------------	-------

Key Stats	
Length	1700m
TDRS	Double Black Diamond
Style	Technical
Formalisation status	Formal
Recommendation	Retain
Weather notes	Dry spring conditions

Trail Overview

Mckenzie Frenzy provides the areas only currently available downhill race trail. The double black diamond trail is only suitable for advanced riders.

Dirt Art recommend retaining the trail with no major works required.

10.7.9 Canyonero

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	38/50
--------------------	-------

Key Stats	
Length	1400m
TDRS	Blue Square
Style	Flow
Formalisation status	Formal
Recommendation	Retain
Weather notes	Dry spring conditions

Trail Overview

Canyonero provides an intermediate descending trail into the Amos Road area trails.

Dirt Art suggest that the trail is retained with no major works required.

10.7.10 Dirty Granny

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	37/50
--------------------	-------

Key Stats	
Length	1400m
TDRS	Green Circle
Style	Flow
Formalisation status	Formal
Recommendation	Retain
Weather notes	Dry spring conditions

Trail Overview

Dirty Granny provides dual direction connectivity into and out of the Amos Road trail network for beginner riders. The trail operates in a dual directional fashion.

Dirt Art suggest that the trail is retained with no major works required.

10.7.11 Road Rage

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	37/50
--------------------	-------

Key Stats	
Length	221m
TDRS	Blue Square
Style	Flow
Formalisation status	Formal
Recommendation	Retain
Weather notes	Dry spring conditions

Trail Overview

Road Rage is a short linking trail providing access to the bottom of Mckenzie Frenzy.

Dirt Art suggest that the trail is retained with no major works required.

10.7.12 Turkey Trail

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	40/50
--------------------	-------

Key Stats	
Length	2300m
TDRS	Blue Square
Style	Flow
Formalisation status	Formal
Recommendation	Retain
Weather notes	Dry spring conditions

Trail Overview

Turkey Trail is a gradually descending trail suitable for intermediate riders.

Given the generally gentle gradients and lack of a beginner descent in the area, *Dirt Art* suggests that consideration be given to upgrading and converting this trail to a green circle difficulty level. The TMBC have expressed an interest in retaining the trail at its current difficulty level. Should this be the preferred approach, an alternative beginner-friendly alignment down to Amos Road could be investigated.

10.7.13 Centrelink Trail

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	39/50
--------------------	-------

Key Stats	
Length	900m
TDRS	Blue Square
Style	Flow
Formalisation status	Formal
Recommendation	Retain
Weather notes	Dry spring conditions

Trail Overview

Centrelink Trail is a descending trail suitable for intermediate riders.

Dirt Art suggest that the trail is retained with no major works required.

10.7.14 The Reaper Trail

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	37/50
--------------------	-------

Key Stats	
Length	546m
TDRS	Blue Square
Style	Technical/Flow
Formalisation status	Formal
Recommendation	Retain
Weather notes	Dry spring conditions

Trail Overview

The Reaper provides an intermediate descent into the Amos Road trail area.

Dirt Art suggest that the trail is retained with no major works required.

10.7.15 Ida Trail

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	35/50
--------------------	-------

Key Stats	
Length	757m
TDRS	Black Diamond
Style	Technical/Flow
Formalisation status	Formal
Recommendation	Retain
Weather notes	Dry spring conditions

Trail Overview

Ida Trail provides one of the few black diamond trail experiences in the current trail network.

Dirt Art suggest that the trail is retained with no major works required.

10.7.16 Calibre Loop

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	37/50
--------------------	-------

Key Stats	
Length	1700m
TDRS	Blue Square
Style	Technical/Flow
Formalisation status	Formal
Recommendation	Retain
Weather notes	Dry spring conditions

Trail Overview

Calibre Loop Trail provides an intermediate loop ride in the Amos Road trail area.

Dirt Art suggest that the trail is retained with no major works required

10.7.17 Calibre Connection

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	40/50
--------------------	-------

Key Stats	
Length	32m
TDRS	Blue Square
Style	Flow/Technical
Formalisation status	Formal
Recommendation	Retain
Weather notes	Dry spring conditions

Trail Overview

Calibre Connection is a short link trail.

Dirt Art suggest that the trail is retained with no major works required

10.7.18 Highlife Trail

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	37/50
--------------------	-------

Key Stats	
Length	723m
TDRS	Blue Square
Style	Technical/Flow
Formalisation status	Formal
Recommendation	Retain
Weather notes	Dry spring conditions

Trail Overview

High Life Trail provides one of the major intermediate descending trails in the trail network.

Dirt Art suggest that the trail is retained with no major works required.

10.7.19 Rock n Roll Trail

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	36/50
--------------------	-------

Key Stats	
Length	1000m
TDRS	Blue Square
Style	Technical/Flow
Formalisation status	Formal
Recommendation	Retain
Weather notes	Dry spring conditions

Trail Overview

Rock n Roll Trail provides a partial loop intermediate trail.

Dirt Art suggest that the trail is retained with no major works required.

10.7.20 Giblets Trail

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	37/50
--------------------	-------

Key Stats	
Length	250m
TDRS	Blue Square
Style	Flow/Technical
Formalisation status	Formal
Recommendation	Retain
Weather notes	Dry spring conditions

Trail Overview

Giblets Trail provides a short linking trail suitable for intermediate riders.

Dirt Art suggest that the trail is retained with no major works required.

10.7.21 Viper Trail

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	37/50
--------------------	-------

Key Stats	
Length	311m
TDRS	Blue Square
Style	Flow/Technical
Formalisation status	Formal
Recommendation	Retain
Weather notes	Dry spring conditions

Trail Overview

Giblets Trail provides a short linking trail suitable for intermediate riders.

Dirt Art suggest that the trail is retained with no major works required.

10.7.22 RC Shortcut Trail

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	37/50
--------------------	-------

Key Stats	
Length	62m
TDRS	Green Circle
Style	Flow/Technical
Formalisation status	Formal
Recommendation	Retain
Weather notes	Dry spring conditions

Trail Overview

RC Shortcut Trail is a short linking trail.

Dirt Art suggest that the trail is retained with no major works required.

10.7.23 RollerCat Loop Trail

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	38/50
--------------------	-------

Key Stats	
Length	2300m
TDRS	Blue Square
Style	Flow/Technical
Formalisation status	Formal
Recommendation	Retain
Weather notes	Dry spring conditions

Trail Overview

RollerCat Trail provides one of the longer loop trails in the network.

Dirt Art suggest that the trail is retained with no major works required.

10.7.24 Additional informal trails

There are a number of other informal trails across Jubilee Park, Redwood Park and Picnic Point, a number of which have been inspected at a high level during the formation of this report. In general terms these trails are providing a higher-level trail experience that is more technical and demanding than the formal trails in the area.

Dirt Art suggest that further consultation with the TMBC be undertaken regarding these trails and their long-term viability. Notably, the trails in most cases provide potential for inclusion into the formal trail network, but would require works to ensure sustainability and functionality, along with a safety assessment.

11 Consultation

11.1 Overview

During the development of this project, a number of groups, organisations, individuals and the broader community have been consulted with. Consultation included the below key groups;

- Toowoomba Regional Council
- Lockyer Valley Regional Council
- Toowoomba MTB Club
- Local businesses
- Tour and transport businesses

Consultation has been undertaken in face-to-face meetings, via phone and email, and via online survey. A summary of consultation can be found below.

11.2 Consultation summary

11.2.1 Toowoomba Regional Council

TRC have been consulted at various stages of the project and in-principally support the project. The following key points have been raised during consultation;

- Support for the revised concept removing Amos Rd as a major access node
- Support the inclusion of Redwood Park if environmental values can be protected
- Support for the establishment of Toowoomba and Lockyer Valley regions as a major mountain bike destination
- Support for the inclusion of the Bridge Street Quarry as a major access node

11.2.2 Lockyer Valley Regional Council

- Support for the revised concept removing Amos Rd as a major access node
- Support for the proposed major access node within Withcott township
- Support for the establishment of Toowoomba and Lockyer Valley regions as a major mountain bike destination

11.2.3 Local Businesses

A number of local businesses have attended the various consultations for the project. The following key points have been raised by local businesses;

- Strong support for the project

- Strong support for the inclusion of uplift shuttle accessed trails and entry nodes suitable for this service

11.2.4 Interest Groups

A number of community interest groups were consulted through the project, both through key stakeholder workshops, one on one meetings, and onsite meetings. These groups included;

- Friends of Escarpment Parks (FEP)
- Toowoomba Bird Observers Club
- Toowoomba Field Naturalist
- Householder Options to Protect the Environment (HOPE)
- Lockyer Uplands Catchment Incorporated (LUCI)
- Darling Downs Environmental Council (DDEC)

11.2.5 Broader Community

A community workshop and online survey was undertaken to gauge broad community feedback on the proposed development. The survey was also utilised to gather demographic and usage information. The community workshop attracted approximately 50 attendees, while a total of 389 respondents participated in the online survey.

Key data from the survey included;

- 25% female respondents (a higher than average female response rate)
- Most respondents visit the Toowoomba and Lockyer Valley Escarpment parks 'a few times per week' (28%)
- Jubilee Park is the most popular Escarpment Park (75%)
- Mountain biking was the predominant activity in Escarpment Parks (75%), followed by walking (40%) and trail running (10%)
- 85% of respondents support future trail development on the Toowoomba and Lockyer Valley Escarpment
- 75% of respondents identified as a mountain bike rider
- 82% of riders have an interest in uplift-assisted riding
- 61% of respondents fully support the proposal, 8% of respondents do not support the proposal

The complete survey data can be found at Appendix 6.

12 Policy

12.1 Overview

The following report section provides a wide range of recommendations around policy and guiding frameworks for the future management and development of mountain bike riding in the Toowoomba and Lockyer Valley Escarpment Area.

Dirt Art suggests that the region should work collectively to develop and utilise a consistent set of guiding principles and management plans, ensuring consistent, high-quality development and management of trails.

12.2 Relevant Standards and Guidelines

12.2.1 Overview

There is no 'standard' for the development of mountain bike trails in Australia, with no Australian Standard or other official standard for construction in place. While walking trail development does have an Australian Standard (AS 2156), this standard relates directly to walking trails, and has little to no relevance to mountain bike trail development.

It is generally accepted within the industry from both a supplier and land manager point of view, that the International Mountain Bike Association (IMBA) guidelines will be utilised for trail difficulty rating, and as a guide for construction methodology. Over the years, a number of projects have attempted to develop alternative difficulty rating systems and construction guidelines, though none of these projects has been able to develop a system that has been universally accepted.

In New Zealand, a numerical grading system is used for trail difficulty. *Dirt Art* do not recommend this system as it is inconsistent with the vast majority of other Australian destinations and has little international relevance beyond New Zealand.

12.2.2 IMBA Guidelines

The IMBA guidelines (see Appendix 5) provide a near-universally accepted high-level framework for trail development and management.

Dirt Art recommend the IMBA trail difficulty rating system be utilised to determine and advertise the difficulty ratings of all trails. The rating system from Green Circle to Double Black Diamond should be utilised. In some commercial bike parks, a higher, pro-line difficulty grading is utilised, though this grading is not generally applicable in a public trail setting.

Dirt Art recommend using core IMBA trail design and construction principles for managing trail development. These core recommend principles are;

- **The half rule:** This principle states that a trail gradient should never exceed 50% of the side slope the trail is developed upon. For example, a 20% side slope should not feature a trail gradient beyond 10%. There are many ways to sustainably contravene this rule (such as by installing rock armouring), though it is a sound principle that should in most cases be adhered to.
- **Maximum 10% average gradient rule:** In most cases, trails beyond an average gradient of 10% are difficult to develop sustainably. There are many ways to sustainably contravene this rule (such as by installing rock armouring), though it is a sound principle that should in most cases be adhered to. Notably, for this project, some of the black and double diamond trails proposed will exceed this rule.
- **Frequent grade reversals:** The installation of frequent grade reversals is the single best, and simplest way to manage trail drainage and rider speeds. Grade reversals should be genuinely installed (not just water bars), and should feature minimum lengths of 4,000mm and minimum depths of 500mm.

There are a number of IMBA principles that are outdated and should not be applied to this project:

- **Outsloping trail:** IMBA guidelines specify that the majority of trail should be outsloped by ~3% to allow for functional drainage. *Dirt Art* suggest that frequent grade reversals are a far more effective way of managing drainage.

12.3 Guiding Principals

When pursuing any large-scale destination project, a set of guiding principles assists in the provision of a consistent, high-quality product. *Dirt Art* has developed the following guiding principles for the project;

1. Recognise and respect natural, social and cultural values
2. Sustainably and sensitively showcase high-quality natural areas
3. Focus on an enduro/trail audience
4. Develop trails in areas conducive to cost effective construction
5. Capitalise on maximum elevation opportunities
6. Develop stacked loop trail concepts where possible
7. Allow for the provision of uplift opportunities

12.4 Strategic Planning

This document has been developed to provide a multi-year master plan for the development and management of mountain biking in Toowoomba and Lockyer Valley. The concepts and designs in this report should be utilised to manage the ongoing master planning for the projects.

12.5 Approvals Framework

The majority of the proposed development area is land owned and managed by TRC or LVRC. This land tenure provides a relatively simple approvals process, without the need for leasing, licensing and separate agency approvals.

A summary of the potential approvals process can be found in Section 19- Implementation Plan.

12.6 Private Land Opportunities

12.6.1 Lease and licensing

Property and/or trail corridor leasing and licensing is a common occurrence in most current destination trails networks. The bulk of the project area does not require private leasing or licensing, though notably there are some private land areas that may assist in facilitating the broader mountain bike development vision for the area.

A more detailed summary of private land opportunities can be found at Appendix 3.

12.6.2 Land Acquisition

A number of parcels of land have potential to provide additional development area for the proposed trail network. Due to sensitivities around land sales and acquisition, this is detailed separately in Appendix 3.

13 Gap and Opportunities Analysis

13.1 Overview

Queensland arguably has one mountain bike trail network that is functioning as a destination trail network in the broader national context, Atherton Forest MTB Park. Atherton provides a 60km+ network of trail riding opportunities, with a number of direct and indirect up-lift opportunities. Atherton lacks many of the key aspects required to remain competitive in a national context, and as such does not appear to achieve significant destination visitation. There is no other trail network in the state that achieves the key metrics required to be considered a major mountain bike destination.

With the lack of any significant statewide competition, the marketplace remains non-competitive and rich in opportunity in Queensland.

A comprehensive opportunities analysis has been undertaken, assessing areas with the key characteristics required for cost effective trail development, which is compatible with environmental, heritage and social values.

Dirt Art believe that Toowoomba's key competitive advantages are as follows;

- Elevation opportunity
- Proximity to major population areas
- Reasonably high natural values
- Uncomplicated land tenure
- Shuttle uplift opportunities
- Climate

A summary of the gap and opportunities analysis can be found below.

13.2 Gap Analysis

A number of significant gaps are evident in the Toowoomba Escarpment trail network. Primary gaps are listed below;

1. Lack of beginner friendly trails
2. Lack of stacked loop trail structure
3. Lack of arterial trails
4. Lack of black diamond and double black diamond trails

13.3 Opportunities Analysis

A comprehensive opportunities analysis has sought to determine potential trail development areas where conditions are conducive to cost-effective, high quality trail development, and feature a low constraints profile.

Opportunities have been proposed with the view to catering to the wants and needs of local riders, but also with the view to establish the Toowoomba and Lockyer Valley Escarpment as a nationally-significant mountain bike destination.

Dirt Art has placed a focus on the following opportunities

- Longer format stacked loop trails
- Descents utilising maximum available elevation
- Showcasing viewpoints and higher quality natural environments

14 New Trail Concepts

14.1 Overview

Approximately 68.4km of new trails have been proposed (excluding the TET Trail), which seek to address trail network gaps, while capitalising on areas with generally low development constraints. The new proposed trails provide a diverse range of trail experiences, which cater for riders of all abilities.

While the proposed trail network represents a relatively large volume of new trails, the network does allow for development staging. Importantly, the proposed network represents the minimum recommended trail volume required to establish the area as a nationally-significant mountain bike destination.

The Toowoomba Escarpment Trail (TET) is a major strategic trail development priority for TRC. This trail is discussed in detail, including development of concept trail alignments at Appendix 1.

14.2 Key Objectives

Key objectives when analysing priority new trail developments were as follows;

1. Address key network gaps
2. Develop a stacked loop trail system where possible
3. Provide opportunities for a wide range of riding styles, including shuttle uplift riding
4. Increase trail diversity
5. Place trails in areas with lower environmental values
6. Place trails in areas with reduced social conflicts
7. Place trails in areas that eliminate or reduce heritage conflicts
8. Place trails in areas that provide cost effective construction conditions

14.3 Trail Breakdown

Dirt Art has worked to develop a diverse trail network that caters to a broad market of riders. An initial focus has been placed on beginner and advanced trails, in keeping with the project scope.

A breakdown of trail types and difficulties can be found below;

Green	Blue	Black	Double Black
34.8km	21.1km	10km	2.5km

Total trail volume proposed also includes a network of ~5km of trails proposed to be developed in the Bridge Street Quarry, along with approximately 1km of trails proposed to

be developed at the Withcott Entry Node. The total trail volume, including the 5km of skills trails is approximately 73.4km.

14.4 Event Capacity

An important component of the project is the capacity of the expanded trail network to cater for a wide range of local, national and potentially international events. The site characteristics and constraints allow for the following potential events to be hosted (all with new trail infrastructure);

- Olympic Cross Country (XCO)- Local, state, national and world level (world cup/championships, Commonwealth and/or Olympic Games)
- Enduro- Local, state, national or world-level (Enduro World Series)
- Downhill- Local, state and national level (potential for world-level if strongly desired though this is not the strongest event type for the site)
- Multi day stage racing and festivals- a range of (likely private promoter) stage and multi-day event formats would be possible
- Marathon cross country- Marathon cross country at a local, state, national and world level

The above event types have been factored into the proposed new trails network. Adjustment to the proposed prioritisation of trails may be required to align with particular event opportunities.

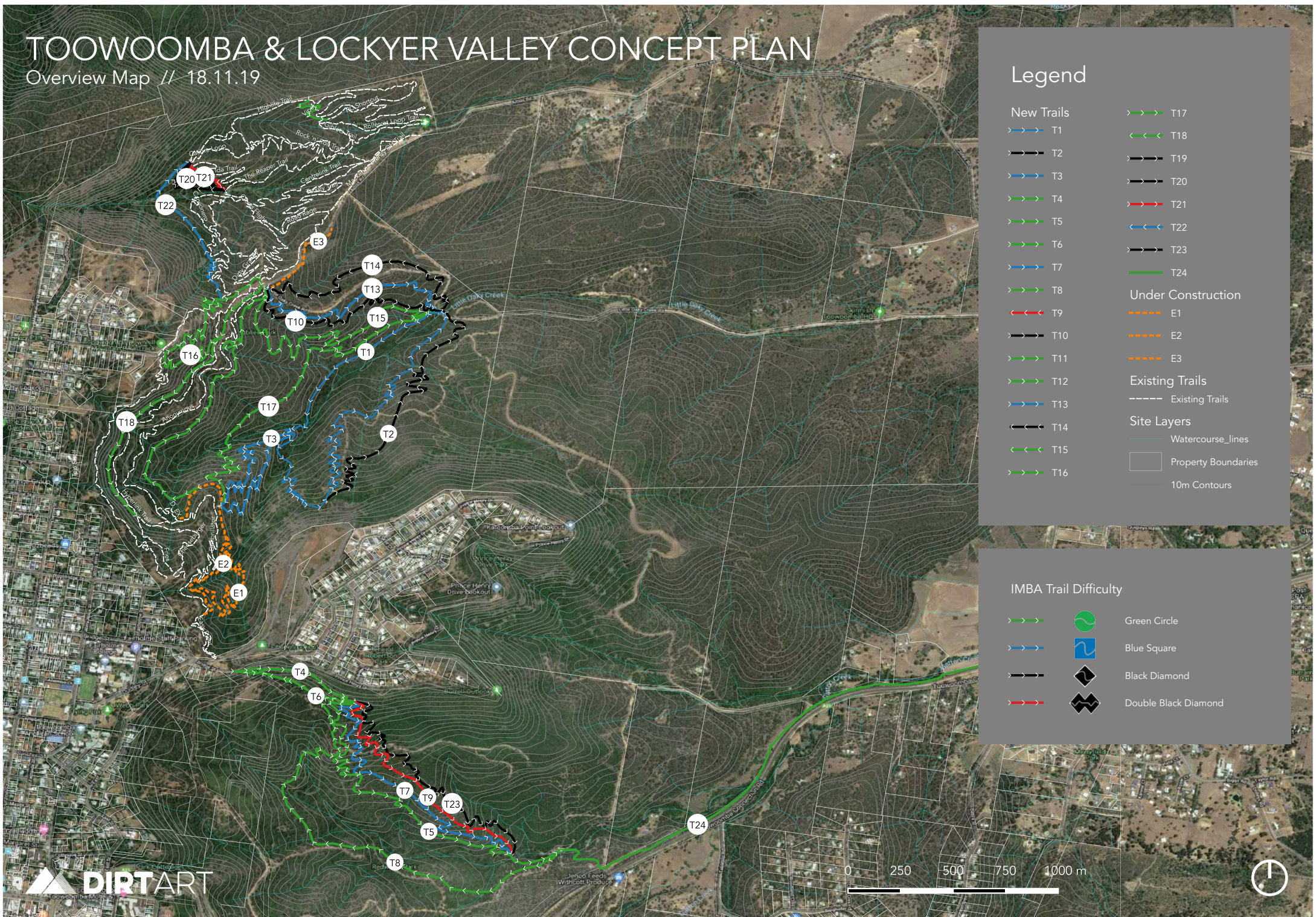
Dirt Art recommend that a focus is placed on facilitating enduro-focused events.

14.5 Proposed New Trails Maps

Trail maps for all proposed new trails can be found over the page.

TOOWOOMBA & LOCKYER VALLEY CONCEPT PLAN

Overview Map // 18.11.19



Legend

- | | |
|---------------------------|---------------------|
| New Trails | |
| ➤➤➤ T1 | ➤➤➤ T17 |
| ➤➤➤ T2 | ➤➤➤ T18 |
| ➤➤➤ T3 | ➤➤➤ T19 |
| ➤➤➤ T4 | ➤➤➤ T20 |
| ➤➤➤ T5 | ➤➤➤ T21 |
| ➤➤➤ T6 | ➤➤➤ T22 |
| ➤➤➤ T7 | ➤➤➤ T23 |
| ➤➤➤ T8 | ➤➤➤ T24 |
| ➤➤➤ T9 | |
| ➤➤➤ T10 | |
| ➤➤➤ T11 | |
| ➤➤➤ T12 | |
| ➤➤➤ T13 | |
| ➤➤➤ T14 | |
| ➤➤➤ T15 | |
| ➤➤➤ T16 | |
| Under Construction | |
| ➤➤➤ E1 | ➤➤➤ E2 |
| ➤➤➤ E2 | ➤➤➤ E3 |
| Existing Trails | |
| ----- | Existing Trails |
| Site Layers | |
| — | Watercourse_lines |
| □ | Property Boundaries |
| | 10m Contours |

IMBA Trail Difficulty

- | | | |
|-----|---|----------------------|
| ➤➤➤ | ⊙ | Green Circle |
| ➤➤➤ | ⊠ | Blue Square |
| ➤➤➤ | ⬢ | Black Diamond |
| ➤➤➤ | ⬢ | Double Black Diamond |

TOOWOOMBA & LOCKYER VALLEY CONCEPT PLAN

Jubilee Park Map // 18.11.19



Legend

- | | |
|-------------------|---------------------------|
| New Trails | ➤➤➤ T17 |
| ➤➤➤ T1 | ➤➤➤ T18 |
| ➤➤➤ T2 | ➤➤➤ T19 |
| ➤➤➤ T3 | ➤➤➤ T20 |
| ➤➤➤ T4 | ➤➤➤ T21 |
| ➤➤➤ T5 | ➤➤➤ T22 |
| ➤➤➤ T6 | ➤➤➤ T23 |
| ➤➤➤ T7 | ➤➤➤ T24 |
| ➤➤➤ T8 | |
| ➤➤➤ T9 | Under Construction |
| ➤➤➤ T10 | — — — — E1 |
| ➤➤➤ T11 | — — — — E2 |
| ➤➤➤ T12 | — — — — E3 |
| ➤➤➤ T13 | Existing Trails |
| ➤➤➤ T14 | — — — — Existing Trails |
| ➤➤➤ T15 | Site Layers |
| ➤➤➤ T16 | — — — — Watercourse_lines |
| | ▭ Property Boundaries |
| | 10m Contours |

IMBA Trail Difficulty

- | | | |
|-----|---|----------------------|
| ➤➤➤ | 🟢 | Green Circle |
| ➤➤➤ | 🟦 | Blue Square |
| ➤➤➤ | ⬛ | Black Diamond |
| ➤➤➤ | ⬛ | Double Black Diamond |



TOOWOOMBA & LOCKYER VALLEY CONCEPT PLAN

Redwood Park Map // 18.11.19



Bridge St
Trailhead

T4

T6



Upper Gravity Hub

T7

T9

T23

T5

T8

Redwood Park
Trailhead



Legend

- | | |
|-------------------|---------------------------|
| New Trails | T17 |
| T1 | T18 |
| T2 | T19 |
| T3 | T20 |
| T4 | T21 |
| T5 | T22 |
| T6 | T23 |
| T7 | T24 |
| T8 | Under Construction |
| T9 | E1 |
| T10 | E2 |
| T11 | E3 |
| T12 | Existing Trails |
| T13 | Existing Trails |
| T14 | Site Layers |
| T15 | Watercourse_lines |
| T16 | Property Boundaries |
| | 10m Contours |

IMBA Trail Difficulty

- | | | |
|----------------------|--|----------------------|
| Green Circle | | Green Circle |
| Blue Square | | Blue Square |
| Black Diamond | | Black Diamond |
| Double Black Diamond | | Double Black Diamond |



14.6 Trail One

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	42/50
--------------------	-------

Key Stats	
Length	8,000m
TDRS	Blue Square
Construction Style	Flow Trail
Total elevation gain/loss	+/- 205m

Trail Overview

Trail One is an arterial loop trail, opening up a new zone of the riding area. The trail provides a gently descending alignment, which provides an opportunity for a range of more advanced trail features.

The trail is accessed via Trail Three.

The ascending portion of the trail ascends gently, and also provides climbing access for a range of other proposed trails.

14.7 Trail Two

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	39/50
--------------------	-------

Key Stats	
Length	3500
TDRS	Black Diamond
Construction Style	Technical Trail
Total elevation gain/loss	-155m

Trail Overview

Trail Two is proposed as an advanced descent, providing an alternative descending option from Trail two.

The trail is proposed to feature both excavator and hand-built sections, which maximise the rock in the area and the natural terrain features.

14.8 Trail Three

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	42/50
--------------------	-------

Key Stats	
Length	5,000m
TDRS	Blue Square
Construction Style	Technical Trail
Total elevation gain/loss	+/-145m

Trail Overview

Trail three is a technical intermediate trail loop, utilising a more pronounced ridgeline. The trail is proposed to be machine built, and to feature a range of technical rock trail features.

The trail provides connectivity to a range of other trails in the network.

14.9 Trail Four

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	42/50
--------------------	-------

Key Stats	
Length	1,200m
TDRS	Green Circle
Construction Style	Flow Trail
Total elevation gain/loss	-65m

Trail Overview

Trail Four is an arterial link trail, providing a link into the Redwood park descending trails.

The trail is proposed as a beginner-friendly Green Circle difficulty trail to provide connectivity for all abilities.

14.10 Trail Five

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	42/50
--------------------	-------

Key Stats	
Length	5,000m
TDRS	Green Circle
Construction Style	Flow Trail
Total elevation gain/loss	-240m

Trail Overview

Trail Five is proposed as a beginner flow trail descent, that will be one of the most iconic trails in the network. Featuring an appealing, darker forest type and a range of flow-focused trail features, the trail provides a large vertical descent opportunity, which will appeal to a broad market of riders.

The trail operates as a loop with Trail Eight, or as a shuttle-accessed trail.

14.11 Trail Six

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	39/50
--------------------	-------

Key Stats	
Length	500m
TDRS	Green Circle
Construction Style	Flow Trail
Total elevation gain/loss	+50m

Trail Overview

Trail Six is short link trail, providing climbing access into the main descending trail junction in Redwood Park.

The trail is proposed as a beginner-friendly Green Circle difficulty trail to provide connectivity for all abilities.

14.12 Trail Seven

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	40/50
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Key Stats	
Length	4,500m
TDRS	Blue Square
Construction Style	Flow Trail
Total elevation gain/loss	-245m

Trail Overview

Trail Seven provides one of the longer uninterrupted intermediate descents in the trail network, offering a world-class flow trail through 245m of elevation loss.

The trail operates as a loop with Trail Eight, or as a shuttle-accessed trail.

14.13 Trail Eight

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	43/50
--------------------	-------

Key Stats	
Length	5,000m
TDRS	Green Circle
Construction Style	Flow Trail
Total elevation gain/loss	+245m

Trail Overview

Trail Eight provides a highly-valuable climbing link, servicing the proposed descending trails in Redwood Park. The trail is proposed as a gently climbing experience, through an average gradient of less than 5%.

14.14 Trail Nine

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	38/50
--------------------	-------

Key Stats	
Length	2,000m
TDRS	Double Black Diamond
Construction Style	Technical Trail
Total elevation gain/loss	- 245m

Trail Overview

Trail Nine is a double black diamond descending trail, capitalising on 245m elevation loss through Redwood Park. The trail is proposed to feature a steeper, more technical trail alignment, utilising rock paving and features to ensure sustainability.

14.15 Trail Ten

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	42/50
--------------------	-------

Key Stats	
Length	2,000m
TDRS	Black Diamond
Construction Style	Flow/Jump Trail
Total elevation gain/loss	-145m

Trail Overview

Trail Ten is proposed as an advanced level jump and flow trail, utilising the shadier area of the site to develop a trail style that requires better soil stability. The trail is proposed to feature a range of larger jumps and bermed corners.

The trail will feature a wider tread width of up to 2,500mm.

14.16 Trail Eleven

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	44/50
--------------------	-------

Key Stats	
Length	3,000m
TDRS	Green Circle
Construction Style	Flow Trail
Total elevation gain/loss	+/- 100m

Trail Overview

Trail 11 is proposed as a beginner friendly flow trail that will combine with E1 and E2, which are currently being developed by the TMBC to provide a range of loop riding options for all riding abilities.

14.17 Trail Twelve

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	43/50
--------------------	-------

Key Stats	
Length	1,250m
TDRS	Green Circle
Construction Style	Flow Trail
Total elevation gain/loss	+/- 50m

Trail Overview

Trail 12 is a short contouring link trail that closes a loop with the existing Anonymous Trail.

The trail improves network functionality, and allows existing trails to be converted to single direction.

14.18 Trail Thirteen

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	45/50
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Key Stats	
Length	2,250m
TDRS	Blue Square
Construction Style	Jump/Flow Trail
Total elevation gain/loss	-145m

Trail Overview

Trail 13 is proposed as an intermediate jump trail. The trail capitalises on improved shade and soil conditions to create a trail experience with larger table top jumps. There is an opportunity to utilise split take offs to cater for a broader rider audience.

The trail will feature a larger tread and construction footprint, and will likely be constructed with a larger (up to 2.5t) excavator pending approval conditions.

14.19 Trail Fourteen

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	45/50
--------------------	-------

Key Stats	
Length	2,000m
TDRS	Black Diamond
Construction Style	Technical Trail
Total elevation gain/loss	-140m

Trail Overview

Trail 14 is proposed as an advanced technical trail, with a range of trail features at an IMBA Black Diamond standard. The trail is proposed as a machine built trail but with a range of natural and rock sections.

14.20 Trail Fifteen

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	46/50
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Key Stats	
Length	3,000m
TDRS	Green Circle
Construction Style	Flow/Technical Trail
Total elevation gain/loss	+140m

Trail Overview

Trail 15 is proposed as a beginner-friendly climbing trail, that gently climbs, providing a return trail for multiple proposed descending trails. Technical features will be provided as optional diversions, such as allowing riders to climb rock paved sections between switchbacks.

The trail provides climbing access for trails 10, 13 and 14.

14.21 Trail Sixteen

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	46/50
--------------------	-------

Key Stats	
Length	6,000m
TDRS	Green Circle
Construction Style	Flow Trail
Total elevation gain/loss	+/- 170m

Trail Overview

Trail 16 is proposed as a beginner friendly loop trail, providing ascending and descending trail access from the Harvey Street access point at an IMBA Green Circle Standard. The trail is proposed as a flow trail with gently climbing and descending alignments and wide open, in-sloped corners.

14.22 Trail Seventeen

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	46/50
--------------------	-------

Key Stats	
Length	4,000m
TDRS	Green Circle
Construction Style	Flow Trail
Total elevation gain/loss	-200m

Trail Overview

Trail 17 is proposed as a beginner-friendly descending trail that features a gently descending gradient. The trail provides an introduction to gravity riding for beginner riders, while also forming as link to a range of loop riding options.

14.23 Trail Eighteen

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	45/50
--------------------	-------

Key Stats	
Length	2,500m
TDRS	Green Circle
Construction Style	Flow Trail
Total elevation gain/loss	+/-120m

Trail Overview

Trail 18 is proposed as a beginner-friendly flow trail, which forms a loop with the existing Top Shelf Trail.

14.24 Trail Nineteen

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	38/50
--------------------	-------

Key Stats	
Length	1,000m
TDRS	Black Diamond
Construction Style	Technical Trail
Total elevation gain/loss	+60m

Trail Overview

Trail 19 is proposed as an advanced level technical climbing trail, which accesses a number of advanced descending trails. The trail is proposed for machine construction, but should include a range of technical trail features, including rock features.

14.25 Trail Twenty

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	36/50
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Key Stats	
Length	500m
TDRS	Black Diamond
Construction Style	Technical Trail
Total elevation gain/loss	-600m

Trail Overview

Trail 20 is proposed as one of the most advanced trails in the network, featuring a hand-built alignment, which will include a range of rock trail features.

14.26 Trail Twenty-One

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	38/50
--------------------	-------

Key Stats	
Length	500m
TDRS	Double Black Diamond
Construction Style	Technical Trail
Total elevation gain/loss	-60m

Trail Overview

Trail 21 is one of the most challenging trails in the network, and is proposed as a double black diamond technical trail, which would be hand built.

14.27 Trail Twenty-Two

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	43/50
--------------------	-------

Key Stats	
Length	1,500m
TDRS	Blue Square
Construction Style	Flow Trail
Total elevation gain/loss	+/- 20m

Trail Overview

Trail 22 is proposed as a contouring connecting trail, which opens up a range of riding opportunities within the trail network. The trail will require a minor (<50m) realignment of the existing Canyonero Trail to create space into the trail head at the southern end of the trail.

14.28 Trail Twenty-Three

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	36/50
--------------------	-------

Key Stats	
Length	2,000m
TDRS	Black Diamond
Construction Style	Flow Trail
Total elevation gain/loss	-225m

Trail Overview

Trail 23 is proposed as one of the most advanced trails in the network, featuring a hand-built alignment, which will include a range of rock trail features.

14.29 Trail Twenty-Four

Criteria	Rating				
Sustainability					
Ride Experience					
Broad Market Appeal					
Environmental Experience					
Value to Network					
Environmental Compatibility					
Social Compatibility					
Heritage Compatibility					
Life Cycle Cost Rating					
Emergency Access					

Total Score	42/50
--------------------	-------

Key Stats	
Length	3,000m
TDRS	Green Circle
Construction Style	Flow Trail
Total elevation gain/loss	+/-100m

Trail Overview

Trail 24 is proposed as an arterial link trail, connecting Redwood Park with Withcott. The trail is beginner-friendly and suitable for shared-use.

It is expected that approximately 200m of elevated platform will be required to managed wet and flood-prone areas along the alignment.

15 Potential Future Concepts

15.1 Overview

While the proposed trail network will deliver a total trail network size of approximately 100km, it is important to note that further expansion of the trail network is possible should it be desired in the mid-long term.

The below future concepts are beyond the current scope yet represent important longer term strategic aims for mountain bike trail development on the Toowoomba and Lockyer Valley Escarpment area.

15.2 Redwood Park and Jubilee Park

Should there be a desire to establish additional trail within Jubilee and Redwood Parks on council land tenure, *Dirt Art* suggests that a further 20-30km of trail could potentially be developed without any significant effect on natural values.

15.3 Private Land Opportunities

Potential future concepts for the Toowoomba and Lockyer Valley Escarpment generally involve additional trails developed on private land. These opportunities will be explored further in Appendix 3.

16 Tourism and Economic Development

16.1 Overview

Mountain bike tourism is a relatively new industry in Australia, with the first high-quality mountain bike destinations coming on line in the past five years. Despite this, mountain bike tourism is well-established internationally, with many regional towns across the world showing vibrant mountain bike tourism industries for a number of years (Including Finale Ligure- Italy, and Whistler- Canada).

Australian mountain bikers have a propensity to travel regularly and for long durations (the average Australian mountain bike holiday is seven days⁸). Beyond this, Australia is gaining popularity with visiting international riders, particularly from New Zealand and North America.

In a current Australian mountain bike tourism context, Tasmania is arguably the market leader, with a number of new trail destinations coming on line recently, and a significant investment into more trail development planned across the next several years.

16.2 Economic Impact

16.2.1 Overview

The below economic modelling has been developed to explore the current and potential economic impact of the trail network. While no accurate trail usage is available based on visitor type, *Dirt Art* has made estimates regarding current usage based on the size and scope of the facility.

In developing this economic modelling, *Dirt Art* has made a number of assumptions, including;

- The current trail network is achieving very minimal visitor nights
- The proposed trail network proceeds in its entirety
- The proposed trail network is completed within the next 5 years

16.2.2 The Queensland opportunity

The potential for intrastate visitation within Queensland is profound. South East Queensland has limited current mountain bike destination of note. There is significant unmet demand in the state and SE Queensland region that could be met by this project.

⁸ Dirt Art 2018, Mountain Bike Market Profile Survey

16.2.3 Visitor spending benchmarks

Dirt Art has proposed visitor spending as follows;

Day visitor- \$45/day

Overnight visitor- \$190/day⁹

Projected overnight spending has been based on Tasmanian Tourism Visitor Survey (TVS) Data. Tasmanian data is utilised for this purpose as Tasmania is the only state with an accurate TVS survey due to the states non-porous borders.

16.2.4 Multipliers

Dirt Art has applied a multiplier of 1.91x, which is the generally accepted economic impact multiplier for determining indirect economic impact for tourism-related activities¹⁰.

16.2.5 Estimated Current Visitation and Economic Impact

The Toowoomba trail network is currently operating at a local or regional level facility, and as such is not receiving large numbers of visitors from beyond the region.

Dirt Art estimates the economic impact of the trails is as follows;

Current			
Visitor Type	Spend	Volume	Total
Day	\$ 40.00	5,000	\$ 200,000.00
Visitor nights	\$ 190.00	1,000	\$ 190,000.00
		Direct Impact	\$ 390,000.00
		Direct & Indirect impact	\$ 744,900.00

16.2.6 Estimated Potential Economic Impact

The proposed new trail network would establish Toowoomba and the Lockyer Valley as a Nationally-significant mountain bike trail destination. This change when combined with effective marketing and promotion, would deliver significant visitation from outside the local and regional area.

⁹ Tourism Visitor Survey Tasmania, 2012

¹⁰ Tourism Research Australia, 2010

Future			
Visitor type	Spend	Volume	Total
Day	\$ 40.00	25000	\$ 1,000,000.00
Visitor nights	\$ 190.00	50,000	\$ 9,500,000.00
Direct Impact			\$ 10,500,000.00
Direct & Indirect Impact			\$ 20,055,000.00

Of the above visitor nights, it is estimated that the average overnight visitor stay will be three nights, resulting in a total unique overnight visitor volume of 16,666 per annum. The three-night stay estimate is based on the trail volume and predicted regional, national and international visitor behaviours.

16.3 Visitation benchmarks

Dirt Art has conservatively estimated visitation on a broad range of factors, including but not limited to;

- Regional and statewide trail supply
- Alternative Queensland destinations
- Alternative Australian destinations

16.4 Business development

16.4.1 Overview

When undertaking mountain bike infrastructure development with a focus on tourism and economic development, it is critically important that the development and operational planning for the facility provide clear avenues and support networks for commercial activity and business development.

Dirt Art has developed the proposed trail network to facilitate a wide range of direct and indirect business opportunities.

16.5 Employment Impacts

Every \$1m spent on tourism supports 11.4 FTE jobs¹¹. Utilising this data, the completed project has the potential to create 100+ new jobs across the region.

Dirt Art conservatively predict that the completed project will deliver over 50 new jobs for the region, which will be across a diverse range of specialist, skilled and unskilled positions.

¹¹ Tourism Research Australia

The trail development has been proposed to directly deliver the highest possible employment impacts. This has been achieved through a range of methodologies, including the provision of commercial uplift opportunities, and a trail network size and design that encourages multi-day stays.

16.5.1 Potential business activities

A wide range of direct business opportunities will be available as a result of this project. These include, but are not limited to;

- Uplift provision
- Bike retail and repair
- Bike hire
- Tours and guiding
- Airport pick up/drop off and related transfers
- Skills coaching

Indirect business opportunities include but are not limited to;

- Food and beverage
- Accommodation
- Complementary activity provision

Section 18 will provide further detail around potential commercial opportunities.

16.6 Supporting business

While the mantra of 'build it and they will come' has been the key principal of many past mountain bike developments, developing even the best trail facilities without educating and supporting communities and the business community will fail to see optimal economic benefits achieved.

Dirt Art recommend hosting workshop/s with community, existing and potential new business owners to educate these groups in the opportunities provided by the trail development. These workshops should provide a comprehensive overview of the mountain bike tourist markets, their wants and needs.

Dirt Art also recommend the development of mountain bike specific business group/s, which will support networking and ultimately the growth of a sustainable, successful commercial community around the trail project.

Any proposed marketing activity should also where possible support the local business community.

17 Commercial Opportunities

17.1 Overview

The current and proposed expanded trail network provides a number of commercial opportunities. These opportunities cross a wide range of industries, both within and external to the direct mountain bike industry. A strategy for the management of commercial use is strongly recommended, which in most cases should include levies for operators, which can assist with funding trail maintenance and management.

A list of potential commercial opportunities is provided below, which is by no means an exhaustive list.

17.2 Uplift Opportunities

Uplift services form a valuable component of most destination trail networks, and some local and regional level trail networks. These uplift services may be delivered in a range of ways, including chairlift/gondola and/or shuttle bus.

The provision of an uplift service/s is an important component of the Toowoomba trail network, particularly given the availability of elevation on the site.

A map route of the current service can be found below.

The current shuttle route is extremely long, which significantly reduces the appeal for riders, and has commercial implications for the operator (particularly if they are selling single run passes).

Dirt Art recommend that an uplift route utilising Redwood Park as an exit point be pursued. Alternatively/additionally, an access at Amos Road off road to Harvey Street may be viable with significant road upgrades.

17.3 Tours, skills sessions and guiding

Tours, skills sessions and guiding form a valuable component of any trail network or destination. From a destination point of view, these services play a valuable role in servicing key markets, ensuring that visitors are having a high-quality, safe experience.

While the current trail network does provide potential for these services to be established, the consistency, diversity, volume and quality of trails does limit the commercial viability of such services.

17.4 Food and Beverage

Quality food and beverage provision is a critical component of any destination focused trail network. Generally, the target audience are seeking a high-quality, healthy, and simple product, that will in most cases include a desire for good quality coffee and craft beer.

While Toowoomba CBD has significant capacity in this area, there remains potential to establish outlet/s in the Bridge Street Quarry area, and/or within the Withcott township.

17.5 Retail

Retail, and particularly bicycle store retail, is a critical component of any destination-focused mountain bike trail network. Toowoomba has a good selection of bike retail stores, though pending final trail network layout, Withcott does not currently have a bike retail outlet.

17.6 Events

Events provide an effective one-time economic benefit, though perhaps more importantly, high-quality events can provide significant marketing benefit, by exposing trails to a new audience, who is motivated to visit due to the event.

A number of large-scale events could be catered for on the site, including but not limited to;

- Olympic XCO
- Commonwealth Games XCO
- National Level XCO and DHI
- Enduro World Series (Qualifier, Continental or Global
- Private promoter events

When considering private promoter events, *Dirt Art* recommend that land managers implement a fee schedule commensurate with levels of use and likely trail damage. A per rider fee of \$5-10 per rider is suggested.

18 Shuttle Uplift

18.1 Overview

The provision of uplift services is a critical component of the proposed mountain bike destination. The provision of uplift opportunities is a key component of most successful current mountain bike destinations, ultimately allowing riders to ride longer, and increase their length of stay, maximising economic benefits for the region.

Uplift route/s should be as short as possible, maximising ride time and increasing the commercial viability for providers.

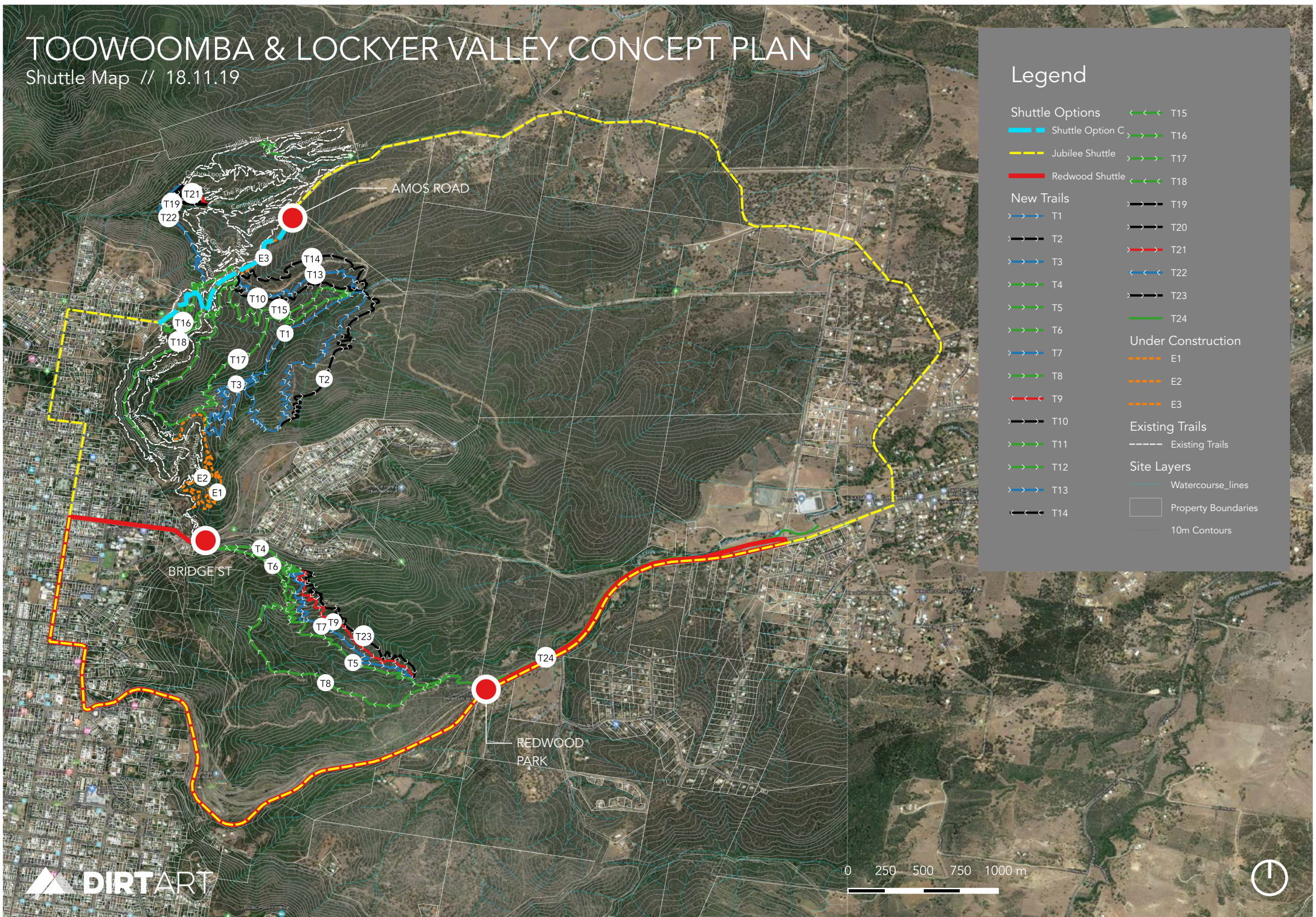
Dirt Art has analysed a number of potential uplift routes, which will be explored below.

18.2 Potential Uplift Routes

A map of potential uplift routes can be found over the page.

TOOWOOMBA & LOCKYER VALLEY CONCEPT PLAN

Shuttle Map // 18.11.19



Legend

- | | |
|--------------------|---------------------|
| Shuttle Options | ←←← T15 |
| Shuttle Option C | ←←← T16 |
| Jubilee Shuttle | ←←← T17 |
| Redwood Shuttle | ←←← T18 |
| New Trails | →→→ T19 |
| | →→→ T20 |
| | →→→ T21 |
| | →→→ T22 |
| | →→→ T23 |
| | →→→ T24 |
| Under Construction | --- E1 |
| | --- E2 |
| | --- E3 |
| Existing Trails | --- Existing Trails |
| Site Layers | Watercourse_lines |
| | Property Boundaries |
| | 10m Contours |



18.2.1 Shuttle Option 1- Redwood Park Route

The low point of Redwood Park can be accessed via existing roads and road easements, and provides essentially direct connectivity onto the highway, utilising existing road treatments. Importantly, this route provides direct shuttle access, while also allowing for the maximum elevation opportunity to be utilised.

This proposed route maximises functionality for riders, while providing the best commercial viability for operators.

Dirt Art recommend that the low point of Redwood Park be utilised as a primary uplift pick up point, with the Bridge Street Quarry to act as a primary drop off point.

18.2.2 Shuttle Option 2- Amos Road Route

The Amos Road uplift route is the route utilised currently by private shuttles. The route is extremely indirect, taking 20-30 min (pending drop off area) to access what for many riders will be a 3-4-minute descent.

Dirt Art do not believe this route is commercially viable, nor is the route desirable for private usage in the mid-long term.

18.2.3 Shuttle Option 3- Fire Trail Route

There is an opportunity to uplift riders up the fire trail route adjacent to McKenzie Frenzy. This route will require a four-wheel drive vehicle, and as extremely steep and rough in places. While the route may be viable for small volumes of riders, any growth in use and vehicle numbers will make the route completely unviable without extensive road upgrades.

During peak times, the interface and crossing with existing trails, as well as dust immediately adjacent to trails contribute to the issues with this route.

A significant volume of works would be required to create a functional, sustainable uplift route using this access road.

While the route may be viable for a very small uplift operation in the short term, *Dirt Art* do not believe this route is viable for the proposed trail destination.

18.3 Managing Uplift Providers

Dirt Art suggests that an effort be made to manage uplift provision utilising a structured framework from the outset. There are two key types of uplift provision;

- Single run uplift
- Day or part day passes

Dirt Art suggests that both options above may be popular as commercial options for the trail network.

The Redwood Park site provides an opportunity to have closed access with access potentially available for commercial operators only from the bottom of the site. This opportunity provides a clear opportunity to manage service provider/s.

Dirt Art suggest that uplift provision should be levied, with a suggested levy in the region of 10%. This levy provides a significant opportunity to provide funding to assist with trail management.

19 Implementation Plan

19.1 Detailed trail design

The concepts provided within this report represent broad trail corridors. These corridors have been ground truthed to ensure viability, though they do not represent final trail designs.

The trails will require detailed design, including route flagging on the ground. *Dirt Art* recommends that detailed design work for each trail/s be undertaken by the company/organisation construction the trail.

19.2 Approvals

19.2.1 Development Application/Planning Permit

Given the nature, scale and location of the project and proposed works that compose it, it is likely that a development application (DA)/Planning Permit (PP) and/or building approval will be required. The requirement (or otherwise) for a development application will be determined at the relevant time, based on the nature of the specific proposed development.

19.2.2 Consultation

A number of community groups have a strong interest in the Escarpment parks, for a broad range of particular interests. *Dirt Art* suggest that ongoing consultation between groups during design and approvals will be a valuable activity when progressing the project.

19.2.3 Cultural Heritage Assessment

A Cultural Heritage Assessment will need to be undertaken by a suitably qualified professional. The project site and proposed trail corridors/alignments will need to be investigated and assessed to ensure that any proposed activities do not harm or adversely impact any Aboriginal objects or declared Aboriginal places of significance. The resulting assessment report is to detail any potential harm and clearly identify which impacts are avoidable and those that cannot be adequately mitigated with practical measures.

19.2.4 Flora and Fauna/Natural Values Assessment

Given the nature and scale of the proposed development, a natural values (flora and fauna) assessment (NVA) will be required. This flora and fauna assessment will be required to be carried out by an appropriately qualified consultancy.

The assessment will be required to assess for EVNT (endangered, vulnerable and threatened species) flora and fauna. Should EVNT be found, there may be a requirement to alter the proposed trail alignments.

Dirt Art suggest that final trail design and NVA are undertaken in unison, allowing the final trail tread to be placed in a location that minimises disturbance to natural values.

19.2.5 EPBC (Environmental Protection, Biodiversity and Conservation Act) referral

Given the location and scale of the proposed development, an EPBC referral to the federal government may be required, pending final trail alignment and the location of any rare, endangered or threatened species. The EPBC process requires self-referral and has statutory time limits for assessment. The referral will be required if the development is likely to have a significant effect on protected flora and/or fauna.

An EPBC referral is applicable where a project is determined to be likely to cause disturbance to protected, endangered and vulnerable flora and fauna on a nationally-significant scale.

With a comprehensive and considered design approach that works to avoid EVNT species areas, *Dirt Art* recommend that an EPBC referral may not be required for the project.

The need for a referral should be determined by an appropriately qualified consultant.

19.3 Construction Staging

The project plan allows for a range of staging possibilities. *Dirt Art* has placed all works in a priority order in the project budget at appendix two.

Dirt Art recommend that the project should not be launched with less than 30km of new trails developed. The benchmark for mountain bike destination in Australia is high and only getting higher, launching with a low volume of trail risks creating high visitor expectation, which in many cases may not be met.

Dirt Art recommend that staging priorities be determined through ongoing consultation with stakeholder groups.

19.4 Construction Approach

19.4.1 Vegetation clearance

Trail alignments and construction methodologies have been proposed to limit vegetation clearance. No large trees will require clearing (unless they pose an individual safety issue), with the proposed maximum DBH (diameter at breast height) tree size for any clearance

works suggested at 150mm. All efforts are to be made to retain as many trees as possible, particularly native trees.

19.4.2 Professional and volunteer construction

Dirt Art recommends that the majority of new trail construction be delivered by a specialist mountain bike construction company/s. Given the bulk earth works required for most trails, hand building volunteer construction will not be a feasible approach.

Hand built technical trails do offer potential for managed volunteer construction, which provides an opportunity to reduce construction costs and grow local stewardship.

19.4.3 Machine construction where possible

The nominal proposed width for all new trails is approximately 1,000mm of functional tread width. It is anticipated that trails will range between 400mm-1,500mm depending on the trail style and construction methodology.

Most modern mountain bike trail construction is undertaken with mini-excavators in the size range of 0.8 to two tonnes. The use of excavators offers significant improvements in efficiency relative to hand-building in most environments.

There are some areas of proposed trail that may require hand build construction methodology, particularly where high levels of ground rock are evident. Notably, *Dirt Art* has worked to minimise construction complexity and is confident that the majority of the trails are able to be constructed by excavator.

It is recommended that where possible machine construction is pursued, where this does not adversely impact the experience provided by a trail and where it does not substantially impact the character of the development.

19.4.4 Climatic considerations

The soil type and climate in Toowoomba will allow for year-round construction in most conditions. Toowoomba has a generally dry climate, which may require trail finishing works to be completed in line with rainfall events to allow for surface compaction.

19.4.5 Construction progress

For excavator constructed trails, a typical team will consist of an excavator operator and two labourer staff. Adjustments to this team size may be required to account for difference in terrain and vegetation density.

The proposed trail development will likely see an average excavator team construct approximately 75m of finished trail per day.

Given the size of the project, multiple teams would likely be required to ensure reasonable levels of productivity across the project.

19.5 Signage

19.5.1 Overview

Effective signage is critical for the functionality of any destination mountain bike project, while also assisting in risk and incident management. The signage should focus on large map boards, as well as trail head and way marker signage.

An important consideration is also main road signage, ensuring that visitors are aware of the attraction as they approach via vehicle.

19.5.2 Budget

Dirt Art suggest a signage budget of 2.5% of capital investment (\$25,000/\$1m investment).

19.6 Suggested Order of Costs

See suggested order of costs at Appendix 2.

20 Operational Considerations

20.1 Management Models

As the majority of the proposed land will be council owned and managed, the governance and management of the trails will be relatively simple.

Notably, with a potentially significant increase in trail volume *Dirt Art* recommend that the two councils dedicate paid resources to trail maintenance. This allocation will ensure the goodwill of volunteers is not exceeded, while maintaining high-quality, safe and functional trails.

20.2 Trail Maintenance

Trail maintenance is one of the key operational considerations of any trail destination. In general terms, a high -quality mountain bike destination will require regular maintenance, to ensure trails are maintained to a standard expected by the traveling mountain bike rider.

Dirt Art suggests a maintenance budget of approximately \$1,500 per kilometer per annum would be appropriate. This budget allocation would involve approximately two FTE positions managing the completed trail network.

20.3 Trail directional management

All proposed trails are single directional and should be operated in the proposed direction of travel only.

20.4 Shared use trails management

Dirt Art suggest shared use for mountain bike and walking uses is possible on all proposed climbing trails. Shared use should be discretionary on contouring trails. Descending trails should be managed as mountain bike-only.

20.5 Adaptive mountain bike riding

Adaptive mountain biking utilises a range of different equipment, though most users ride a four wheeled hand cycle. Other formats include trikes and downhill wheelchairs.

Adaptive mountain biking is growing in popularity across Australia and is a fantastic way to make the sport of mountain biking more inclusive for those unable to ride a traditional mountain bike.

Adaptive mountain bikes typically require a wider tread width (~1,200-1500mm) and a trail that does not generally feature extreme gradients or camber. Adaptive mountain biking should be considered during the detailed design process and would be suitable on some of the beginner-intermediate flow trails proposed for the project.

20.6 Risk and Incident Management

Risk and incident management is a critically important consideration for any mountain bike trail development and should be considered continually throughout the development and construction process.

Dirt Art recommend that new trails not be opened until a complete emergency management plan is completed by appropriately qualified/experienced consultants.

Incidents can be minimised through the following key considerations;

- Predictability in trails
- Low consequence trail features (limited gap jumps, blind drops etc)
- Appropriate trail difficulty grading
- Appropriate signage
- High-quality trail design and construction

Incidents can be managed through the following key considerations;

- Liaison with emergency services
- Noting of key access routes
- Noting of emergency points on all trails
- Consideration of aerial rescue points

21 Event Potential

21.1 Overview

Events bring a number of local and regional benefits, which primarily focus around marketing opportunities, and one-time economic impacts.

Dirt Art has worked to establish a proposed trail network that can host a wide range of mountain bike events, from local to international in scale. Key site attributes have been utilised to maximum event potential for some of the world's biggest events.

21.2 Key event opportunities

21.2.1 Olympic and Commonwealth Games Events

21.2.1.1 Overview

Olympic and Commonwealth include one mountain bike event type, Cross Country Olympic (XCO). This racing format involves racers competing in a head to head format as a mass group, with a single start. The race is conducted over a 4-km loop course, with racers completing 6-8 laps for a total race time of ~1.5 hours.

The Commonwealth Games XCO event on the Gold Coast hosted over 20,000 spectators, which should be considered when pursuing these events. The Bridge Street Quarry provides excellent potential to house this volume of spectators.

The Toowoomba Escarpment has excellent potential to host this event type.

21.2.1.2 Course requirements

The race course must meet the following requirements;

- 4-6km in length
- No more than 10% of the course may occur on paved/sealed roads
- A lightly sloping 200m start/finish straight
- Multiple loops to bring riders back to race village regularly
- Minimum of 5,000m² race village space
- Capacity for two feed zones (preferably in a double feed zone format)

The race course must provide a range of trail styles to test a wide range of riding skills and abilities. Generally trails will focus on black and double black diamond trails.

21.2.1.3 Other considerations

The hosting of these events will involve a significant consideration of broadcast and media. Where possible, a good volume of the course should be located in cleared areas to maximise broadcast opportunities

The Toowoomba Escarpment site will rely heavily on the Bridge Street Quarry site to facilitate these events. No other potential event village spaces are suitable without large scale vegetation clearing and earthworks.

21.2.2 Enduro World Series and related events

21.2.2.1 Overview

The Enduro World Series (EWS) is a five-year old event format that involves racing and liaison stages. Racers compete in a timed format down descending stages, and pedal through climbing stages in a non-competitive format.

The Toowoomba Escarpment has excellent potential for this event type, with this potential maximised through the proposed new trail development.

21.2.2.2 Course requirements

The event has the following course requirements;

- Minimum of seven descending stages
- Availability of two climbing trail options for liaison

21.2.2.3 Other considerations

The EWS event format relies on a high volume of sustained/uninterrupted descending trails. Hosting EWS global events is currently highly-competitive, particularly in the southern hemisphere, where only limited event slots are available.

21.2.3 National and world level Cross Country Olympic

21.2.3.1 Overview

This racing format involves racers competing in a head to head format as a mass group, with a single start. The race is conducted over a 4-6km loop course, with racers completing 6-8 laps for a total race time of ~1.5 hours.

21.2.3.2 Course requirements

- 4-6km in length

- No more than 10% of the course may occur on paved/sealed roads
- A lightly sloping 200m start/finish straight
- Multiple loops to bring riders back to race village regularly
- Minimum of 5,000m² race village space
- Capacity for two feed zones (preferably in a double feed zone format)

21.2.3.3 Other considerations

The Toowoomba Escarpment site will rely heavily on the Bridge Street Quarry site to facilitate these events. No other potential event village spaces are suitable without large scale vegetation clearing and earthworks.

21.2.4 National and world level downhill events

21.2.4.1 Overview

Downhill (DHI) racing involves racers competing in a point-to-point timed-format, descending race. The race involves a descending trail with a winning race time of 2-5 minutes. To achieve this time goal, elevation range between 200-600m is required.

21.2.4.2 Course requirements

- 200m+ vertical elevation
- Uplift opportunity
- Double black diamond difficulty

21.2.4.3 Other considerations

Downhill racing events are typically focused on the finish line, which is where the focus of spectator activity will occur. Given the likely event village at the Bridge Road Quarry, consideration should be given to servicing the finish line area for spectators.

21.2.5 Marathon cross country racing

21.2.5.1 Overview

Marathon cross country racing typically involves a course of 80-120km, which may include a maximum of three laps of a loop course, a large loop, or a point-to-point format.

The racing format has waned in popularity, though remains relevant, and will attract large fields for national and international level events.

21.2.5.2 Course requirements

The format has the following course requirements;

- 80-120km course with a maximum of three laps
- Large start/finish area
- 200m start/finish straight

Dirt Art suggests a 3-lap race format is optimal as it allows reduced distance events to be easily managed through lap counts.

21.2.5.3 Other considerations

The Toowoomba Escarpment site has good potential to host this event type.

21.2.6 Other event types

A range of other event types may be pursued in the target area. These event types include but are not limited to;

- Stage racing
- Mountain bike festival

Dirt Art suggests that both the event types above can be facilitated at the site, with the strongest potential available for a festival-type event.

22 Branding and Marketing

22.1 Overview

In an increasingly competitive mountain bike destination marketplace, marketing and branding are critical components of any successful destination. *Dirt Art* recommend a branding exercise be undertaken prior to launching new trails, to establish the customer-facing project identity

This package would include a new logo and a broader style guide and package, which is consistent with the values of the revitalised trail destination.

22.2 Key Strengths

The key strengths of the completed trail network and brand will be;

- A large network of iconic trails
- Excellent elevation opportunities
- High-quality natural environments
- Challenging enthusiast trails
- Approachable beginner trails
- Small town charm and community values at Withcott
- Food, beverage and accommodation opportunities at Toowoomba

The above key strengths should form the basis of a new branding package.

22.3 Marketing Plan

22.3.1 Overview

The Toowoomba and Lockyer Valley Escarpment trail destination should be backed by a comprehensive marketing plan. The plan should work across a range of formats and platforms to target existing and new audiences in Toowoomba's key rider markets.

The marketing plan should not be enacted until significant capital works have been undertaken to ensure the strategy aligns with quality new and upgraded existing trails. Enacting the plan and 'going to market' early risks creating an inflated expectation, which may result in many visitors disappointed, with a genuine risk they may not return.

22.3.2 Marketing formats and channels

18.3.2.1 Content creation

Quality content is a fundamental component of any marketing strategy. Forrest should develop a large content library of photo and video media, which directly aligns with the core values and strengths of the destination.

A high-quality digital asset library is critical to the marketing strategy as it will provide the content required to drive marketing initiatives through a wide range of channels. Content creation includes self-produced photo and video content, where the destination may produce their own content for distribution through their and other channels. Self-produced and distributed content can be a cost-effective way of producing content that directly aligns with the values of the destination.

18.3.2.2 Social media

Social media provides a marketing channel that is generally well-aligned with the mountain bike consumer and provides a simple and cost-effective marketing opportunity. While a range of platforms existing, *Dirt Art* suggest that Facebook and Instagram are the two key platforms for targeting mountain bike consumers. Facebook will generally target a slightly older audience, and Instagram a slightly younger audience. Twitter is not considered a highly-relevant platform for mountain bike destinations due to its generally older demographic and journalistic and political focus. Snapchat is a challenging platform to manage relevant content through, and generally offers little scope to target key audiences due to its millennial user focus. If another platform is desired, You Tube is recommended, with scope to create a fantastic video content library. Should You Tube be pursued it must be understood that significant cost and effort will be required to produce regular video updates.

Content should generally be curated specifically to Facebook and Instagram, with the platforms suited to the below approach;

- Facebook: Written content and information (must always be shared with a high-quality image), events, article links
- Instagram: Imagery, video, shorter format written content
- The following key tips are relevant to both platforms;
- Written personality: The writing style portrayed should match the target audience (professional built light hearted), and should be consistent across posts and platforms
- All image and video content should be high-quality, professional
- Content should not be shared identically across platforms unless it is critical news
- Ideal posting regularity is 5 times a week for Facebook and 7 times a week for Instagram (reinforcing the importance of a large content library)
- Video links will generally be downranked by Facebook unless they are directly

- loaded into the platform
- Web site links will generally be downranked by Facebook

18.3.3 Influencers

Influencers are a potentially valuable marketing methodology. When engaging influencers, care should be taken to ensure that the influencers channel and audience aligns with the values of the destination. For example, gravity-focused athletes and influencers should not be used to market a cross country-focused trail network.

When utilising influencers, *Dirt Art* recommend keeping scripting and curation to a minimum, instead relying on the influencer to control content so it may be as organic as possible. Basic key messaging notes can be provided to the influencer to ensure that their outputs are consistent with the values of the destination.

18.3.4 Digital media

Digital media provides a range of potentially valuable marketing opportunities, including but not limited to; destination showcases, competitions, and standard news pieces. In Australia, the main digital news outlet specific to mountain bike is Flow Mountain Bike.

Australian destinations have also been known to utilise Pink Bike (a North American supplier, and the world's biggest mountain bike media outlet).

Dirt Art recommend the above two outlets as high-quality opportunities for content creation and distribution. Destination showcases are a particularly strong opportunity well when curated and presented so they are entirely consistent with the key strengths and values of the destination.

18.3.5 Print media

Print media remains a valuable marketing opportunity, though its reach is diminishing as customers continue to shift to digital media consumption. The main print media outlets specific to mountain biking in Australia are; Australian Mountain Bike Magazine, Revolution MTB Magazine and Mountain Biking Australia Magazine. These magazines have the following key reader markets;

- Australian Mountain Bike: Broad audience with a trail riding focus
- Revolution MTB: Gravity-focused with a younger audience
- Mountain Biking Australia Magazine: Trail riding focused with an older audience

When engaging print media, content should be high-quality and consistent with the values of the destination. Paid advertising may also be used in conjunction with destination showcases, strengthening the package.

As the profile of mountain biking continues to grow further towards a mass market

activity, there are a growing number of more diverse print media opportunities. These include but are not limited to; airline magazines, travel magazines and outdoor magazines. Trail destinations with a strong beginner-intermediate focus will benefit particularly well from general print media opportunities.

22.3.3 Web site

A web site is a functional aid for riders but can also act as a valuable marketing tool. Mountain bike destination web sites should include the following information at a minimum;

- Location information
- Trail information and maps
- Accommodation information
- Local business information (food, beverage and services)
- Regional trail information
- Other things to do (focus on family friendly activities, and non-rider activities such as wineries etc.)

In recent years it has also become common for trail destinations to develop their own bespoke phone app. A phone app can be useful for mapping and trail information, though the public application Trail Forks has usurped the need for the mapping function in most bespoke destination apps.

18.4 Marketing Budget

When developing new trails and infrastructure, Dirt Art recommend a year one marketing budget of 2.5% of capital spend (\$25,000/\$1m spent). This budget provides a high-level guide, though notably if a large impact is sought from a small investment, then the percentage marketing spend may need to be 5+% of capital investment. When marketing a broader destination showcase it may also be relevant to request some support (financial and/or in-kind) from the local business community.

23 Conclusion

The Toowoomba and Lockyer Valley Escarpment has an existing network of 28km of formalised mountain bike trails, which service a largely local population of riders. This project has worked to assess potential for further trail development across the Toowoomba Escarpment, and down to the township of Withcott. The project has developed potential trail concepts with the view to establishing the Toowoomba Escarpment as a potentially nationally-significant mountain bike destination.

Mountain biking and mountain bike tourism are rapidly growing markets, as demonstrated by the rise of 'trail towns' such as Derby in Tasmania, where over 30,000 rider per annum travel for mountain bike holidays. Queensland is unique from many other states in that it does not have any mountain bike destinations that would be considered nationally-significant. South East Queensland in particular has a distinct lack of high-quality trail opportunities, with regional riders serviced only by smaller, local-level trail networks.

Dirt Art believe there is a significant opportunity for the Toowoomba and Lockyer Valley Escarpment to capitalise on the opportunity to develop Queensland first genuinely nationally-significant mountain bike destination. The proposed development sites offer a number of attractive attributes, including but not limited to;

- Elevation opportunities
- Appealing climate
- Areas of high-quality natural environments
- Large selection of food and beverage, and accommodation opportunities
- Uplift opportunities
- Event hosting opportunities
- Capacity to host ~100km of trails

Dirt Art has carefully considered a wide range of existing values of the proposed development sites, to develop a trail plan that proposes 65km of new mountain bike trails. The trails focus on a broad market of riders, providing in-demand trail opportunities with an enduro riding focus. The proposed trail network has been integrated into the existing trails, broadening and increasing the connectivity, quality and diversity of the current trail network. The proposed network allows for a multitude of staging opportunities, allowing the project to be delivered in a range of different ways.

The completed trail network has potential to profoundly impact the local economy, with estimated economic impact as follows;

- Direct economic impact: \$10.5m p.a.
- Direct and Indirect economic impact: \$20.055m p.a.

The trail network plan has been developed to integrate into local townships, providing maximum opportunities to capitalise on the resulting new visitor market.

With trails developed to a world-class standard, the proposed trail network is a genuine opportunity to develop Queensland's first nationally-significant mountain bike destination. Currently, the majority of Australia's leading mountain bike destinations are in alpine areas or southern states such as Tasmania, where winter riding is unappealing for most riders. Toowoomba provides an opportunity to establish a world-class, year-round trail destination that will prove highly-appealing for local, regional, national and international riders.

24 Key Recommendations

1. *Dirt Art* recommend adopting the policy framework detailed in this report for all future mountain bike trail development in the region.
2. *Dirt Art* recommend that areas of higher natural value are showcased by the new trails network where possible, without compromising environmental values, which will add significant appeal for visiting riders. This approach will generally involve avoiding major trail sections through sensitive areas, and instead traversing close to and in some cases into the borders of these areas.
3. *Dirt Art* recommend that the project incorporate a minimum of 100km of trails, which may include existing trails
4. *Dirt Art* recommends that consideration be given to including trail concepts within the Bridge Street Quarry, which would see the area act as a major trail head and entry portal for the mountain bike trail network, particularly for local Toowoomba residents.
5. *Dirt Art* recommend that the success of the Toowoomba Escarpment as a nationally-significant mountain bike destination will require a volume of trail development in Redwood Park.
6. *Dirt Art* recommend that the most optimal connectivity from the trail network into Withcott is via the south eastern corner of Redwood Park.
7. *Dirt Art* recommend that no further infrastructure be developed in Redwood Park, with the focus of lower escarpment facilities to be the proposed Withcott Hub.
8. *Dirt Art* recommend that Amos Road not be considered as a major access node for the trail network, and instead be considered as a secondary access node
9. *Dirt Art* recommends that Bridge Street and Withcott form the two major access nodes for the project. Infrastructure at these major access nodes should include; parking, toilets, shelter, bike wash, drinking water, pump track and skills parks.
10. *Dirt Art* recommend careful consideration of major trail development and related infrastructure in residential area due to the risk of significant access growth causing residential conflict. In most cases these are very small, quiet streets, where even minor increases in parking and access may cause significant issues. While new connecting trail is appropriate in some cases to facilitate more local access, *Dirt Art* do not recommend installing infrastructure such as pump and skills tracks in these areas where appropriate parking is not available, and/or where residential conflicts are likely.
11. *Dirt Art* recommend that a complete environmental assessment will be required for Redwood Park (and potentially for areas in Jubilee Park), during the approvals process.
12. *Dirt Art* recommend that a cultural heritage assessment is undertaken for the project area prior to any trail development; or alternatively, as part of the detailed design process / stage.
13. *Dirt Art* recommend that fire management be considered during the detailed design and approvals process.
14. *Dirt Art* recommend the IMBA trail difficulty rating system be utilised to determine and advertise the difficulty ratings of all trails.

15. *Dirt Art* recommend using core IMBA trail design and construction principles for managing trail development.
16. *Dirt Art* recommend that the detailed design work for trails where possible be completed by the company or organisation constructing the trail.
17. *Dirt Art* recommend that a focus is placed on recreational riders and facilitating enduro-focused events.
18. *Dirt Art* recommend hosting workshop/s with community, existing and potential new business owners to educate these groups in the opportunities provided by the trail development. These workshops should provide a comprehensive overview of the mountain bike tourist markets, their wants and needs.
19. *Dirt Art* also recommend the development of mountain bike specific business group/s, which will support networking and ultimately the growth of a sustainable, successful commercial community around the trail project.
20. When considering private promoter events, *Dirt Art* recommend that land managers implement a fee schedule commensurate with levels of use and likely trail damage. A per rider fee of \$5-10 per rider is suggested.
21. *Dirt Art* recommend that the Withcott Hub be utilised as a primary uplift pick up point, with the Bridge Street Quarry to act as a primary drop off point.
22. *Dirt Art* suggest that uplift provision should be levied, with a suggested levy in the region of 10%. This levy provides a significant opportunity to provide funding to assist with trail management.
23. With a comprehensive and considered design approach, *Dirt Art* recommend that an EPBC referral may not be required for the project.
24. *Dirt Art* recommend that the project should not be launched with less than 30km of new trails developed.
25. *Dirt Art* recommend that trail staging be undertaken (where required) based on a consultation process with key trail users.
26. *Dirt Art* recommends that the majority of new trail construction be delivered by a specialist mountain bike construction company/s, with input from stakeholder groups (such as the TMBC). Hand-built technical trails have potential to be constructed/partially constructed by local volunteers.
27. *Dirt Art* recommend that new trails not be opened until a complete emergency management plan is completed by appropriately qualified/experienced consultants.
28. *Dirt Art* recommend that the project include a comprehensive marketing plan and implementation.
29. *Dirt Art* suggest a marketing budget of 2.5% of capital trail infrastructure budget.
30. *Dirt Art* suggest a signage budget of 2.5% of capital trail infrastructure budget.
31. *Dirt Art* recommend that all new trails are managed in a single directional format.
32. *Dirt Art* recommend that shared-use (walking and mountain biking) be provided for on all ascending mountain bike trails.
33. *Dirt Art* suggest that the detailed design process consider potential for adaptive mountain bike riding where possible.
34. *Dirt Art* recommend that a budget allocation be made by land managers to manage the maintenance for the trails network, utilising a budget guide of \$1,500/km per annum.

25 Appendix 1 - Toowoomba Escarpment Trail (TET) Report

Available as a separate report.

26 Appendix 2 – Order of Costs for Trail Development

Available as a separate report

27 Appendix 3- Private Land Area Trails






Developed as a separate report (not available publicly).

28 Appendix 4- Environmental Considerations Mapping

Available as a separate report

29 Appendix 5 - IMBA TDRS

IMBA Trail Difficulty Rating System

	 VERY EASY White Circle	 EASY Green Circle	 INTERMEDIATE Blue Square	 DIFFICULT Single Black Diamond	 EXTREME Double Black Diamond
Description	Likely to be a fire road or wide single track with a gentle gradient, smooth surface and free of obstacles. Frequent encounters are likely with other cyclists, walkers, runners and horse riders.	Likely to be a combination of fire road or wide single track with a gentle gradient, smooth surface and relatively free of 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. Dual use or preferred use Optional lines desirable	Likely to be a challenging single trail with steep gradients, variable surface 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
Trail Width	2100mm plus or minus 900mm	900mm plus or minus 300mm for tread or bridges.	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 Grade	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 20% or greater	Max 40% or greater
Level of Trail Exposure	Firm and level fall zone to either side of trail corridor	Exposure to either side of trail corridor includes downward slopes of up to 10%	Exposure to either side of trail corridor includes downward slopes of up to 20%	Exposure to either side of trail corridor includes steep downward slopes or freefall	Exposure to either side of trail corridor includes steep downward slopes or freefall
Natural Obstacles and Technical Trail Features (TTFs)	No obstacles.	Unavoidable obstacles to 50mm (2") high, such as logs, roots and rocks. Avoidable, rollable obstacles may be present. Unavoidable bridges 900mm wide. Short sections may exceed criteria.	Unavoidable, rollable obstacles to 200mm (8") high, such as logs, roots and rocks. Avoidable obstacles to 600mm may be present. Unavoidable bridges 600mm wide. Width of deck is half the height. Short sections may exceed criteria.	Unavoidable obstacles to 380mm (15") high, such as logs, roots, rocks, drop-offs or constructed obstacles. Avoidable obstacles to 1200mm may be present. Unavoidable bridges 600mm wide. Width of deck is half the height. Short sections may exceed criteria.	Large, committing and unavoidable obstacles to 380mm (15") high. Avoidable obstacles to 1200mm may be present. Unavoidable bridges 600mm or narrower. Width of bridges is unpredictable. Short sections may exceed criteria.

30 Appendix 6- Community Survey Data

Available as a separate report