SHELLHARBOUR CITY COUNCIL

RECREATIONAL BIKING FACILITIES LOCATION FEASIBILITY STUDY

COMMON GROUND

Shellharbour CITY COUNCIL

Prepared by Common Ground Trails Pty Ltd for Shellharbour City Council, between May 2024 and May 2025.

ACKNOWLEDGMENTS

Common Ground Trails wishes to acknowledge the contribution of the Shellharbour City Council staff.

The study area is located on the tribal lands of the Dharawal People. We acknowledge the Dharawal People as traditional owners of the land and recognise their continuing connection to Country.

DISCLAIMER

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Common Ground Trails Pty Ltd and its employees are not qualified to provide legal, medical or financial advice. Accordingly, detailed information in this regard will require additional professional consultation in order to adequately manage and maintain the facilities and reduce risk.

REVISION TABLE

REV	DATE	DETAIL	AUTHORISED	
			NAME & POSITION	SIGNATURE
A	10/06/24	Stg1 - Draft report for client review	James Stephenson - Design Manager	
B	09/05/25	Final document draft for client review	James Stephenson - Design Manager	
C	28/05/25	Final document for client approval	James Stephenson - Design Manager	

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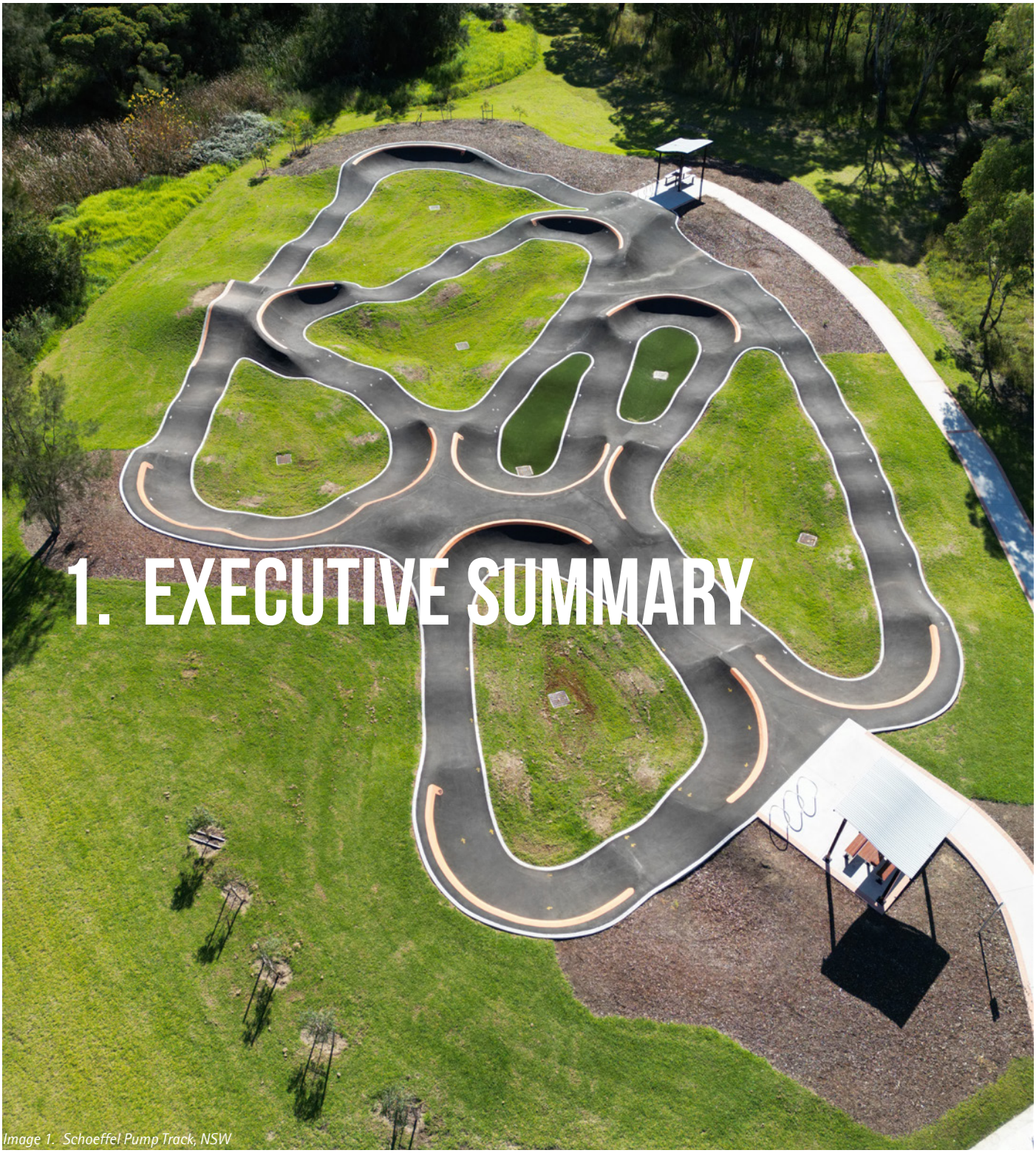


1. EXECUTIVE SUMMARY

Image 1. Schoeffel Pump Track, NSW

1.1 OVERVIEW

The Recreational Biking Facilities Location Feasibility Study, prepared by Common Ground Trails Pty Ltd for Shellharbour City Council commenced in May 2024 and addresses the growing demand for bike riding infrastructure within the Shellharbour Local Government Area (LGA). Driven by community interest and the proliferation of unsanctioned trails causing ecological damage, the study evaluates the feasibility of developing bike facilities at eight sites within the Shellharbour LGA and proposes mitigation measures for unsanctioned trails at Blackbutt Forest Reserve.

Shellharbour City Council has adopted strategic plans and planning agreements to secure delivery of recreational biking facilities in the urban release areas in the western part of the LGA. This Study focused on the central and eastern parts of the LGA.

This Study was limited to a review of existing Council owned community lands used for open space purposes within existing residential areas across the LGA.

This Study excludes off-road shared pathways and cycleways. Feasible locations can be found within Council's Active Transport Strategy.

1.2 PURPOSE AND OBJECTIVES

The study aims to assess the suitability of eight pre-identified sites for bike facilities, and to develop mitigation strategies to eliminate unsanctioned trail use and subsequent environmental harm at Blackbutt Forest Reserve. This is achieved by understanding:

- Shellharbour's demographics
- Participation trends
- Recreational biking needs
- Facility provisions.

The sites are assessed by applying a multi-criteria analysis to determine site suitability, facility type, scale, and development priorities. An estimate of costs for design, construction and maintenance is provided for each site within Appendix A.

1.3 KEY FINDINGS

DEMOGRAPHIC CONTEXT

Shellharbour's population was 76,275 in 2021, with 25.5% aged 5–24 years, a key user group for bike facilities. The population is projected to grow to 100,809 by 2046, with youth increasing by 17.5%.

PARTICIPATION TRENDS

Cycling is highly popular, with 7.5% of Shellharbour residents participating in 2024. Mountain biking attracts a diverse demographic, predominantly males aged 35–44, though female participation is rising.

CURRENT FACILITIES

Limited formal bike infrastructure exists, including a learn-to-ride track at McDonald Park, a BMX track at Croome Regional Sporting Complex, Green Valleys Mountain Bike Park, Tongarra (privately operated on private land) and sanctioned/unsanctioned trails at Blackbutt Forest Reserve.

ENVIRONMENTAL CONCERNS

Unsanctioned trails at Blackbutt Forest Reserve harm sensitive ecological areas, necessitating mitigation to protect threatened flora and fauna.

FACILITY TRENDS

Demand is growing for urban flow-style trails, pump tracks, and jump parks, with asphalt surfacing preferred for low maintenance and inclusivity across wheeled sports.

1.4 SITE ASSESSMENTS

The study evaluated eight sites for bike facility development and one for mitigation:

- Balarang Reserve is suitable for a regional bike park with flow trails, pump track, and jump park.
- Croome Regional Sporting Complex is ideal for a regional bike park with diverse facilities.
- Pioneer Park is recommended for a local asphalt pump track to complement the existing skate park.
- Wilson Memorial Park is suitable for a community-scale learn-to-ride track or bike playground.
- Con O'Keefe Park is suitable for a community pump track to complement the plaza development
- Kingston Street Park is ideal for a community pump track.
- Terry Reserve is suitable for a local/regional bike park.
- Jarrah Way (Reserve 116) is not recommended due to topographic, hydrologic, and surveillance constraints.

The majority of sites assessed are viable for pump tracks, jump tracks and/or flow trails to suit beginners, intermediate and advanced riders. The exclusion to this is the Wilson Memorial Park site being suitable for a learn to ride beginner bike facility and potentially Con O'Keefe given the beginner users are well accommodated at the nearby McDonald Park.

1.5 BLACKBUTT FOREST RESERVE MITIGATION

Two strategies are proposed to address unsanctioned trails.

STRATEGY #1 - HYBRID RETENTION AND EDUCATION

This strategy involves conducting environmental mapping to identify areas suitable for sanctioned trails, designing a sustainable trail network, and educating users on ecological impacts.

STRATEGY #2 - DECOMMISSIONING

This strategy involves removing all trails, educating the community on environmental concerns, and developing alternative facilities elsewhere to meet user needs.

Both strategies have their advantages and disadvantages that are discussed in detail in Section 9.

This study identified feasible locations for MTB trails for varying skill levels. However, feasible locations would not be directly comparable to the trails within Blackbutt Forest Reserve. Both mitigation strategies require further investigation and options analysis.

1.6 DELIVERY AND COSTS

DELIVERY METHODS

Professional design and construction are recommended for urban sites, with potential volunteer assistance for natural settings to foster community ownership.

CAPITAL COSTS

Range from $231,000 for a community learn-to-ride track to $1.551 million for a regional bike park (ex GST).

ONGOING COSTS

Annual maintenance is estimated at 1–3% of original cost, with major renovations at 5–15 years (3–10%) and full replacement at 20 years.

1.7 NEXT STEPS

- Conduct further site-specific investigations (e.g., geotechnical assessments)
- Engage the community in design and development to ensure ownership and reduce unsanctioned trail use
- Prioritise sites based on recreational needs, funding, and master planning
- Implement mitigation strategies at Blackbutt Forest Reserve to balance environmental conservation with community biking needs.

This study provides a strategic framework to enhance Shellharbour's recreational offerings, promote active lifestyles, and protect natural environments through well-planned bike facilities.

Shellharbour City Council may consider the feasibility of future biking facilities on a case-by-case basis in the western part of the LGA.

2. INTRODUCTION

Image 2. Omeo Skills Park, VIC

2.1 BACKGROUND

Shellharbour City Council has identified the need across the local government area (LGA) for various styles of bike riding infrastructure. This has primarily come from strong community demand and the increased development of unsanctioned bike trails and features throughout the City.

Shellharbour currently has very limited bike riding infrastructure including a junior learn to ride track at McDonald Park, Albion Park Rail, a BMX track at Croom Regional Sporting Complex, Croom, sanctioned and unsanctioned mountain bike trails at Blackbutt Regional Reserve, Blackbutt and privately operated Green Valleys Mountain Bike facility in Tongarra.

Shellharbour City Council has identified eight sites for assessment to determine the feasibility of developing the sites and one site for assessment to determine mitigation measures of current use. This is in an effort to meet demand for bike facilities within the City and to reduce/eliminate use of unsanctioned trails that are causing ecological damage in Councils natural areas.

2.2 PURPOSE

The purpose of the Shellharbour Bike Facilities Feasibility Study is to:

- Investigate the suitability of pre-identified sites for the development of mountain bike and/or BMX style facilities.
- Investigate mitigation measures to eliminate the use of existing unsanctioned trails at one pre-identified site

2.3 OBJECTIVES

The purpose of the Assessment will be met through the following objectives:

- To understand current and anticipated participation trends in the use of bike facilities in Shellharbour
- Application of a multi-criteria analysis to assess each of the eight identified sites to assist to determine suitability
- Determine the type and scale of the proposed mountain bike and/or BMX style facility suited to each site
- Prioritise development of each of the sites.
- Develop cost estimates for the design, construction and ongoing maintenance of the mountain bike and/or BMX style facility at each proposed site.
- Develop a range of mitigation strategies to minimise and/or eliminate future environmental impacts caused by existing unsanctioned bike facilities
- Understand the recreational biking needs of the community

2.4 FRAMEWORK

The Shellharbour Bike Facilities Feasibility Study implements the following framework:

A REGIONAL SNAPSHOT

An overview of existing relevant literature, current and future population growth and demographics, and current recreational facility provision was undertaken to establish a snapshot of the Shellharbour and surrounding LGAs.

INDUSTRY REVIEW AND CURRENT TRENDS

A summary of current and projected participation in bike riding activities and facility provision provides an insight into national, state and local trends. An outline of typology of mountain bike facilities and general market demand is addressed in this section.

UNDERSTANDING MOUNTAIN BIKING AND BMX STYLE FACILITIES

An overview of varying mountain bike and BMX style facility types and the varying typical user groups.

FACILITY PROVISION

A summary of facility classification and typology, outcomes of the assessment of each identified sites suitability for a mountain bike facility, and recommendations. This section also addresses estimated costs associated with design, construction and ongoing maintenance of each of the proposed facilities.

2.5 KEY DEFINITIONS

Key industry terms and organisational acronyms have been used throughout this document.

THE ASSESSMENT

The Shellharbour Bike Facilities Feasibility Study.

ABS

Australian Bureau of Statistics.

BIKE FACILITY

A purpose built recreational facility catering for bike riding activities. Includes but not limited to bike parks, mountain bike trails, pump tracks, jump parks, skills parks and learn to ride tracks.

COUNCIL

Shellharbour City Council

CYCLING

Track and road cycling, except where specified otherwise.

LGA

Local Government Area

MTB

Mountain bike

MTB/BMX FACILITY

A purpose built bike facility that caters for mountain bikes and BMX bikes. Facility may include trails, skills elements/ parks, dirt jumps, jump parks and pump tracks.

YOUTH

Persons 5 -24 years of age.

XC

Refers to "cross country" which is a style of mountain biking and trail

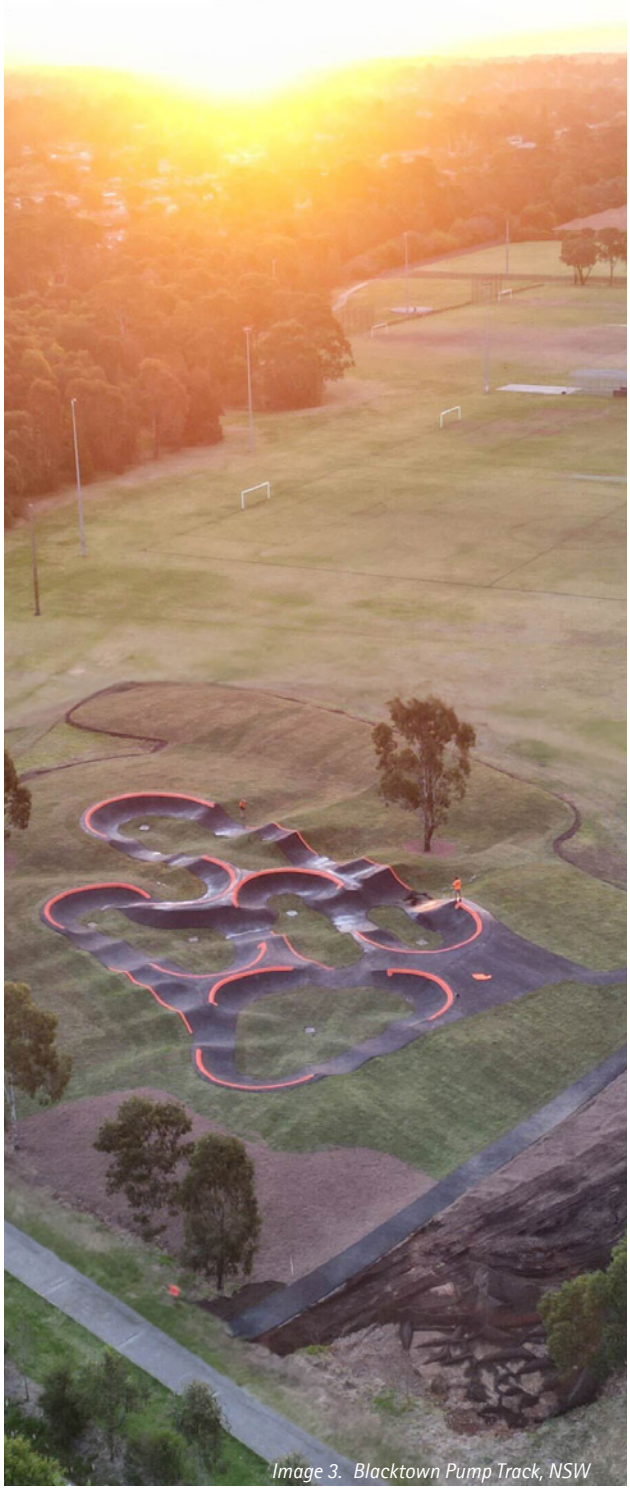


Image 3. Blacktown Pump Track, NSW

3. A SNAPSHOT OF SHELLHARBOUR

Image 4. Shellharbour Scene, source: https://www.visitshellharbour.com.au

3.1 OVERVIEW

Located approximately 100km south of the Sydney CBD, Shellharbour LGA covers 147.4 square kilometers and is made up of fourteen suburbs. The municipality is defined by surrounding LGAs including the City of Wollongong to the North, Kiama LGA to the South and the Wingecarribee Shire to the West. To the East is the Pacific Ocean. Within Shellharbour the majority of the population density is to the east, closest to the coast. There is a mix of residential, industrial and commercial land with more rural areas in the west and south of the LGA.

Shellharbour City is geographically bound by the Illawarra Escarpment in the west and the South Pacific Ocean to the east. There are a number of significant features within the LGA including Lake Illawarra, Macquarie Pass National Park, Killalea State Park, Bass Point Reserve, Blackbutt Forest, and various beaches.

Shellharbour is well connected to LGAs to the north and south. It is located on the Illawarra railway line, linking south to Kiama and north to Wollongong and Sydney. Train stations are located at Albion Park, Oak Flats and Shellharbour Junction. Further to this the Princes Highway and the M1 Princes Motorway also connect Shellharbour north to Wollongong and Sydney and south to Kiama.

Shellharbour has over 100 sport and active recreation facilities, over 80 parks, reserves and playgrounds, and four pool facilities[1]. Shellharbour has 3,546 registered businesses with the biggest industry being construction.[2]

Figure 1. Shellharbour LGA Context Map

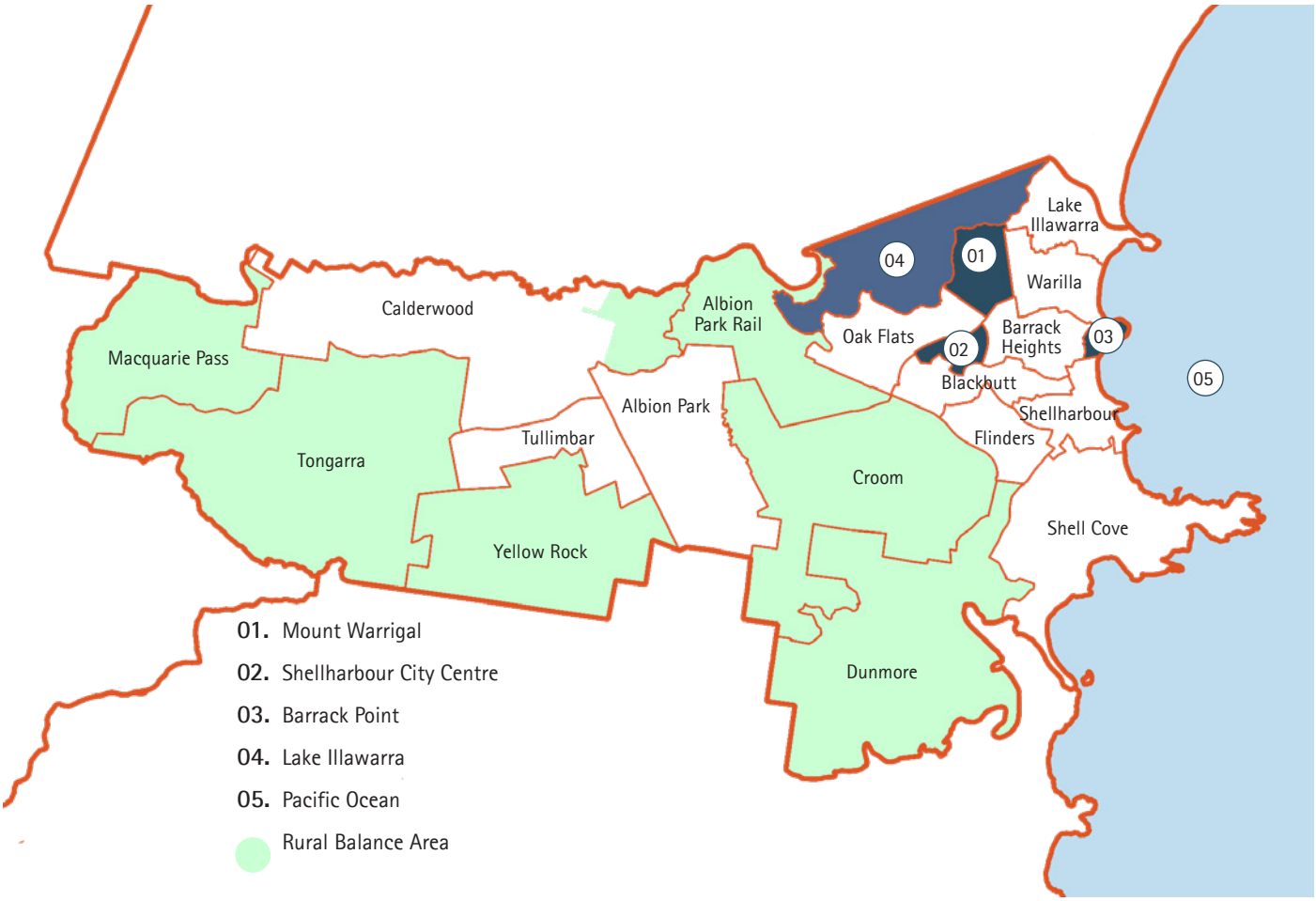


Figure 2. Shellharbour Suburb Context Map

3.2 DEMOGRAPHIC ANALYSIS

In 2021, the population of the Shellharbour LGA was 76,275 with a median age of 39. Population growth from 2016 to 2021 increased by 7,815. All service age groups as per the table to the right increased during this period. The with the most significant increase being in the 25-34 year age bracket increasing by 1,576 from 2016 to 2021.

The most populous age group within Shellharbour was the 35-49 year old age group, with approximately 14,302 persons. There were approximately 19,433 persons aged between 5 and 24 years of age, making up 25.5% of the population[3].

The population of the Shellharbour LGA is forecast to increase by 24,248 from 2021 to 2046. It is forecast that in 2046 there will be 23,204 people in the 5-24 age group representing 23.0% of the population.[4]

Shellharbour covers an area of 147.4sqkm with a total population in 2021 of 76,275, equating to an average density population of 517.3 persons/sqkm. However there are suburbs with considerable differing densities. Suburbs close to key commercial/industrial areas and transport corridors typically have the highest population density per square kilometer, namely Barrack Heights, Flinders and Mount Warrigal. Refer to Table 2 and Figure 3 for population density within Shellharbour[5].

The Shellharbour community has cultural and linguistic diversity, with over 16% of the population born overseas. The top three countries of origin being United Kingdom, North Macedonia and New Zealand. Over 9% of the population speak a language other than English at home, with the most dominant languages being Macedonian, Spanish and Italian.

PERSONS AGE	2016	2021	GROWTH (VOLUME)	GROWTH (%)
0-4 years	4,335	4,591	256	5.9
5-11 years	6,532	6,903	371	5.7
12-17 years	5,644	6,059	415	7.4
18-24 years	6,085	6,471	386	6.3
25-34 years	8,009	9,585	1,576	19.7
35-49 years	13,139	14,302	1,163	8.9
50-59 years	9,279	9,605	326	3.5
60-69 years	7,667	8,877	1,210	15.8
70-84 years	6,393	8,187	1,794	28.1
85 years and over	1,377	1,695	318	23.1

Table 1. Shellharbour LGA population by service age 2016 - 2021

SUBURB	AREA (SQKM)	2021		2046		GROWTH (%)
		POPULATION	PERSON/SQKM	POPULATION	PERSON/SQKM	
Albion Park	9.1	13,828	1,520	23,378*	2,569*	47.8*
Albion Park Rail	7.2	6,916	958	7,445	1,031	7.5
Barrack Heights	2.1	5,418	2,550	5,647	2,657	4.0
Blackbutt - Shellharbour City Centre	3.5	4,235	1,201	5,609	1,589	31.4
Calderwood	16.8	3,004	178	11,202	665	284.4
Fllinders	2.3	7,119	3,075	7,413	3,202	3.9
Lake Illawarra	1.7	3,285	1,897	3,643	2,103	10.2
Mount Warrigal	1.9	4,885	2,628	4,563	2,455	-2.6
Oak Flats	3.7	6,840	1,846	8,087	2,182	18.5
Rural Balance	78.9	710	9	755*	10*	3.6*
Shell Cove	10.1	7,589	753	11,136	1,105	47.3
Shellharbour - Barrack Point	2.9	4,227	1,463	5,103	1,767	15.5
Tullimbar	4.6	1,841	397	-*	-*	-*
Warilla	2.6	6,328	2,476	6,827	2,672	4.3
Total	147.4	76,275	517	100,809	684	31.7

* Tullimbar population has been included in the Albion Park and Rural Balance figures. The forecast population, density and growth percentage of Albion Park, Rural Balance and Tullimbar are either skewed or unavailable.

Table 2. Suburb population density and growth[9]

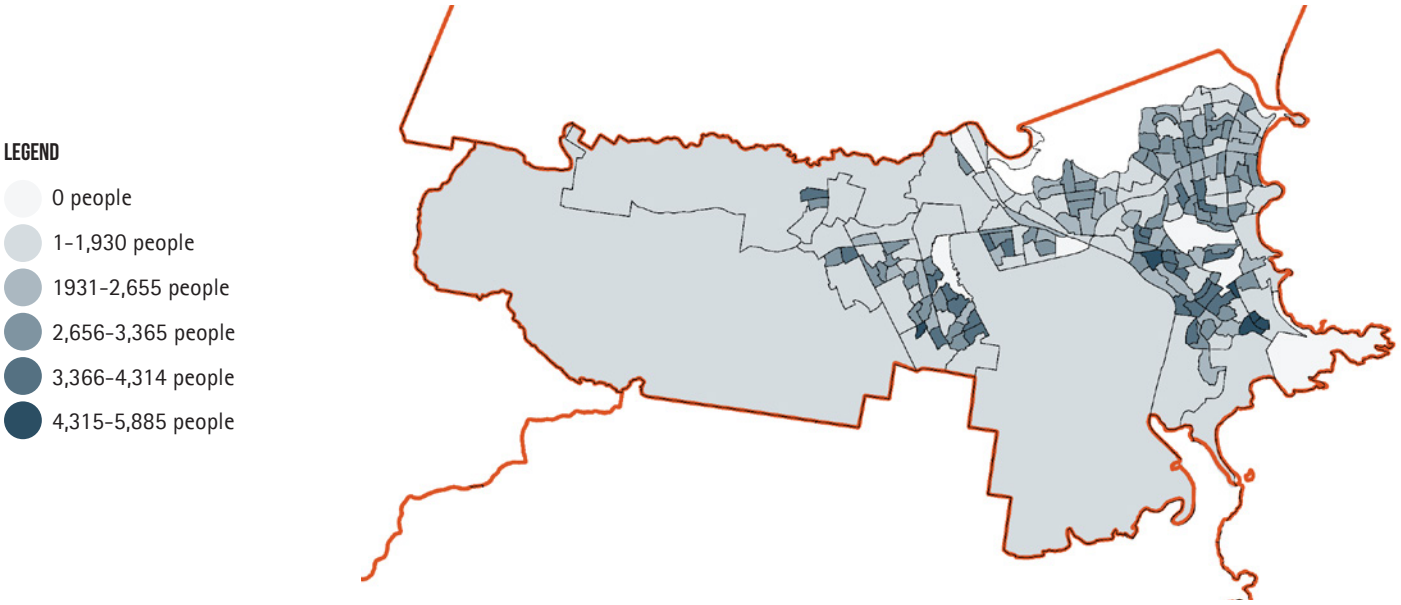


Figure 3. Shellharbour Density by Statistical Area Level Map

3.3 MTB PARTICIPATION DEMOGRAPHIC

In terms of participation in mountain biking, there is no one age group which is significantly more prominent. However, national research suggests mountain bike riders are:

- Mostly male, although female participation is increasing
- Mostly between the ages of 35 - 44 years
- Generally ride one time per week for between 1-2 hours per ride
- Relatively affluent with high household incomes
- Generally well educated.[6]

3.4 YOUTH POPULATION

In 2021 the portion of youth (5 -24 year olds) within Shellharbour was 25.5% of the total population. This age group is of particular note as the prominent user group of bike facilities. Youth population is predicted to increase from 19,741 to 23,203 persons by 2046, representing an increase of 17.5% from 2021[7]. Refer to Table 3 for a breakdown by suburb.

	2021		2046		DIFFERENCE	
SUBURB	YOUTH	% POPULATION	YOUTH	% POPULATION	YOUTH	%
Albion Park	4,419	27.9	5,288	22.6	869	19.7
Albion Park Rail	1,638	23.6	1,733	23.3	95	5.8
Barrack Heights	1,449	26.7	1,237	21.9	-213	-14.7
Blackbutt - Shellharbour City Centre	1,036	24.3	1,153	20.6	117	11.3
Calderwood	715	24.5	2,686	24.0	1,970	275.6
Fllinders	2,119	29.7	1,758	23.7	-361	-17.0
Lake Illawarra	671	20.3	771	21.2	100	14.9
Mount Warrigal	1,113	23.8	1,021	22.4	-92	-8.2
Oak Flats	1,612	23.6	1,681	20.8	69	4.3
Rural Balance	178	24.4	183	24.2	5	2.7
Shell Cove	2,224	29.4	3,009	27.0	785	35.3
Shellharbour - Barrack Point	992	22.5	1,273	24.9	281	28.3
Warilla	1,574	24.1	1,410	20.6	-164	-10.4
Total	**19,741**	**25.8**	23,203	**23.0**	**+3,462**	**+17.5**

Table 3. Youth population growth




3.5 CURRENT YOUTH FACILITY PROVISION

SCHOOLS

Education institutes within Shellharbour LGA include:

- 19 x Primary schools
- 3 x Combined primary secondary schools
- 6 x High schools
- 1 x Technical college

SPORT AND RECREATION FACILITIES

Shellharbour provides a range of facilities catering to both indoor and outdoor sports and active recreation activities.

For indoor sports, the Shellharbour City Stadium is located at the Croome Regional Sporting Complex. It contains multi-purpose courts and can accommodate up to 800 people for community events.

Other indoor facilities within the Shellharbour LGA include (but is not limited too) an indoor karting facility and skating rink.

Shellharbour LGA has a wide range of outdoor recreation facilities. This includes (but is not limited too) the following facilities:

- Myimbarr Community Park (Myimbarr Sporting Complex)
- Albion Oval
- Beverley Whitfield Park
- 2 x Golf courses
- Shellharbour City BMX Track
- Multiple sports fields across Shellharbour LGA
- Multiple basketball courts/half courts across Shellharbour LGA
- Multiple outdoor exercise stations across Shellharbour LGA

SKATE PARKS

There are two existing skate facilities within Shellharbour:

- The Shellharbour Skate Park located at Pioneer Park, Shellharbour
- Albion Park Rail Skate Park located at Albion Park Rail.

3.6 CURRENT RECREATIONAL BIKE FACILITIES

There are a handful of current formal and informal bike facility offerings providing some variety of experience within Shellharbour.

Formal recreational facilities catering for bikes include:

- Learn to Ride Track - McDonald Park, Albion Park Rail
- BMX Track - Croom Regional Sporting Complex, Croom
- Green Valleys Mountain Bike Park, Tongarra (privately operated on private land)

Informal recreational facilities catering for bikes include:

- MTB Trails - Blackbutt Forest Reserve, Blackbutt

In addition to formal bike facilities, Shellharbour City Council have developed the Shellharbour Bike Map. This document outlines popular routes through Shellharbour used for transport and recreation. The routes are colour coded to distinguish between riding on dual use paths and road of various intensity.[8]

In addition to this, residents and users of Shellharbour can visit social apps like Strava and Trailforks to gather further information about popular routes however the routes shown on these networks can include use of unsanctioned trails or facilities on privately owned land.

*Figure 4. Blackbutt Forest Reserve MT Trails - Trail: Bat Sh*t*

Figure 5. McDonald Park Learn to Ride Track

Figure 6. Croom Sporting Complex BMX Track

Figure 7. Blackbutt Forest Reserve MTB Trail Network on Trailforks

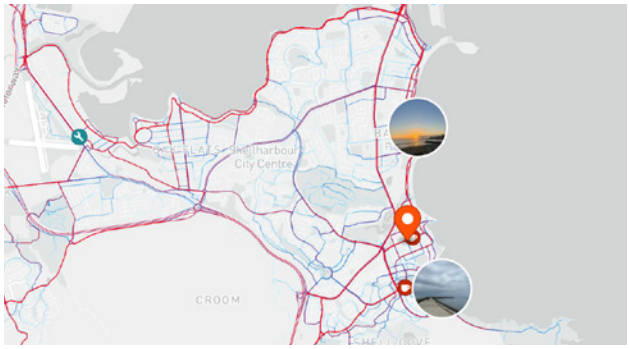
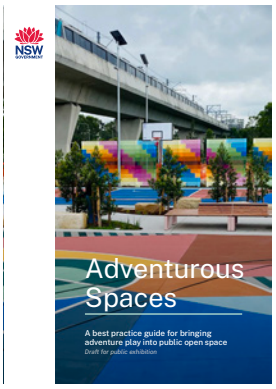


Figure 8. Eastern Shellharbour Strava Heat-map

3.7 CURRENT POLICY AND STRATEGY REVIEW

A review of relevant State and Regional planning documents and strategies was undertaken to identify a local context for the provision of bike facilities. Key documents reviewed included, but was not limited to the following:

ADVENTUROUS SPACES



The Adventurous Spaces is a guide document development by the NSW Department of Planning, Housing and Infrastructure. It is a best practice guide for bringing adventure play into public open spaces.

The document has a primary focus on cultivating environments and facilities best suited to skating, scooting, BMX and mountain biking. It is effectively a tool for government, designers and community to guide best outcomes for adventurous spaces including outlining the benefits of adventurous play, guidance on the technical aspects of adventurous play facilities and guidance on best practice when creating new adventurous spaces from planning to delivery.

Relevant to this Feasibility Study, key findings, points of interest and recommendations include:

- Commentary on the growing demand within NSW for adventurous spaces
- Commentary of the social, economic, emotional "off the screen" and connection to nature benefits of adventurous spaces
- The "Ride" section of the guide provides overview of bike related facilities directly relevant to the discussions of the feasibility study. These include mountain bike trails, pump tracks, skills parks

CYCLING STRATEGY

The NSW National Parks and Wildlife Service (NPWS) developed the Cycling Strategy to ensure that the cycling experience within the parks will be sustainable, located in suitable locations that ensure the protection of natural and cultural heritage values, will support tourism and deliver health benefits to communities.

The strategy has 7 objectives:

- Protect and conserve park values
- Support community wellbeing and connection to nature
- Improve accessibility
- Deliver coordinated and collaborative planning
- Engage effectively with the community
- Promote nature tourism and enhance the visitor economy
- Provide effective management and resourcing

The Strategy is an implementation document that provides an outline of the processes and procedures which the NPWS will undertake to deliver the vision and objectives outlined in the Cycling Strategy

This document provides insights and strategies for the implementation of bike facilities within NPWS Parks, however a lot of the information is relevant to developing a bike facility within an Open Space in an urban environment, especially when there is critical ecological environments included.

ADVENTURE CYCLING STRATEGY

The Adventure Cycling Strategy has been developed by the Department of Regional NSW in a commitment to grow adventure cycling within NSW.

The strategy aims to have NSW become a premier adventure cycling destination to strengthen visitor economies and support community health, connection and well-being.

Relevant to this Feasibility Study, key findings, points of interest and recommendations include:

- Urban facilities such as pump tracks and skill trails have been identified within this document as one of the 5 key trends.
- One of the three key objectives is to increase access, so local communities can enjoy quality adventure cycling experiences in green and public spaces

SHELLHARBOUR OPEN SPACE & RECREATION STRATEGY

The Shellharbour Open Space & Recreation Strategy is a 10 year guiding document for the Council's to support residents to remain active, healthy, connected and relaxed across the Shellharbour LGA.

It is a tool to be used to guide Council's decision making in respect to planning, investment and use of its open space and recreational facilities.

Relevant to this Feasibility Study, key findings, points of interest and recommendations include:

- Direction 2.8 has a recommendation to Continue to investigate the joint development and management of mountain bike facilities.
- Provides guidance and actions to best develop recreational facilities in proximity to sites of high ecological value.
- Development of more multi-purpose parks to include youth-focused sports facilities/equipment

4. INDUSTRY REVIEW AND CURRENT TRENDS

Image 5. Albany Youth Challenge Park Jump Park, WA

4.1 BENEFITS OF RIDING A BIKE & BIKE FACILITIES

The development of bike facilities and engaging in these activities can deliver environmental, economic, health and social benefits to individuals and communities.

SOCIAL AND HEALTH BENEFITS

Spending time outdoors and in nature has long been associated with positive mental and physical health benefits including:

- Improved mental well-being and health outcomes which can result in reduced health care costs and enhanced productivity
- Increased community connection and reduced isolation
- Opportunities for friends and families to be active and socialise together
- Provision of an outdoor classroom for children to learn about nature, culture and history, and develop lifelong skills such as resilience and respect, while being active
- A form of 'green exercise' with research suggesting that undertaking exercise in natural environments resulting in greater benefits that activity alone.

Physical activity and active recreation can contribute positive mental outcomes. In economics, this is known as human capital uplift, which is increased cognition and development skills that improve education and employability outcomes. The human capital uplift benefit nationally is $3,723 million which converts to approximately $252 of human capital uplift per individual who participates in a sport or recreational activity per year[10].

Recreational bike facilities create fun and positive outdoor places and spaces with specifically designed bike facilities providing opportunities for skill development, challenge and fun.

ECONOMIC BENEFITS

MTB and BMX facilities can provide economic benefits generated by riders visiting a region for the purpose of riding their bike. Visitors from outside a region traveling to utilise bike facilities, including day and overnight visitors, generate significant expenditure on food beverage, accommodation, value add activities and support services.

A study by AusCycling identified that in addition to expenditure at local trails, mountain bike riders also contribute significantly to their local and Australian economy through larger purchases such as new bikes and equipment as well as supporting the Australian tourism industry through intra and interstate mountain bike specific holidays[11].

Figures from the We Ride Australian Cycling Economy Report reveal a, $6.3 billion - direct economic output of the Australian bicycle sector, and a $1.2 billion - total spend on cycle tourism in Australia in 2020[12].

ENVIRONMENTAL BENEFITS

MTB riders are renown for the volunteer contribution they make towards trail care and maintenance with many trail networks in New South Wales and throughout Australia receiving hundreds of volunteer hours annually. In addition to this significant contribution to preserving and caring for the environment, the planned development of MTB trails can also provide environmental benefits. On a broad perspective MTBing can provide the following environmental benefits:

- Trails increase community ownership and connection with natural areas, creating stewards for long term conservation outcomes
- Well planned and managed trails that are appropriate for the landscape can preserve and protect the environment, create a sense of place and add value to the area.
- Strategic planning for the development of mountain bike trails catering for user demand can prevent the development of unsanctioned trails in unsuitable environments.

ENVIRONMENTAL IMPACTS OF INFORMAL BIKE FACILITIES

Environmental damage is common at informal bike parks. Typical impacts can include but are not limited to:

- Construction debris left about the site i.e. pallets
- Destruction of vegetation and fauna habitat
- Digging to win material for jump formation resulting in depressions/holes
- General litter left on the ground

The rogue nature of these sites and typical damage inflicted creates a lowered perception of respect and care for the environment.

The development of formal bike facilities, can reduce the potential of environmental damage by users. Methods of achieving this include but are not limited to:

- The involvement of the community and collaborative approach with the Council in the development of the bike facilities to elevate users sense of ownership and pride
- The provision of rubbish bins at key points
- Providing upkeep of facility through a regular maintenance program supported by both the Council and user groups if appropriate
- The inclusion of being tidy and doing the right thing in all facility signage
- The development of facilities with setback from sensitive vegetation and inclusion of appropriate vegetation in proximity to the facility
- The allowance for passive surveillance from both other facility users and users of the public space outside of the facility
- Interpretation/educational signage about the environmental significance of an area

COMMUNITY BENEFITS

Site appropriate and well planned bike facilities can provide a range of benefits to local communities and regions, including:

- Enhancing a region and suburbs livability
- Enhancing open space, streetscapes and neighborhood character
- Providing connectivity to community infrastructure and services
- Providing places and spaces to connect with nature and the outdoors for active and passive recreation and socialisation
- Providing the opportunity for the development of active community hubs for the whole community
- Providing inclusive and engaged communities
- In comparison to other facilities (such as skate parks) there is a low capital and maintenance cost for the LGA with high probability of return use
- Provide a non-discriminate unstructured recreation opportunity with low user costs beyond obtaining equipment
- Provide a facility that caters to a broad cross section of the community.

4.2 CURRENT TRENDS IN FACILITY PROVISION

As evidenced by the development of the NSW Cycling Strategy by NSW National Parks & Wildlife Services, there is growing demand amongst local communities for MTB trails and facilities.

Companies within the professional trail and bike facility development industry have noted an increased demand for trail networks, jump parks and asphalt surfaced pump tracks that provide for a variety of wheeled craft, including bikes.

At time of writing this report, Common Ground is also noting a shift in user preference towards urban flow style trails on sites with appropriate topography. This trend has been observed nationally and internationally. It is believed that a shift towards this style of facility is due to the friendly nature of the trails that cater to a large cross section of mountain bikers and the ability to use typical trail bikes, very comfortably (the most commonly owned style of bike).

Trail networks are being planned with complementary facilities such as skills parks, pump tracks and jump parks, providing a holistic user experience and catering to diverse riding styles. Pump tracks are often incorporated into multipurpose recreational facilities and youth precincts, such as the Albany Youth Challenge Park in Western Australia which includes an asphalt pump track, dirt jump park and skate park.

Another indicator of the growth in popularity and community value placed on MTB trails, pump tracks and other bike facilities, is the recent surge from LGA's and other key stakeholders, to invest in these type of facilities to meet demand. Some MTB trails, pump tracks and jump park facilities recently constructed or currently underway in New South Wales at time of preparing the Shellharbour Bike Facilities Feasibility Study include:

- Wollombi Pump Track is the establishing feature of a larger masterplan being delivered
- Sydney Olympic Park Pump Track is being developed alongside the competition BMX racing track with the possibility of additional surrounding park infrastructure also being developed
- Umina Pump Track is a diverse pump track that includes a dynamic jump line and supports an existing skate park

Image 6: Omeo Trail Network, VIC

4.3 CURRENT PARTICIPATION TRENDS

Recent AusPlay data indicated that 47.3% of the NSW adult population participated in sport or physical exercise at least three times per week in 2024, which is slightly below the national benchmark of 48.3%. 39.9% of NSW children participate at least once per week in sport or physical activity.

Cycling was a highly popular sport and recreational activity across Australia in 2024, ranking as the sixth most participated recreational activity nationwide. Mountain biking placed 38th, while BMX, with its niche appeal, ranked 92nd.

In New South Wales (NSW), cycling maintained strong engagement, with 7.5% of residents participating in road or track cycling, securing its position as the sixth most popular recreational activity. Mountain biking drew 0.5% of participants, ranking 41st, while BMX attracted less than 0.1%, reflecting its specialized following.[13]

AusCycling is the national governing body for all forms of bike riding in Australia, including, road and track, BMX freestyle and racing, cyclo-cross, ESport, mountain bike and para cycling. There were 52,210 members of AusCycling nationally in 2024.[14]

According to AusPlay data, 29% of adults and 22% of children who participate in skate activities, also participate in bike riding. This participation trend re-enforces the broad market of users that a pump track can appeal to and cater for[15].

More generally, participation in a range of wheeled activities for adults and children is summarised in the following tables[16].

	MALE NO ('000)	FEMALE NO ('000)	TOTAL NO ('000)
BMX	6.7 *	2.9 **	9.7
Cycling	1,151.8	740.2	1,906.4
Mountain biking	96.3	34.2	131.5
Skate	44.9	55.0	105.0

Table 4. Estimated adult participation rates across Australia in wheeled activities 2022.

	MALE NO ('000)	FEMALE NO ('000)	TOTAL NO ('000)
BMX	5.0 *	1.8 **	6.8 *
Cycling	70.0	48.8	119.0
Mountain biking	8.6	1.2 **	9.8
Skate	9.5	10.4	19.9

Table 5. Estimated child participation rates across Australia in wheeled activities 2022.

** Estimate has relative margin of error between 50% and 100% and should be used with caution*

*** - Estimate has relative margin of error greater than 100% and is considered too unreliable to use*

Note: Age of child in the above tables is 0-14yrs. Adult includes persons older than 14yrs.

5. MOUNTAIN BIKE & BMX FACILITIES & THE USERS

Image 7. Dyoondalup Bike Park, WA

5.1 INTRODUCTION

This section aims to specify and clarify what is being discussed when referring to a "bike facility" through both description and examples. The sub-categories of such facilities, users trends and shared facilities are addressed within this section.

The following facilities cater to MTB and/or BMX that would be suitable for consideration in the urban environment of the Shellharbour LGA. Some facility types have been born from influences of either MTB or BMX however with industry growth and facility development it is of no surprise to see facilities evolving to be appropriate for MTB, BMX and often a broader number of wheeled sports.

5.2 MOUNTAIN BIKE TRAILS

A MTB trail comes in various forms. While large networks typically reside outside of urban areas it is not uncommon for urban areas with adequate density to have some trail networks within parkland or reserves. These are typically focused on either transport for leisure/commuting purposes or specifically for the recreation/sport of mountain biking. They provide relatively easy access for the local population. These networks are typically smaller and compact networks or loops that cater to a shorter ride rather than an all day epics.

Trails come in a range of forms catering to different users and interests. These include:

- Trail that is typically 2 - 3m wide, often dual use, with no technical trail features that allow people to experience the trail environment. Examples include rail trails.
- Trails in a natural environment that contains technical trail features in both the uphill and downhill sections of the trail, usually single direction and mountain bike specific. Trail corridors typically vary depending on trail type 800 - 2000mm wide with clearing requires up to 2200 - 2400mm above trail
- Flow trail could be considered a trail that has features for the user to utilise gravity and pump as much as pedal for speed generation. Flow trails have a freestyle focus
- Downhill specific trail caters to a small group of users and requires an adequate amount of vertical topography. A downhill trail usually contains significant technical trail features and is mountain bike specific. There is usually a shuttle option or other access method back to the top of the trail given a typical downhill bike is very ineffective to pedal uphill.

Image 8. Collie Town Trails, WA

5.3 PUMP TRACKS

A pump track is a 1-3 meter wide track that can be used for bicycle, skateboard, in-line skates and scooter riders to practice skills on a series of features, such as berms and rollers placed in quick succession. Essentially they are scaled down BMX tracks which do not require pedaling. 'Pump' refers to the action made by riders pushing down with their arms and legs to maneuver the bike or board over features to maintain momentum without pedaling or pushing-off the ground. Typically, tracks can be ridden continuously with different combinations of features linked to provide a varied challenge. Bike handling skills can be transferred to other mountain bike tracks. Well designed pump tracks cater for all abilities, with all features roll-able for beginners, and allowing for progression to pumping, and even jumping for more advanced riders. Riding a pump track is easy and children are typically comfortable using them within 10-20 minutes.

A well designed pump track provides enough challenges to stay attractive for years, with the rollers and berms able to be combined and transitioned in different directions, creating opportunity for skilled riders to do jumps and maneuvers. Pump tracks can be made from natural soil, hardened surfaces, wood, fiberglass, concrete or asphalt. Historically pump tracks were constructed from natural soil blends and required significant ongoing maintenance. More recently, world's best practice is tending toward lower maintenance surfacing techniques and materials, such as asphalt, which are inclusive for a larger user base of wheeled-sports including skateboarding, scooters, in-line skates and non-off road bikes.

Pump tracks do appeal to a group of the MTB community that would fall under the urban context.

Within the world of pump tracks there are varying styles of tracks including pump trails, pump tracks and pump parks. While use is predominantly recreation based competition and racing is becoming more common.

Pump tracks are often associated with other urban facilities such as skate parks or form a part of a broader wheeled sports facility referred to as a Challenge Park.

Image 9. Albany Youth Challenge Park, WA

Image 10. Lithgow Pump Track, NSW

5.4 JUMP PARKS

Jump parks typically feature a series of tracks with jumps of various size and technicality in multiple lines to accommodate a range of rider abilities.

Provision of jump tracks is a vital inclusion allowing for progression for young people through to adults who seek an alternate and often more challenging experience than a pump track. Jumps are developed so that they allow for progression while always keeping safety in mind. Featuring all types of jumps including table-tops, gaps, step-ups, step-downs and hips, with features linked so riders flow immediately from one to the next. Ideally, a rider will not have to brake between jumps.

Well designed jump tracks offer a wide variety of challenges, from easy rollers to big jumps. A diversity of lines will allow riders to build their skills gradually and will create a park that is fun for all abilities. Typically, jump lines are arranged side-by-side with increasing difficulty, all starting at a common roll-in hill and traveling in the same direction.

Jump tracks are primarily constructed of soil, however jump take offs and landing (impact) areas are being made from hardened surfaces, such as wood, concrete, asphalt and rubber matting. This significantly reduces ongoing maintenance and improves the rideability and safety of the facility.

There are two distinct styles of jump parks that cater to different styles of jumping. Broadly put this could be described as a jump park for BMX riders and another for MTB riders however there is a large amount of crossover. The shape, material and upkeep vary slightly between them.

Image 11. Albany Youth Challenge Park, WA

5.5 SKILLS TRACKS

Skills tracks/trails/parks feature man-made technical trail features that test the skills of a rider and allow them to try features that they may encounter on trails in the region. Typical features may include log rollovers, log rides, balance planks, rock drops and other technical features. They can also incorporate street features such as rails and wall rides, or freeride stunts like ladder bridges, skinnys, teeters and drops.

Importantly all features are built with progression in mind allowing users to start small and build their confidence up to larger features.

Successfully executed skills park areas feature a diverse range of materials and can look like well landscaped areas or 'nature play' areas with natural features such as timber, logs and rocks.

Image 12. Dianella Bike Park, WA

5.6 SURFACE FINISHES

Material selection will determine the ongoing management requirements, user experience and often safety of bike facilities. The surfacing of bike facilities has become a primary point of interest given the impact a suitable surface can have on the reduction of maintenance of a facility.

There has been and will continue to be an evolution of surface finish materials for bike facilities. Table 1 addresses the pros and cons of the varying finishes.

It outlines the four common material options seen at bike facilities and how they perform from a capital cost, maintenance and performance perspective.

	 NATURAL EARTH
ADVANTAGES	• Low material cost • Involvement of local volunteers • Flexibility (layout and design can be changed any time) • Natural look and feel • Construction possible in bushland • Softer surface
DISADVANTAGES	• High and frequent maintenance • Only usable in good weather conditions • Suitable for off road bikes only • Susceptible to peak weather damage • Typically falls into disrepair • Often looks dilapidated
MANAGEMENT REQUIREMENTS	• High
APPROPRIATE MANAGER	• Volunteer Groups
APPROPRIATE SETTING	• Conservation area

Table 6. Material Selection

			
POLYMER STABILISED	**MODULAR**	**ASPHALT**	**CONCRETE**
• Natural look and feel • Higher durability than natural earth with similar aesthetic • Moderate cost • Lower maintenance than natural earth	• Unskilled labour • Relocatable • Suitable for bikes, skateboards, inline skate, scooters	• Moderate cost • Low maintenance, durable & sustainable • Low rolling resistance • High traction • Year round usability in any weather • Suitable for bikes, skateboards, inline skate, scooters • Consistent surface quality • Neat look & resistant against vandalism	• Durable, sustainable • Low rolling resistance • Year round usability in any weather • Surface structure choice (smooth, grippy, rough) • Colour choice • Usable for bikes, skateboards, inline skate, scooters • Resistant against vandalism • Neat look
• Suitable for off road bikes only • Experienced contractor required to ensure application is correct and consistent • Cost vs benefit is lower than upgrading to pavement surface i.e. asphalt	• High cost • Moderate maintenance • Highly susceptible to damage and to vandalism • Damage irreparable • Limited customisation	• High material cost • Abrasive surface • Skilled labour	• Very high construction cost • High material cost • Abrasive surface • Skilled labour
• Medium	• Medium	• Low	• Low
• Volunteer Groups / Local Government	• Event Promoter	• Local Government / Developer	• Local Government / Developer
• Urban Parkland	• Temporary Sites	• Urban Parkland	• Urban Parkland

5.7 ACCESS AND INCLUSION

Encouraging access and inclusion can be accommodated through design and safety of bike facilities. This is typically not in regards to the design of the riding features but the supporting infrastructure and surrounds of the facility. This is typically in line with Crime Prevention Through Environmental Design (CPTED) principles and will benefit all users of facilities.

The following are the key points that should at a minimum be considered to encourage ease of access for all and inclusion:

- Consideration for potential to optimise passive surveillance to provide clear sightlines at both site selection and site design phases
- Toilet Proximity
- Potential for provision of multiple 'hang out' zones to provide alternative places to move away from any undesirable behavior
- Potential for multiple entries and exits to and from the facility on multiple sides of the facility
- Suitable lighting if the facility is to be used beyond daylight hours
- Potential for inclusion of CCTV

These are common principles that can be further investigated in design phases through architecture, landscape architecture and urban design literature.

5.8 GENDER EQUALITY

Female involvement in MTB and BMX has been on the increase as the sport's increase in popularity. We are seeing this though the following:

- Female specific activity and membership
- Competition and mentorship
- Female specific equipment

With the increase of females being involved in what has been (and still is) a male dominated sports it is important to consider what can be done to assist the increase, the comfort and the desirability of females to pursue and participate in MTB and BMX activities. While existing facilities are typically gender neutral the higher population of male users can blur this intended designed outcome. Facility design can assist with encouraging female participation and should be addressed with all new facilities being designed and developed. Promotional material of bike facilities can also be gender neutral, showcasing women being active and involved alongside male participants.

Consideration should also be made for persons that do not identify as either male or female. This may be providing at least one gender neutral toilet alongside male and female toilets.

The NSW Government Office of Sport has developed "Her Sport Her Way" strategy that provides insights on est methodology of promoting equality for sporting choices, opportunities and participation. More information about the strategy can be found at https://www.sport.nsw.gov.au/hersportherway.

COMPETITION AND MENTORSHIP

On the world stage, Australia has been a dominant force in a number of disciplines with female athletes reaching the peak of their sport including downhill, cross country and BMX. The increased visibility of females at the top level creates mentorship and motivational opportunities encouraging females to enter the sport.

FEMALE SPECIFIC EQUIPMENT

Almost non-existent in years gone by but now a commonality amongst bike manufacturers are women specific bikes designed with more suitable geometry and general accessories and apparel highlighting a growing industry and involvement of women.

ACTIVITY AND MEMBERSHIP

In recent years, there has been an increase in female participating in mountain biking, particularly for recreation. Female specific activities such as skills clinics, social rides and events provide an opportunity for women to learn mountain biking, make new friends and challenge themselves at a time that suits their family and work commitments and in a supportive and social environment where the focus is more on participation and less on competition.

Membership in the national sports organisation for mountain biking in Australia, AusCycling, females make up approximately 18% of mountain bike members. However, due to the nature of mountain biking being an activity where participation widely occurs outside of the formal structures of a club or national sports organisation, participation by both males and females in mountain biking is difficult to accurately gauge.

5.9 USER SAFETY

BMX and MTB activities come with inherent risk. Part of progression in these sports for both the recreational and/or competitive participant is risk taking which usually involves taking spills and picking yourself up and trying again.

Generally riders consider, select and accept the risks associated with their chosen activity. Every rider will have their own level of riding ability and tolerance for risk taking.

There are preventative measures that can be taken to assist with safe use and progression for riders. These preventative measures can be taken by both a designer and user.

USER INDIVIDUAL SAFETY

- Utilise protective clothing and quality equipment that is well maintained
- Gain coaching or mentoring to properly learn and practice critical skills
- Understand and ride within your ability
- Have supervision from parents or other mature local park riders
- Learn riders etiquette which differs depending on the facility type being used however all revolve around looking out for one another, ensuring every user gets involved and that there is a high level of respect for all.

SAFETY IN DESIGN

At present, there are no Australian Standards for MTB or BMX facility design, construction, maintenance and management. Several government and private bodies have produced manuals and guidelines to assist with a general approach and that suggest standards. These guidelines are very useful for the development of bike facilities, but they are not a regulatory requirement. Key guideline documents include:

- The Australian Mountain Bike Trail Guidelines which provide guidance on topics such as trail planning, design and construction principles, signage, and ongoing management.

  https://shop.auscycling.org.au/products/australian-mountain-bike-trail-guidelines
- The Australian Adaptive Mountain Biking Guidelines

  https://breaktheboundary.com.au/wp-content/uploads/2019/08/AustralianAdaptiveMTBGuidelinescontentspageprotected.pdf

Common Ground has developed standards in design and construction through industry and professional experience of delivering bike facilities. Common Ground's approach in both design and construction considers and minimises risk where possible.

5.10 SAFE INTEGRATION INTO PUBLIC SPACES

The inclusion of bike facilities into public space presents a risk where users of the facility may put other users of the public space in a dangerous situation or have undesirable conflict with them.

MTB and BMX riders are capable of traveling at high speed and often over uneven and/or loose surfaces. Jumps, wall rides and other such features encourage the users to jump their bikes and take risks. This is part of the sport but in the public domain needs to be managed.

Risk mitigation measures can be implemented to eliminate unreasonable conflict between the facility user and others. The following measures should be utilised during design, implemented during construction and upkept during maintenance:

- Education and awareness of the facilities within a public space including adequate signage with safety warnings and etiquette reminders i.e. cyclists give way to pedestrians in a dual use environment
- Provision of adequate sightlines provided so both the facility user and others can clearly see one another especially at merging points of paths/trails
- Physical site constraints can be utilised to provide separation of a bike facility and other highly used public space i.e. watercourse, conservation area with no trails in it
- Physical barriers such as fencing can be provided to provide a clear delineation between the bike facility and other public space where there is limited space to provide a buffer
- Design of the facility should place challenging features that increase the risk of loosing control away from gathering areas and/or pathways within the public space. Ideally these features are internal within the bike facility to limit risk to the users only
- Speed control shall be provided at interface areas between bike facilities and other public spaces. This can be designed into a facility where a gentle dual use path of adequate length connects the bike facility to the adjacent public space, or if this isn't an option then a catch feature or "choke" is implemented into the trail to force the rider to slow down

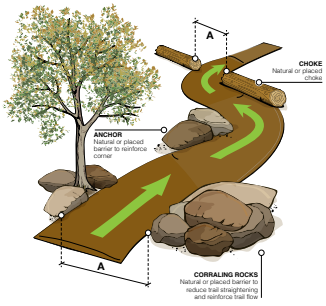


Figure 9. Chicane diagram from Western Australia Mountain Bike Management

Figure 10. Blue Derby Trailhead and signage

5.11 CASE STUDY 1: OMEO PUMP TRACK, OMEO, VICTORIA

In 2020, an asphalt pump track was constructed in the alpine town of Omeo. The pump track was the first stage in developing a mountain bike park which is to include 100km+ of trail to be developed in the coming years. The pump track will be the feature of the trailhead area. The community have been involved with and taken ownership of the track since construction works started in 2020 and as such the pump track has been very well received and utilised.

Upon its opening articles were released that highlighted how well received the track had been. Key items from the articles included the users of the pump track coming from far a wide to utilise it, often traveling up to 2 hours and the commentary of the opportunity it provided rural Victorian dwellers who often had lower options for sport and recreation.

"What we've seen already with the pump track is just an option for younger people in the community to get into something different instead of the traditional sports; up there, the footy and netball clubs are really the only offering. It's going to be right on their doorstep, and I think that will be really good,"

- Jacinta Nelsson, president of Mountain Biking East Gippsland comment in Flow Mountain Bike article

The mountain bike community has taken ownership and have hosted events at the track that had a family friendly but competitive focus.

Image 13. Omeo Pump Track Aerial, VIC

Image 14. Omeo Pump Track Skills Area, VIC

5.12 CASE STUDY 2: ALBANY YOUTH CHALLENGE PARK, ALBANY , WESTERN AUSTRALIA

The City of Albany in Western Australia recently completed its Youth Precinct project which included a range of activities and facilities including a pump track. In addition to the pump track there is a jump park and skate park providing a large range of options for all wheeled sports.

The City of Albany have provided a range of activities within the Youth Precinct and developed a maintenance program which involves both the local mountain bike club and a volunteer community group whose primary focus is maintenance of the dirt jumps.

The facility provides a place for events to be held and gatherings to occur. These are likely to be club focused and competition based. The facility will accommodate both comfortably.

Image 15. Albany Youth Precinct Pump Track, WA

Image 16. Albany Youth Precinct Jump Line, WA

5.13 CASE STUDY 3: THE HILL MOUNTAIN BIKE PARK, GEELONG, VICTORIA

The Hill Bike Park is located in Geelong, Victoria is an example of a public urban bike park integrated into a public open space within the urban fabric. The park demonstrates a desirable blend of open turf and planting areas that have restricted the visual impact of the overall facility and has provided an appealing aesthetic that is inviting to all members of the community.

Many urban MTB and BMX facilities could benefit from the approach of The Hill to visually integrate the bike facilities with the existing site and vegetation and improve the quality of spaces for both the bike facility and passive users mostly through integration of soft landscaping. This may not be optional with sites depending on their varying biodiversity and cultural conditions.

This will require the designer of the bike park to consider integration of soft landscaping and the allowance for open space to be designed into the park from the outset of the project. This will ensure this desirable aesthetic is met to provide suitable social spaces for the full community.

Image 21. The Hill, Facebook page

Image 20. The Hill, Dirt Art

Image 19. The Hill, Dirt Art

Image 17. The Hill, Facebook page

Image 18. The Hill, Dirt Art

6. COMMUNITY CONSULTATION

Image 22. Luemean Pump Track, NSW

6. COMMUNITY CONSULTATION 39

6.1 INTRODUCTION

As part of the Study, Common Ground collaborated with Shellharbour City Council to conduct community consultation. The goal was to identify local preferences for facility types and preferred locations.

To achieve this, Common Ground developed a series of questions, images, and diagrams to help clarify community interests. The consultation process was conducted in two phases:

01. In-Person Consultation:

- » Two "pop-up" consultation events were held in October 2024
- » Community members participated in surveys and voted on proposed ideas
- » Locations:
  - ▫ Albion Park Skate Park
  - ▫ Shellharbour Skate Park.

02. Online Consultation

- » An online platform was available via the Shire's website for three weeks.
- » This allowed for broader community engagement.

PROMOTION CHANNELS

- The City's Website
- The City's Social Media Platforms
- Youth Engagement at two Local Skate Park
- Email to stakeholders
- Advertised in Youth Space at the City Library
- "Let's Chat" Project Page
- The City's e-newsletter

This section provides an overview of the consultation process and its key outcomes. The feedback gathered is instrumental in shaping the final Study outcomes.

Shire's website

Social media platforms

Direct youth engagement

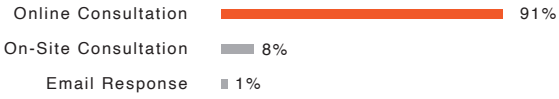
6.2 WHO PARTICIPATED

391

Respondents

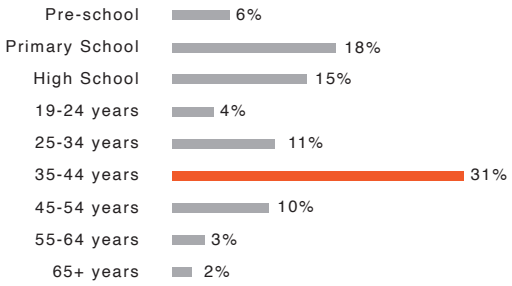
do you live within Shellharbour?

Avenue of response to the consultation?



Note: There was respondents that provided feedback at multiple times across the varying consultation opportunities

age of respondants?



6.3 RIDING HABITS

how do you like to roll?

83% Mountain bike

69% BMX

28% Skate board

49% Scooter

11 Inline/Roller skates

41% Dirt Jumper

19% Other

Note: Respondents could select more that one option for this question

how often do you ride?

Occasionally 5%

Monthly 7%

Weekly 44%

Daily 42%

Never 2%

what time do you ride?

7am-10am 13%

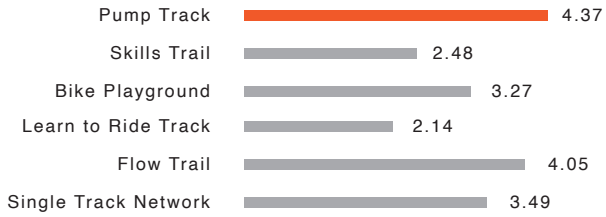
10am-3pm 8%

3pm-6pm 31%

6pm-10pm 3%

Anytime 45%

rank these facility types from favourite to least favourite?



Note: The shown score is the sum of the weight of each ranked position, multiplied by the response count for the position choice, divided by the total contributions.

how well do you ride?

8% **Beginner**
I'm new to bike riding or still learning. I feel most comfortable on flat, smooth paths and easy trails

52% **Intermediate**
I have some experience and can ride confidently on flat paths and gentle hills. I'm comfortable with moderate trails and small obstacles.

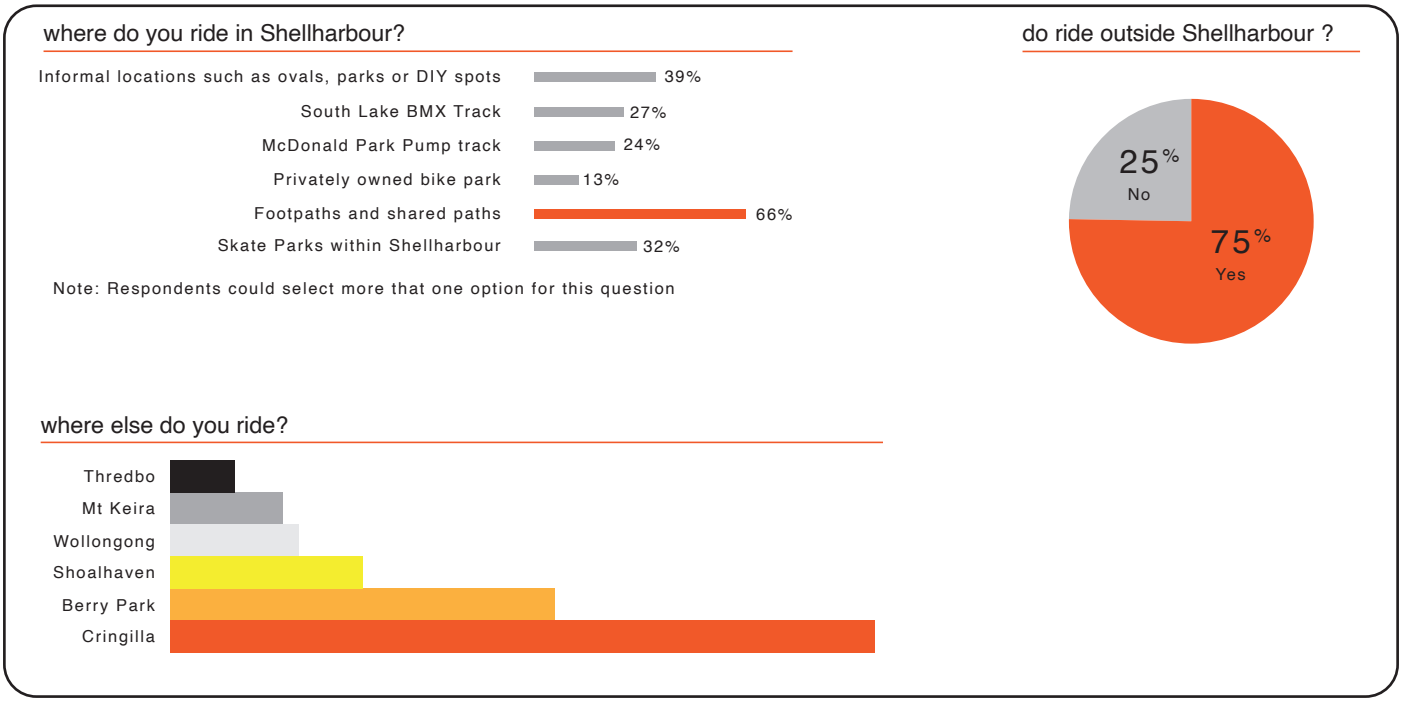
40% **Advanced**
I'm very experienced and confident riding on all types of terrain, including steep hills and challenging trails with obstacles like rocks or jumps.

what do you enjoy most about riding a bike?

RIDING HABITS SUMMARY

- Mountain bikes are the most popular way people in the community are riding, however other wheeled sports were well represented which indicates that a mix of trails and all wheeled sport facilities would be desirable for the community.
- The above is reflected further in the preferred facility types being a pump track and flow trail with the flow trail catering to mountain bikes very well and pump tracks being a very diverse facility catering well to all user groups.
- Based on skill levels of the community there may be a need to ensure advanced features are included at as many facilities as possible. This is further reflected in comments received during the consultation that there is a lack of advanced riding options within the LGA.
- Riders value the social, outdoor, and wellbeing benefits of biking. To enhance these, facilities should be accessible via dual-use paths or designated riding routes, offer flexible, unstructured spaces that double as social hubs, and include appealing outdoor areas for users, spectators, supervisors, and other park visitors. Adding park furniture, shelters, and high-quality landscape finishes around facilities can further elevate the experience

6.4 WHERE YOU LIKE TO RIDE



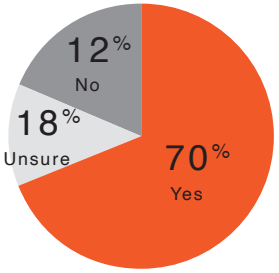
WHERE DO YOU LIKE TO RIDE SUMMARY

- The most commonly used cycling locations in the Shellharbour LGA are footpaths and shared paths, likely due to their accessibility and appeal to commuters. However, this trend also highlights a shortage of dedicated bike facilities for leisure and recreational riders within the LGA.
- The lower usage of existing bike facilities and skate parks likely stems from their failure to support popular and trending riding styles, offer diverse riding experiences, or provide a range of difficulty levels to appeal to a broad cross-section of potential users
- The riding community has indicated they are willing to travel to get to desirable facilities. The most visited facilities can provide insight as to how far folks are commonly willing to travel and what are the features of the commonly visited facilities that makes them so appealing.
- Cringella was the most commonly visited facility outside of the Shellharbour LGA. Cringella is located at the northern end of Illawarra lake, approximately a 20min drive from the Shellharbour CBD. The facility includes a range of bike experiences that cater for all skill levels including a pump track, skills park and trails. In addition to this the facility is well supported by other recreation activities including a playground and playing fields and has good supporting infrastructure including off street car parking and well connected dual use paths.
- The comments received during the consultation indicated the popularity of Cringella Bike Park was because it catered to all abilities, was diverse in its bike facility types and is family friendly.
- Berry Park Pump Track was the other standout facility that is visited. This pump track is approximately a 25min drive from Shellharbour CBD and based on preferred facility types identified in section 6.3, this identifies the lack of pump track options within the Shellharbour LGA and confirms the popularity of pump tracks as a facility type.

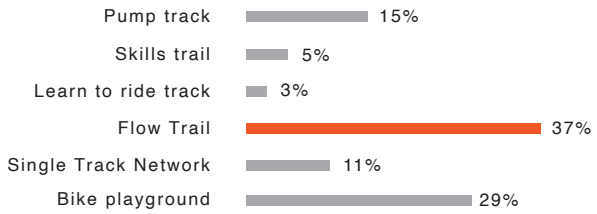
6.5 SELECTED SITES WITHIN SHELLHARBOUR

BALARANG RESERVE, OAK FLATS

is Balarang Reserve, Oak Flats suitable for a bike facility?



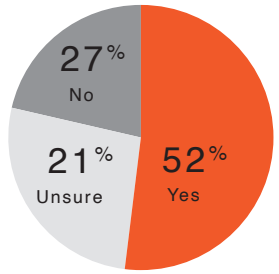
what facility type would be suitable at Balarang Reserve?



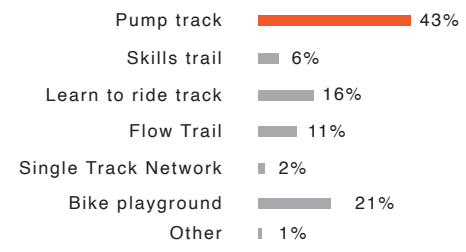
- While there was strong support that Balarang Reserve is suitable for a bike facility, there were mixed comments received about the suitability of the space. Concerns raised were lack of passive surveillance, impact on existing pedestrian use, impact on passive quality of the existing Reserve.
- Flow trails were thought to be the most suitable facility type which would satisfy local users based on the feedback received around riding habits in *Section 6.3: Riding Habits*. Comments were made around the suitability of the topography for trails and the ability to cater to all ability of riders.
- A bike playground was the other popular choice which may be driven by the desire to expand upon the existing playground to create a more diverse play space with more interest and activity options

CON O'KEEFE PARK, ALBION PARK

is Con O'Keefe, Albion Park suitable for a bike facility?



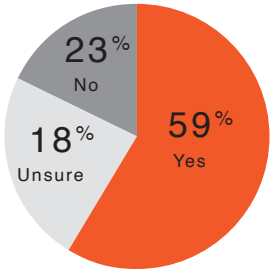
what facility type would be suitable at Con O'Keefe?



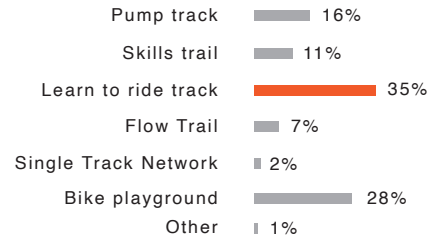
- There was support that Con O'Keefe could contain a bike facility, however there were some consistent concerns observed in the consultation comments. These included concern for the limited space available, the subsequent facility being small and not holding high levels of repeat use, lack of accessibility for teens and limited carparking.
- A pump track was the favored facility type for the site which aligns with the favored facility type under riding habits in *Section 6.3: Riding Habits*. This may also be due to a pump track being a good shared use facility with skate parks however this was not explicitly commented upon.

WILSON MEMORIAL PARK, ALBION PARK RAIL

is Wilson Memorial Park, Albion Park suitable for a bike facility?



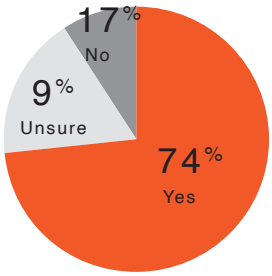
what facility type would be suitable at Wilson Memorial Park?



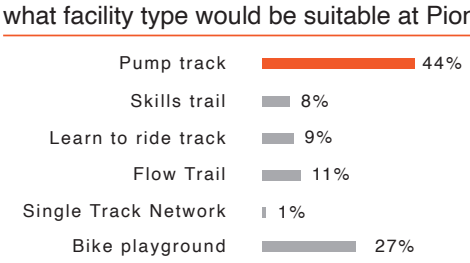
- There was support that Wilson Memorial Park could contain a bike facility. The concerns were that the site suited a learn to ride track or bike playground but not a facility that would service the fulfill the need for the suitable facility type that accommodates more advanced users. This was due to scale and existing function of the site.
- A learn to ride track was the favored facility type for the site. This ranked the lowest as a facility type in the *Section 6.3: Riding Habits*. So while more than half of the consultation participants thought a bike facility could be developed at Wilson Bay Memorial, it was also believed the least desired facility type was the most appropriate.

PIONEER PARK, SHELLHARBOUR

is Pioneer Park, Shellharbour suitable for a bike facility?



what facility type would be suitable at Pioneer Park?

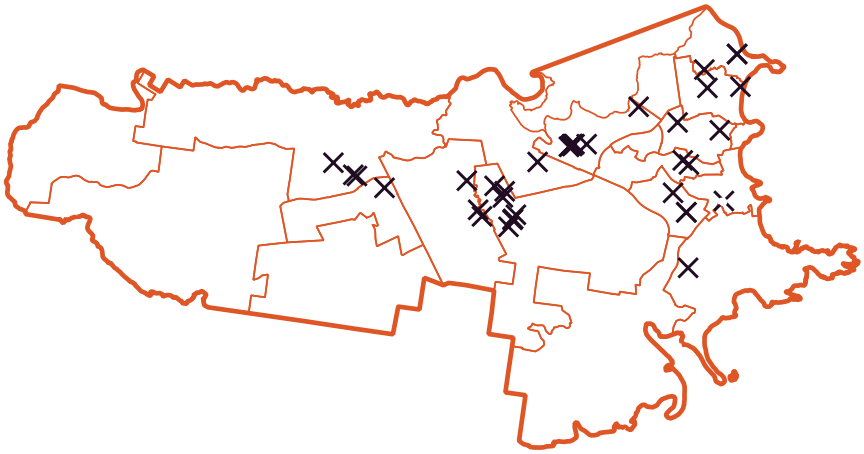


PIONEER PARK SUMMARY

- Pioneer Park had the highest percentage of the community nominate it as suitable for a bike facility development. The supporting comments frequently mentioned the location to be great and that hinging a facility off of the skate park would be beneficial and advantageous as a facility with more variety of experience for users.
- A pump track was thought to be the most appropriate facility type. Based on its proximity and expansion to the skate park this may be due to a pump tracks ability for cross use with most skate park users.
- Providing a facility that provided use for all ability of riders being desirable was raised in the comments within the consultation. It was mentioned this may broaden the Parks user group as the existing skate park is challenging for some beginner and younger users.

6.6 OTHER SITES WITHIN SHELLHARBOUR

alternative locations identified on Social Pinpoint



OTHER SITES WITHIN SHELLHARBOUR SUMMARY

Respondents of the consultation suggested other locations within Shellharbour LGA for potential bike facilities along with commentary as to why they believed a location to be suitable. Selected locations were typically selected due to location of the site and its accessibility, the ability of the site to support a desired outcome i.e. bushland and terrain for trails, the existing infrastructure and/or recreation function of a site and its ability to support a bike facility, and due to lack of recreation facilities within particular areas.

There are two sites that received elevated nominations as suitable candidates for a bike facility. These were Kingston Street Park and Croome Regional Sporting Complex.

6.7 KINGSTON STREET PARK

Image 23: Kingston Street Park

Kingston Street Park in Oak Flats received the most support as an alternative location for a bike facility.

The key reasons for support included:

- A prime location for a bike facility.
- A lack of existing bike facilities in Oak Flats.
- The potential to complement other recreational facilities at Kingston Street Park.
- Opportunity for a different type of bike facility to complement any facility that gets developed at Balarang Reserve

Additionally, Council has resolved to prepare a master plan for Kingston Street Park, and it is recommended that the feedback from this consultation be considered as part of that process.

This is the second site assessed in the Oak Flats suburb. The community provided feedback on Balarang Reserve, Oak Flats (refer to Section 6.5 of this document). The feasibility of providing a second biking facility at Kingston St is significant reduced if Balarang Reserve Oak Flats site proceeds.

6.8 CROOME REGIONAL SPORTING COMPLEX

Image 24. Croome Regional Sporting Complex

Four alternative sites within Croome Regional Sporting Complex were suggested, separate from the nominated site in this report. These locations would require further analysis to assess their suitability for a bike facility and determine the most appropriate type of facility.

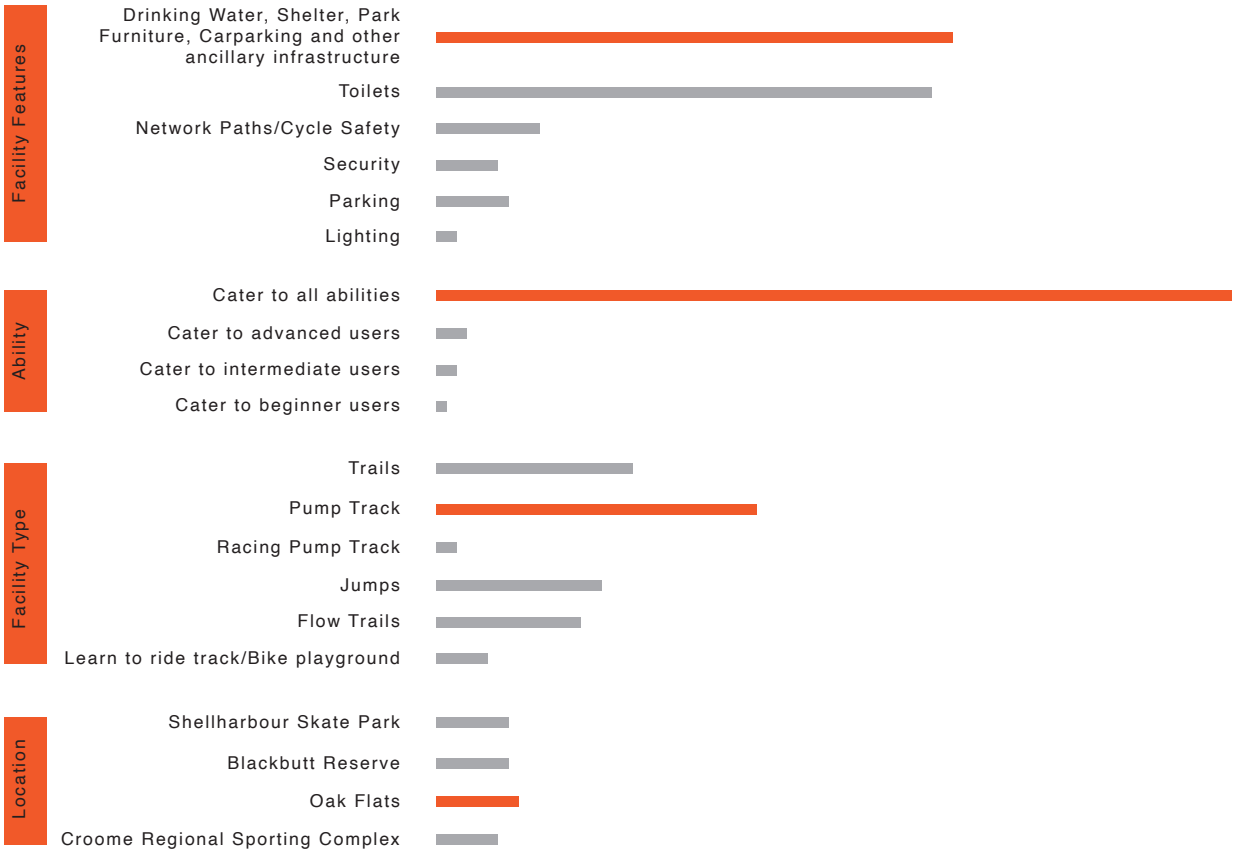
The main reasons for support included:

- Suitable terrain for MTB trails.
- Ability to utilize existing amenities.
- Effective use of large, underutilized areas within the Sporting Complex.

Croome Regional Park is adjacent to Terry Reserve. The feasibility of providing a second biking facility at Croome Regional Park is significant reduced if Terry Reserve site proceeds.

6.9 FEATURES OF A BIKE FACILITY

what's the one thing you most want included in a new bike facility?



FEATURES OF A BIKE FACILITY SUMMARY

The consultation allowed the respondents to provide feedback for any one thing that they deemed most important to have included at a bike facility. The results have been catagorised into four catagories as follows:

FACILITY FEATURES

Both ancillary infrastructure and toilets were the two stand out items within this category. This may assist with site selection and assessment of the sites based on the elevated importance of these items to a community i.e. it may make sites adjacent existing public toilets and with existing ancillary infrastructure more appealing to avoid additional or elevated capital costs to a project.

ABILITY

There is a strong bias for the facility to cater to all abilities. Throughout the consultation there has been commentary for more advanced facilities that will allow users to progress and facilities for younger beginner users but these comments are often about a facility accommodating all abilities of users rather than one specific ability of user or user group.

FACILITY TYPE

The preferred facility type aligns with what we heard in the *Section 6.3: Riding Habits*. There is a preference for pump tracks to be provided in the LGA with trails/flow trails following closely behind.

Image 25. Trails

Image 26. Pump Track

Image 27. Racing Pump Track

Image 30. Jumps

Image 29. Flow Trails

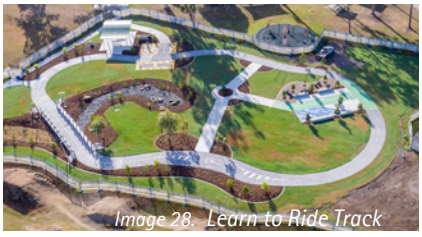


Image 28. Learn to Ride Track

LOCATION

There were four locations mentioned multiple times, however there was not one stand out site or area that dominated this question within the consultation. Oak Flats and Croome Regional Sporting Complex were both mentioned multiple times which aligns with what we heard in *Section 6.6: Other Sites Within Shellharbour.*

Blackbutt Forest Reserve was mentioned multiple time which demonstrates the importance of the trail network within the Reserve to some users.

6.10 CONSULTATION SUMMARY

The consultation process was highly successful, with strong community participation. While there was significant enthusiasm for developing a bike facility in Shellharbour, opinions varied on the ideal facility type and location.

RESPONDENTS

The majority of respondents were Shellharbour residents, with all age groups well represented. However, the 35-44 age group provided the most input. Most feedback was gathered through the online survey, though the strong turnout at in-person consultations highlighted the importance of this project to the community.

SUPPORT FOR A BIKE FACILITY

Overall, there was strong support for a bike facility across the four nominated locations, with approval levels ranging from 52% to 74% and an average support rate of 64%. This outweighed opposition or uncertainty.

Notably, lack of support was often due to site-specific concerns rather than opposition to the development of a bike facility itself.

PREFERRED LOCATION

Among the proposed sites, Pioneer Park received slightly more support than Balarang Reserve, though both were considered favorable locations for development. Each site has unique qualities and offers different opportunities for the type and scale of facility that could be developed.

Additionally, Kingston Street Park in Oak Flats and alternative locations within Croome Regional Sports Complex were identified during the consultation as potential sites, despite not being part of the initial feasibility study.

PREFERRED FACILITY TYPE

Pump tracks were the most preferred facility type, followed closely by flow trails. This aligns with industry trends observed by Common Ground over the past 12 months.

The most frequently mentioned request was for the facility to be accessible and designed for all abilities, reflecting the family-oriented demographic of Shellharbour

FACILITY AMENITIES

Beyond accessibility, the most commonly requested amenities included:

- Shelters, seating, lighting, water stations, and parking.
- Toilet facilities, which were nearly as frequently requested as other amenities.

These insights will help shape the development of a bike facility that meets community needs and expectations.

6.11 CONSULTATION OUTCOMES

The following are key outcomes that should be considered in the prioritisation and development direction for each of the identified sites within this study:

- Pioneer Park and Balarang Reserve emerged as the preferred locations among respondents. Both sites can accommodate the most favored facility types—a pump track and flow trails, and are adjacent to existing ancillary infrastructure and/or other recreational facilities, .
- Con O'Keefe Park was less favored, with a pump track being the most preferred facility type for the site.
- Wilson Memorial Park also received low support, with the most suitable facility type identified as a learn-to-ride track—the least popular option of bike facility types among respondents.
- Oak Flats was highlighted as lacking a bike facility and should be considered as a priority location for development within the LGA.
- Kingston Street Park (Oak Flats) was identified as a favorable site for a bike facility. Further consideration may be given within this feasibility study or the master plan process initiated by Council (June 2022).
- Four alternative sites within Croome Regional Sports Complex were also identified as potential locations for a bike facility.
- Both Kingston Street Park and Croome Regional Sporting Complex have been included as assessed sites within this report following the completion of the consultation.
- Terry Reserve and Jarrah Way (Reserve 116) received no specific comments indicating support or resistance for either of these sites or information about preferred facility types.

7. BIKE FACILITY DEVELOPMENT CRITERIA

7.1 CREATING VARIETY

Distributing bike facilities across Shellharbour will ensure facilities are accessible to all Shellharbour residents, encourage active transport like riding a bike to a nearby facility, prevent an influx of users to a particular destination and provide a differing challenge and experience across the City. Depending on the level of investment, there are opportunities to design and construct facilities that meet growing demand and encourage new users to participate in riding a bike.

A varying classification of bike facilities will influence the number of users. Developing large scale, leading edge facilities will see an influx of riders from outside and within Shellharbour. The recommendations within this report are directed at servicing the Shellharbour residents first, but at the same time creating facilities that are exciting, create a desire for continual repeat use and benefit from economic gains by encouraging visitors into the LGA.

In suitable locations the opportunity of grouping bike facility types with others to create a Bike Park, or also known as a Challenge Park should be considered. A Challenge Park is most rewarding for the user and generally the most successful facility when considering wheeled sports use. Multi-disciplinary sites allow for introductory experiences and skills progression.

A single discipline bike facility is well placed with non-cycling activities to provide an alternative experience whilst other family members are participating in activities such as team sports.

7.2 BIKE FACILITY CLASSIFICATION

The following bike facility classifications aims to achieve a variety of facilities across Shellharbour. The varying classifications typically provide facilities of differing scale, with varying complexity and supporting infrastructure. This is more of a guide as to what should be included however every site needs to be assessed and designed based on its unique characteristics.

The following table provides an outline of the required supporting infrastructure.

KEY REQUIREMENTS	COMMUNITY	LOCAL	REGIONAL	STATE
Toilets			✓	✓
Changing facilities & showers				✓
Drinking water	✓	✓	✓	✓
Designated emergency access			✓	✓
Designated spectator viewing & seating			✓	✓
Food and beverage outlets				✓
Lighting				✓
Parking & drop-off			✓	✓
Proximity to major community center		✓	✓	
Public transport access			✓	✓
Rubbish bins	✓	✓	✓	✓
Shelter/ shade			✓	✓

Table 7. MTB/BMX Bike Facility supporting infrastructure

COMMUNITY FACILITY

Community level facilities are designed to service the community in the immediate vicinity or are supplementary to existing experiences offered at a location. They are small scale, minimal budget projects that typically create opportunity for introductory experiences and skills development for beginners, although this is a trend rather than a prerequisite.

LOCAL FACILITY

A local level facility is intended to service Shellharbour residents. Users may travel within the City to access the facility. Multiple local facilities should be strategically distributed across the local government area. Facilities incorporate basic design, simple detail and are value for money. They should be an engaging facility for all level of users with progression promotion for both beginner and intermediate users. Local facilities should be constructed within recreation spaces while adjacent to existing infrastructure, this will then provide the capability of holding small local events, competitions and workshops.

Image 31. Yarram pump track, VIC

Image 32. Dianella Pump & Skills Facility, WA

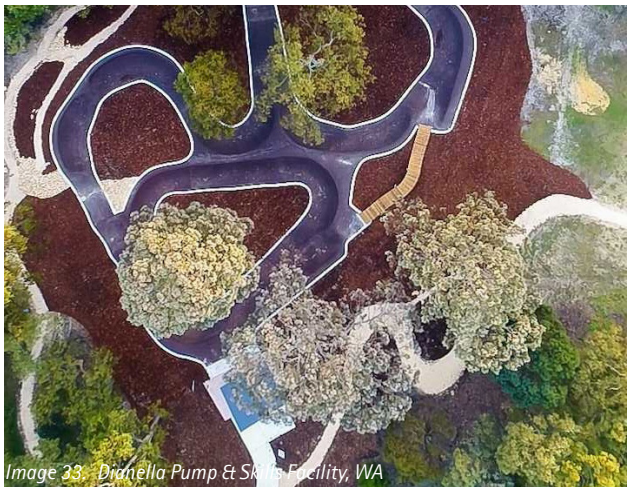


Image 33. Dianella Pump & Skills Facility, WA

REGIONAL FACILITY

A regional level facility will be attractive to a wider market and will attract users from outside the immediate area. Regional facilities provide a greater level of satisfaction and a desire for residents to return to the same location. These facilities incorporate more technical design elements, increased detail and will be of higher cost depending on technical features and supporting infrastructure. Development around existing infrastructure greatly reduces the cost of regional facilities. There will be an opportunity to host larger events, competitions and workshops.

STATE FACILITY

State level facilities capture a much broader market, with individuals traveling great distances to participate. These facilities will attract all user groups from beginners and new participants through to elite riders. Significant capital expenditure is required to develop a State level facility, but there are major opportunities for return on investment. Competitions will draw spectator crowds, opportunities for facility and equipment hire. There is also opportunities for private enterprise in areas such as hospitality, coaching and private sporting clubs within the facility.

State facilities require a significant investment in supporting infrastructure such as car parking, ablutions, shower facilities, food and beverage; therefore require a significant parcel of land and have large capital costs.

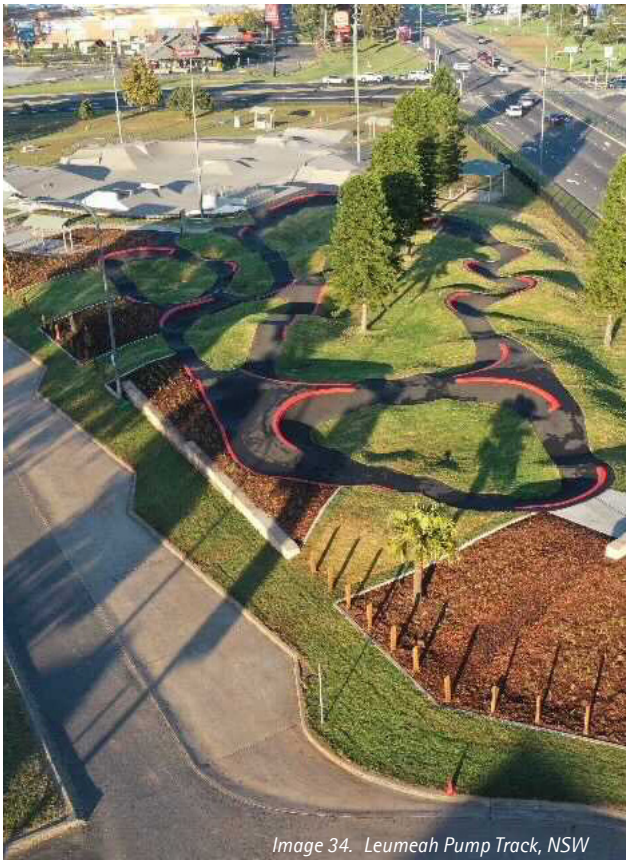


Image 34. Leumeah Pump Track, NSW

Image 35. Albany Youth Challenge Park, WA

7.3 SITE SELECTION

Differing bike facilities require differing characteristics suitable to the intended use. The key physical constraints include topography, suitable geotech conditions, the ability to execute a suitable drainage strategy, enough suitable space to accommodate the mountain bike facility including vegetation and infrastructure including service poles, pits, furniture, shelters etc.

As will be apparent in the site assessments section of this Study, it is these constraints that will influence what can be achieved at each site.

Image 41. Balarang Reserve

Image 42. Con O'Keefe Park

Image 43. Croome Regional Sporting Complex

Image 36. Albion Park Rail

Image 37. Kingston Street Reserve

Image 38. Pioneer Park

Image 39. Terry Reserve

Image 40. Wilson Memorial Park

7.4 ENVIRONMENTAL AND CULTURAL CONSIDERATIONS

Development of bike facilities can be in proximity to sensitive landscapes however requires careful planning, design and construction methodology. Development of bike facilities can result in the adverse impacts to the landscape that can be minimised during design, construction and maintenance. Impacts can include:

- Removal of existing vegetation
- Erosion
- Introduction of litter to the area
- Reduction of space for biodiversity planting within key corridors
- Destruction of habitat
- Introduction of phytophthora (dieback), weeds and disease
- Impact on sensitive landscapes i.e. riparian zones

In areas of high density in particular, it is important that any environmental and cultural impacts are assessed thoroughly prior to any development considerations.

STANDARDS, GUIDELINES AND ASSESSMENT

There is no Australian Standard for bike facility development, however there are state, national and international trail development guidelines. The primary document for Australia is the Australian Mountain Bike Trail Guidelines. This document is widely recognised and utilised by the industry to provide best practice methodology to eliminate adverse outcomes to the natural environment. These should be referred to in conjunction with relevant planning and environmental guidelines/ policies during design and construction.

ENVIRONMENTAL OPPORTUNITIES THROUGH BIKE FACILITIES

The introduction of trail into a sensitive landscape can provide opportunities that raises awareness and provide stewards of the environment. The development of trail can initiate the following outcomes:

- Education/raised awareness of the environment and sensitivities through maintenance days, coaching clinics, workshops etc
- Reduction of rogue trail building with no environmental considerations if provided trail is of high value and engaging with repeat use quality
- The increased activity within these environments will create a presence and be deterring to other groups causing unruly environmental damage
- Decrease of weeds with the inclusion of vegetation planting and the inclusion of conservation groups

TRAIL TO ACCOMMODATE ENVIRONMENT

Design of a bike facility in an ecologically sensitive area requires the design and construction teams be sympathetic to the existing flora and fauna and other environmental and cultural sensitivities within the landscape.

The designer is to adhere to any reports providing constraints and restrictions around environmental sensitivities. The designer is to understand required sightlines and trail corridors and design accordingly. The target is to provide corridor alignments to minimise impacts on the landscape and environment while providing a high quality trail outcome. Trail construction must occur within the designated corridor,s adhere to all environmental restrictions and be built sensitively and in harmony with the landscape and environment.

COST / BENEFIT OF TRAIL IN SENSITIVE AREA

Analysis of each site should consider a cost / benefit of encroaching trail or other facilities into environmentally sensitive areas.

This needs to be assessed from both design/construction and a use perspectives:

- Is the environmental impact (cost) of the construction,

ongoing access for maintenance and the reduced area for flora and fauna diversity outweigh the benefit of having a bike experience in that particular area?

- Does the promotion of everyday accessibility to a sensitive area with the following risks outweigh the benefit of having a bike experience in that particular area:
  - » Potential trail alterations
  - » New unsanctioned trail
  - » Increased litter
  - » Damage to retained flora and fauna
  - » Financial burden of weed and disease control
  - » Potential of track removal if phytophthora increases

While this report will review and outline some key environmental considerations for each site it is imperative that every site considered for a bike facility development is investigated in high detail to confirm suitability of development vs the cost of the development.

Image 44. Blackbutt Forest Reserve Vegetation

Image 45. Terry Reserve Vegetation and Waterway

7.6 LANDSCAPE COHESION WITH BIKE FACILITIES

Once a bike facility is established there often adjacent landscape works to be completed. It is not unusual that this would be completed by a separate team. It is important that the landscape design and construction around a bike facility does not impact user safety or is detrimental to the usability of the facility. Considerations will vary for each style of bike facility however the following is a recommended approach to implementing landscape treatments cohesively with adjacent bike facilities:

- The landscape designer/architect is to be aware of setbacks, fall zones, runout areas and the likes that are a critical safety aspect of the bike facility. If these are unknown then this information should be sought from the bike facility designer
- When implementing vegetation planting adjacent a bike facility ensure that the species selected and not spreading and likely to impact on the facility. Ensure sightlines are maintained and designated corridors for the facility remain clear. Ensure that tree species are positioned well clear of setbacks, fall zones, runout areas and the likes to ensure their mature form does not pose a significant risk to users
- If implementing additional amenities around the facility ensure they are clear of setbacks, fall zones, runout areas and the likes and are positioned to provide suitable surveillance over the facility
- Remediation works required to the bike facility i.e. following installation of irrigation pipes beneath a pump track will have an impact on the usability of the facility. Consult with the bike facility construction contractor to ensure remediation works are carried out to be safe and consistent with the rest of the facility.

7.5 MAINTENANCE

The ongoing maintenance of bike facilities comes at a annual ongoing cost for the owner, typically a LGA. The task that the LGAs have of maintaining all open public space and facilities is typically a large undertaking.

As such the design of any facility should account for the time, effort, labour and machinery required to upkeep the facility to the standard that is expected of the community and LGA.

It is the designers responsibility to account for this during design and where possible to provide:

- Ease of access
- Accommodate machine access and maintenance i.e. suitable grades for machine mowing
- Suitable palette of finishes for ease of maintenance
- Typical furnishings and utilities for ease of repair/ replacement
- Safety consideration for the maintenance personal

8. SITE ASSESSMENTS

Image 46. Creswick Pump Track, VIC

8.1 INTRODUCTION

Shellharbour City Council have identified eight sites to be investigated for the suitability of a bike facility development. Refer to Figure 11. These include:

01. Pioneer Park, Shellharbour
02. Balarang Reserve, Oak Flats
03. Con O'Keefe Park, Albion Park
04. Wilson Memorial Park, Albion Park Rail
05. Terry Reserve (part of only), Albion Park
06. Reserve 116 along Wollybutt Drive & Jarrah Way, Croom
07. Kingston Street Park, Oak Flats
08. Croome Regional Sporting Complex, Croome

In addition to this, Blackbutt Forest Reserve has been selected for mitigation measures only. The site is a sensitive and highly important ecological feature within the LGA and is the location of extensive self-built and unsanctioned mountain bike trail. The mitigation measures are discussed in section 9 of this report.

The purpose of this report is to provide an assessment of these sites to determine the appropriateness of developing a bike facility on each site, provide recommendations specific to each site and to prioritise the sites.

While there is potential for significant community and social benefit through the development of bike facilities, there are also risks associated with inappropriate development. The cornerstone of successful development is appropriate site selection. The following characteristics must be considered when identifying and assessing a site:

- Proximity to supporting recreational activities
- Accessibility for users
- Connectivity to related activities
- Terrain and geology of site
- Hydrology / drainage
- Tenure and deliverability
- Competing site uses
- Impact on surrounding land use
- Scale and shape of site
- Flora, fauna and cultural constraints.

8.2 METHODOLOGY

Each site was assessed in two phases:

DESKTOP ASSESSMENT

The desktop assessment relies on land information such as tenure, land use and network plans/maps, aerial photography, management plans, planning documents and maps. Each site was assessed and scored against a multi-criteria list to eliminate any bias and to ensure consistent assessment criteria. Refer to "7.3 Multi-Criteria Assessment Scoring" for further detail and scoring of the subject sites.

ON-SITE ASSESSMENT

The on-site assessment tests and reviews the same multi-criteria that was applied during the desktop assessment. The final score allocated to each site was based on both the desktop and site assessment.

In addition to the multi-criteria analysis the on-site assessment records:

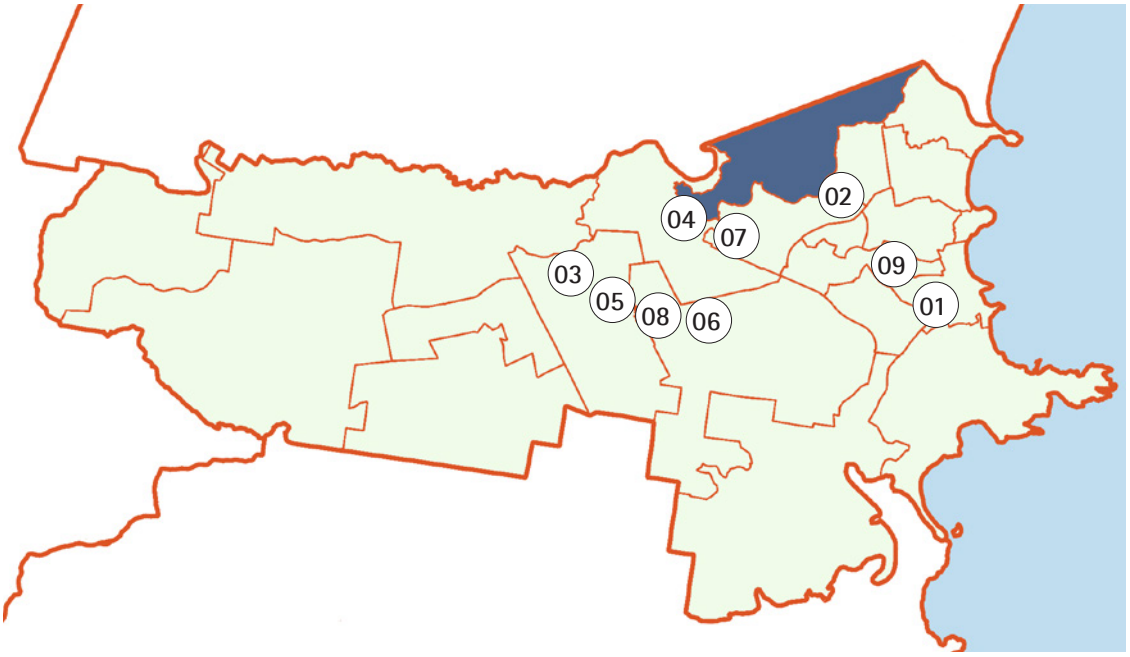
- Site Opportunities
- Site Constraints
- Site Condition and Finishes
- Appearance of both passive and active use.

CONCLUSION OF ASSESSMENT

At the conclusion of the assessment the following information is provided for each site:

- Suitability of the site for a bike facility
- Type of suitable bike facility
- Recommended scale of the bike facility
- Priority of the site for development amongst the six assessed sites
- Bike facility design guidance.

8.3 SITES FOR ASSESSMENT



01. Pioneer Park
02. Balarang Reserve
03. Con O'Keefe Park
04. Wilson Memorial Park
05. Terry Reserve (part of only)
06. Reserve 116 along Wollybutt Drive & Jarrah Way
07. Kingston Street Park
08. Croome Regional Sporting Complex
09. Blackbutt Forest Reserve

Lake Illawarra

Pacific Ocean

Figure 11. Identified locations for assessment

8.4 MULTI-CRITERIA ASSESSMENT SCORING

Table 8, the "Multi-Criteria Assessment and Score Matrix" comprises of six sections to provide a broad assessment of the conditions that would determine the sites suitability for a bike facility development. These include:

- Physical site conditions and technical considerations
- Access and transport
- Passive surveillance, security, and safety
- Supporting amenities
- Impact on existing facilities, adjoining uses and users
- Context
- Environmental/Cultural impacts

Each criterion listed within any given section is given a score between 0 and 5. The score provided is based on the following:

5/5 EXCELLENT

The site provides an excellent outcome against the given criteria

4/5 GOOD

The site provides a good outcome against the given criteria

3/5 FAIR

The site provides a fair outcome against the given criteria

2/5 POOR

The site provides a poor outcome against the given criteria

1/5 VERY WEAK

The site provides a very weak outcome against the given criteria

0/5 NON-EXISTENT

The site does not address the given criteria at all

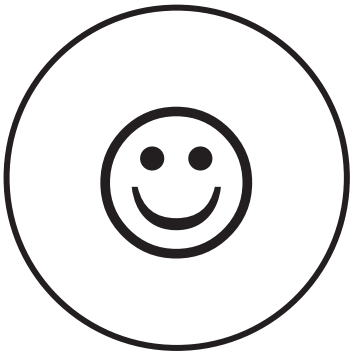
8.5 MULTI-CRITERIA ASSESSMENT AND SCORE MATRIX

CRITERIA (RATED OUT OF 5)	RESERVE 116	BALARANG RESERVE	CON O'KEEFE PARK	PIONEER PARK	TERRY RESERVE	WILSON MEMORIAL PARK	KINGSTON STREET PARK	CROOME REGIONAL PARK
Physical Site Condition and Technical Considerations								
Is the site suitable for any classification bike facility up to a State facility	1	4	1	3	5	1	2	4
Does the site contain appropriate terrain/geology/hydrology for bike facility development	2	5	3	3	3	4	4	3
Is the shape of the site suitable to accommodate a bike facility development	3	5	1	4	5	4	4	4
Is the tenure of the site suitable to allow deliverability of a bike facility	5	5	4	5	5	5	5	5
Is the flora/fauna/cultural/phytophora hygiene constraints suitable to allow the development of a pump track	3	4	2	5	4	4	4	5
Access and Transport								
Is there access to public transport from the site	0	4	4	4	2	4	3	1
Are there pedestrian/footpath connections from transport nodes to the site	0	4	5	5	4	4	2	4
Is there a safe drop off area or adequate parking at the site	1	3	5	5	1	3	3	5
Is the site in proximity to a Shared Use Path	0	5	3	5	4	5	1	5
Passive Surveillance, Security and Safety								
Is the site visually prominent with good passive surveillance from other park users	1	4	3	5	2	5	5	5
Is police response a short distance from the site and is there ease of access for police	5	5	5	3	4	4	4	5
Is there ease of access for other emergency vehicles	1	5	4	4	3	5	4	5
Does the location enable safe entry to and from the site and allow for adequate setbacks from busy roads	4	4	5	3	5	4	4	4
Supporting Amenities (Water, Toilets, Shade, Food and Drink)								
Are associated amenities such as public toilets, water, shelter and shade, existing and available or cost effective to install at the site?	1	4	5	5	1	5	4	4
Impact on Existing Facilities, Environment, Adjoining Uses and Users								
Is the site located a sufficient distance from nearby incompatible uses, activities or services	3	5	3	5	5	4	5	5
Is the site located such that noise and visual impacts for surrounding residents could be minimised	3	4	3	5	4	4	3	5
Context								
Is the site located in proximity to other similar existing or proposed recreational facilities	1	5	5	5	4	5	5	5
TOTAL (max possible score is 85)	34	75	61	74	61	70	62	74

Table 8. Multi-Criteria Assessment and Score Matrix

8.6 BALARANG RESERVE, OAK FLATS

SUITABILITY OF THE SITE FOR A BIKE FACILITY



The topography, size and scale of the Reserve and existing use provides a prime opportunity for development of urban flow trails and other bike facilities

MULTI CRITERIA SCORE

Highest score on the Multi-Criteria Assessment

INTRODUCTION

Balarang Reserve is a lineal park the runs predominantly east-west between The Esplanade and Lake Entrance Road. The Reserve is passive in nature with a single shared use path running the full length of it, occasional path side seating, clusters of mature vegetation and large expanses of open turf over undulating topography. In the eastern end of the site the hospital access road crosses the Reserve and the shared use path.

There are multiple secondary entrance points into the Reserve including three off of The Esplanade, one off Madigan Blvd, and one off McClements Ave. Tarra Cres runs adjacent the boundary of the Reserve providing informal access along a significant portion of the southern boundary. Tarra Cres also includes a stopping area adjacent the playground infrastructure known as Jack Wickham Park.

The vegetation mapping indicates the mature stands of trees/vegetation are "South Coast Lowland Woollybutt Grassy Forest" and "Illawarra Lowland Red Gum Grassy Forest", both of which are associated with listed Threatened Ecological Communities.

LAND INFORMATION

- **Subject Site Scale:** 116,900sqm
- Zoning: Public Recreation
- **Managed By:** Shellharbour City Council

LEGEND

- Reserve Boundary
- Subject Site
- **01.** Playground & Fitness Equipment
- **02.** Carparking
- **03.** Boat Launch Ramp
- **04.** Public Toilets
- **05.** Primary Access Point
- **06.** Shared Path
- **07.** Shellharbour Hospital
- **08.** TAFE
- **09.** Oak Flats High School
- **10.** Jack Wickham Park Playground

PRIORITY RANK

1 /8

The site characteristics, use and connection to other amenities and facilities makes this site a stand out site for the development of a bike facility

FACILITY SCALE

Regional

The scale of the Reserve will physically fit a regional scale facility however would likely struggle and be unsuitable for anything larger

Figure 12. Balarang Reserve Existing Site Features and Identified Subject Site

ASSESSMENT

TOPOGRAPHY ASSESSMENT

The topography of Balarang Reserve is generally undulating. The highest point towards the eastern end is at ~RL33.0 and the lowest is ~RL4.5 at the western end. Grades vary across the site.

- High point of site
- General direction of fall
- Topography indicates these to be low points/gullies that would collect and convey water. Any of these alignments without drainage infrastructure may be wet areas on the site

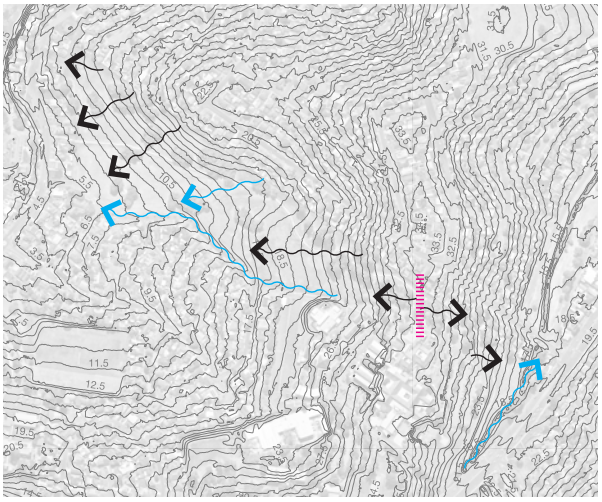


Figure 13. Topography

NETWORK ASSESSMENT

- Dual use concrete path
- Roadside path network
- Vehicular access to the hospital. The dual use path has formal crossing over the access road with standard visual and physical safety measures in place to provide a safe crossing for pedestrians.

01. There is investigation into installing a controlled pedestrian crossing between Balarang Reserve and the foreshore of Lake Illawarra. This would be beneficial to Balarang Reserve as it would provide safe access to the facilities on the western side of The Esplanade.

Figure 14. Path Network

VEGETATION ASSESSMENT

There are two Plant Community Types identified at Balarang Reserve, and both are associated with listed Threatened Ecological Communities and as such should be protected and retained in any development within the Reserve.

- Illawarra Lowland Red Gum Grassy Forest
- South Coast Lowland Woollybutt Grassy Forest

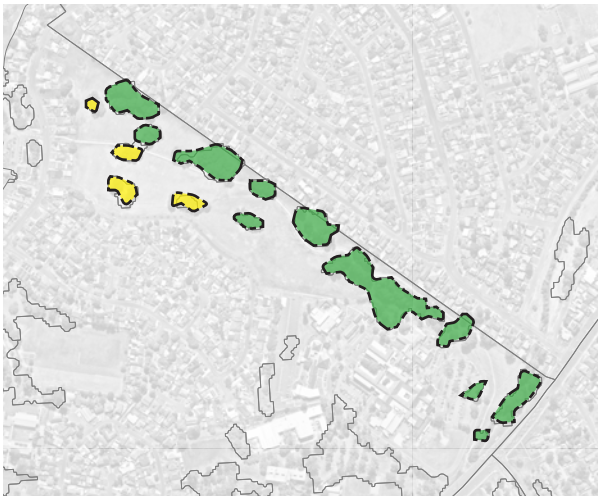


Figure 15. Biodiversity Assessment

SITE PHOTOS


Image 47. View to Lake Illawarra from western high point of the site


Image 48. Shared Path amongst existing trees


Image 49. Narrow eastern part of the site


Image 50. Steep grades to the north of the shared path


Image 51. Jack Wickham Park Playground


Image 52. Grade down to southern boundary from shared path


Image 53. Western primary entrance into the Reserve


Image 54. Termination of shared path and crossing point of The Esplanade


Image 55. Existing drainage swale


Image 56. View looking west over Lake Illawarra and large expanses of open turf with gentle grades

LOCATION & DEMOGRAPHIC

Balarang Reserve is located in the suburb of Oak Flats which has the sixth highest density of all suburbs within the LGA. The projected population growth by 2046 of Oak Flats is below the LGA average and the ratio of residents to be youth is also forecast to drop and be below the LGA average. The relatively high density suggests that a bike facility in this location would get well used however the marginal drop in youth residents may contribute to lowering the priority of this site.

NEIGHBOURING SCHOOLS

There are currently two schools and one technical college in Oak Flats within a 1km radius of Balarang Reserve. They include:

- Balarang Public School
- Oak Flats High School
- Shellharbour TAFE College.

There are an additional two schools within 1km of Balarang Reserve that are in neighbouring suburbs of Mount Warrigal and Barrack Heights:

- Mount Warrigal Public School
- Barrack Heights Public School.

Although the demographic for Oak Flats is projected to decline there is very likely to be a concentration of youth in close proximity to Balarang Reserve given the proximity of multiple schools which may increase the priority of the site for a bike facility development.

NEIGHBOURING FACILITIES

Within 1km of Balarang Reserve there are:

- No bike facilities
- Five community facilities/centres including:
  - » Oak Flats Neighbourhood Centre
  - » Blackbutt Youth Centre
  - » Shellharbour Civic Centre
  - » Stockland Shellharbour.
- Seven recreational facilities including:
  - » Avery Park
  - » Freeman Park
  - » Cox Park
  - » Ski Way Park
  - » Jilba Park
  - » Harrison Park and proposed skate park
  - » Panorama Oval.

EXISTING ECOLOGICAL CONSIDERATIONS

The existing stands of trees belong to two Plant Community Types, both associated with listed Threatened Ecological Communities.

The open turf areas have no significant ecological value and given the large expanses of open turf areas any development should be able to be designed and implemented while retaining and protecting the two Plant Community Types.

Further to this any proposed landscape works could further aim to support/enhance the Plant Community Types.

Figure 16. Existing Plant Community Types

SITE OPPORTUNITIES

- The topography in conjunction with the vast open turf spaces lends itself very well for the development of a gravity bike facility i.e. urban flow trails. These are trending as one of the most popular urban bike facilities at time of writing this report.
- The existing shared path provides two opportunities. It could perform as divider of the site with bike facility on one side and retained existing passive character and use on the other. It could also be used as the return trail of a bike facility for users to return from the bottom of the trail back up to the top.
- The undulating topography offers areas with more or less grade that could assist with the implementation of varying grades of trail.
- The overall scale of the site means a bike facility could comfortably be implemented without it dominating a high portion of the site.
- The site has terrific passive surveillance.
- This site has the potential to provide alternative flow trails for Blackbutt Forest Reserve users.
- Balarang Reserve is central to existing suburban areas in the LGA.
- A future biking facility at Balarang Reserve could promote cycling connection to Lake Illawarra.
- Balarang Reserve could be developed into a biking facility type that was described in Case Study 2: Albany found within Section 5.12 of this Study.

SITE CONSTRAINTS

- The existing vegetation will provide some constraint however it is of low concern given the vastness of the site.
- There is no carparking available on site however there is some adjacent the site western side of the site.
- There is no formal pedestrian crossing over The Esplanade to the toilets, playground and foreshore on the western side of the Reserve. As it stands this is a safety hazard that would increase with the introduction of a facility that will attract a higher concentration of youths to the site. There is a project underway for the development of a formal and safe pedestrian crossing which would mitigate this constraint.
- The site is currently used passively. The topography doesn't allow for traditional field sports so it is very much used for leisure activities rather than organised sports or otherwise. Introducing a very specific use may be met with resistance from existing users.
- Consideration of residential properties surrounding reserve perimeter.

KEY ANALYSIS POINTS

01. The site has large space and very suitable topography for the development of urban flow trails. This in conjunction with the popularity of this facility type in todays market and industry makes it the obvious choice for the type of facility that should be considered at Balarang Reserve

02. The existing vegetation cannot be negatively impacted and opportunities in the design and development of a facility should look for opportunities to enhance the Plant Community Types.

03. The existing amenities and facilities to the west of the site will provide support to the increase of visitors to Balarang Reserve should a bike facility be developed. This will increase the need for a safe crossing point of The Esplanade.

04. If Balarang Reserve proceeds, Council should review feasibility of Kingston St Oak Flats location due to close proximity of Kingston St to Balarang Reserve.

DESIGN DEVELOPMENT

- The indicative design layout works with the sites topography and shape. The fall through the site provides a near perfect grade of fall for gravity fed urban flow trails while the lineal shape caters to a longer facility type.
- The site spatially contains suitable areas for trailheads and additional supporting facilities in the form of a pump track and/or jump park.
- The indicative design will likely satisfy a portion of the user group that frequents the ecologically sensitive Blackbutt Forest Reserve.
- Flow trails are a popular facility type within the industry requires topography like that at Balarang Reserve. The trails typically contain jump, drop or other skill based features.
- The lower portion of the site can accommodate a high performing jump park and pump track. These can be connected to the trailhead and/or the existing shared path.
- The existing shared path could be used as a return trail for the urban flow trail users. Riders returning up this trail would be going at a slow speed eliminating concern of pedestrian/cyclist conflict. Signage for safety would still be recommended.
- The large scale of the Reserve and indicative design spatially accommodates both passive users and bike park users.
- Site lines and passive surveillance would make this a safe location for both the users of the bike park and the other users of the Reserve.

LEGEND

- Trailhead to include furniture, shelter and water
- Space for additional supporting bike facility, in a jump park and/or a pump track
- Existing playground
- The Esplanade crossing upgrade
- Public toilets
- Existing carparking
- Easy descending flow trail
- Intermediate descending flow trail
- Difficult descending flow trail
- Extreme descending flow trail
- Existing shared use path
- Proposed connection with dual use path
- Reserve Boundary

PRECEDENT IMAGERY

Image 57. Flow trail

Image 58. Flow Trail Feature

Image 59. Flow trail

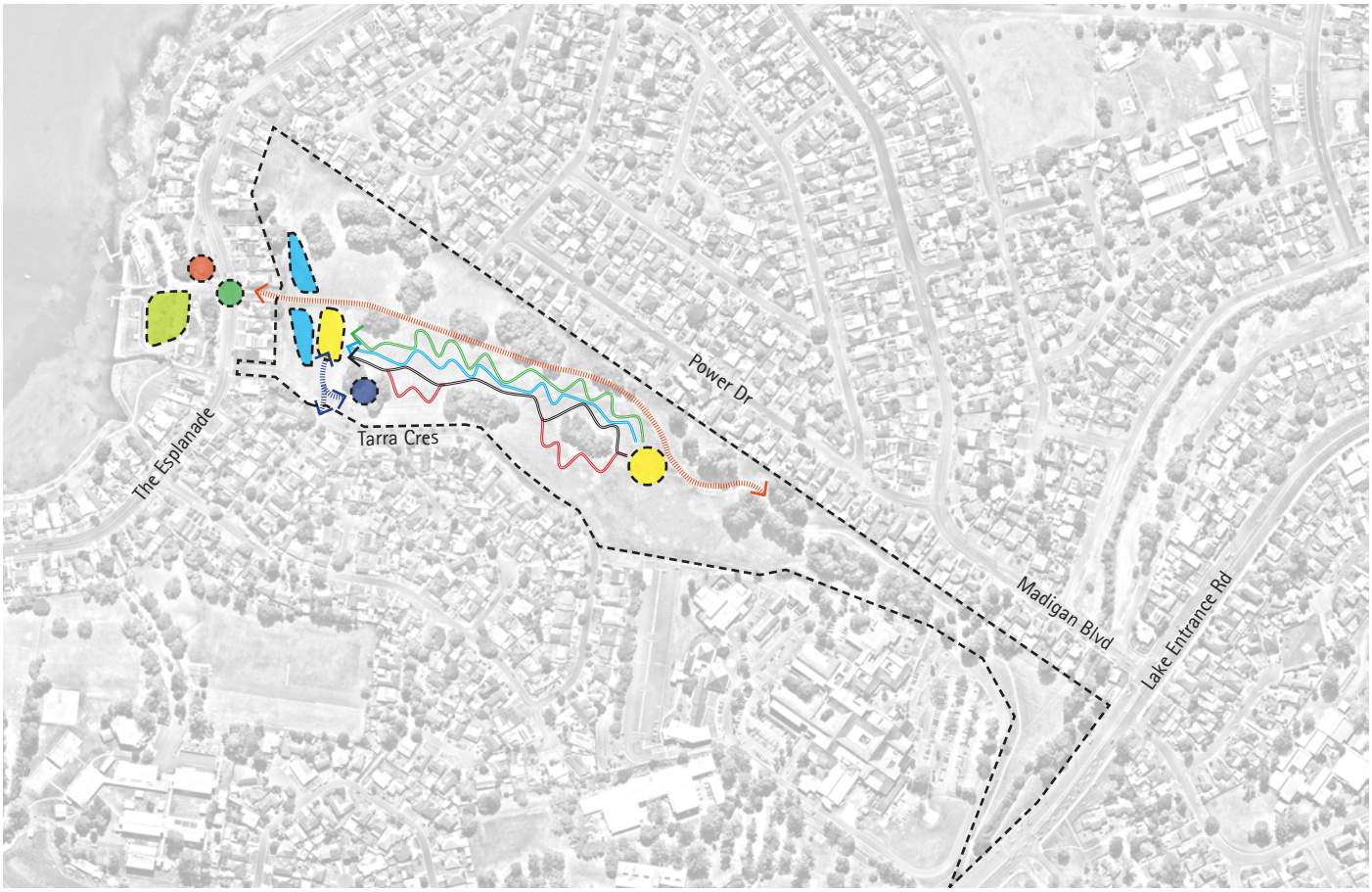


Figure 17. Indicative Design Development

Image 60. Flow trail feature

Image 61. Berm to Berm

Image 62. Flow trail layout example

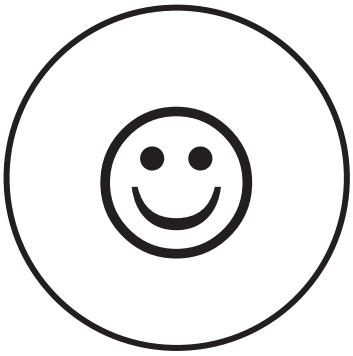
e 63. Flow trail corridor adjacent pump track

Image 64. Flow trail drop feature

Image 65. Flow trail

8.7 CROOME REGIONAL SPORTING COMPLEX, CROOME

SUITABILITY OF THE SITE FOR A BIKE FACILITY



Based on the site being part of a broader sporting complex along with access and existing infrastructure of the site a bike facility would be suitable at this site

MULTI CRITERIA SCORE

Second equal highest score on the Multi-Criteria Assessment

INTRODUCTION

The Croome Regional Sporting Complex is a large recreational facility located in Croom. The site features a variety of sporting amenities, including multiple sports fields catering to soccer, rugby, and other activities, a BMX track and the Shellharbour City Stadium. Additional facilities include a playground for younger visitors, seating areas, and open spaces for community events. A shared pathway connects the various features, running centrally through the site, with most amenities positioned along the eastern and western edges, leaving a broad, open turf area in the middle that balances active and passive recreation.

The subject site is adjacent the Shellharbour City Stadium, netball courts, hockey fields and oval. The site has a high point on the south eastern boundary and falls to the west / northwest. At the southern end of the site there are 3 grass netball courts that have been terraced. At the time of writing this report there was no detail information for the terraces. The subject site has minimal vegetation, with a vegetation strip between the northern portion of the subject site and the stadium and small clumps on the western side of the grassed netball courts.

Vehicular access is provided off Croome Road, there are 4 large carparking areas providing very close access to the subject site. There is a dual use path that provides pedestrian and cyclist access throughout the site to all other facilities as well as to neighbourhoods in Albion Park Rail and Albion Park.

LEGEND

- Subject Site
- **01.** Shellharbour City Stadium
- **02.** Hockey Fields
- **03.** Netball Courts
- **04.** Croome Cricket Oval
- **05.** Carparking
- **06.** Road & Path to BMX Track
- **07.** Croome Hockey Centre
- **08.** Ruby Fields
- **09.** Frazers Creek
- **10.** Grass Netball Courts

LAND INFORMATION

- **Subject Site Scale:** 16,170sqm
- Zoning: Private Recreation
- **Managed By:** Shellharbour City Council

PRIORITY RANK

2 /8

A suitable and economical site for a bike facility that can utilise a lot of existing infrastructure from adjacent recreation facilities

FACILITY SCALE

Regional

Due to the scale of the subject site, its inclusion in the broader Croome Regional Sporting Complex and existing supporting infrastructure

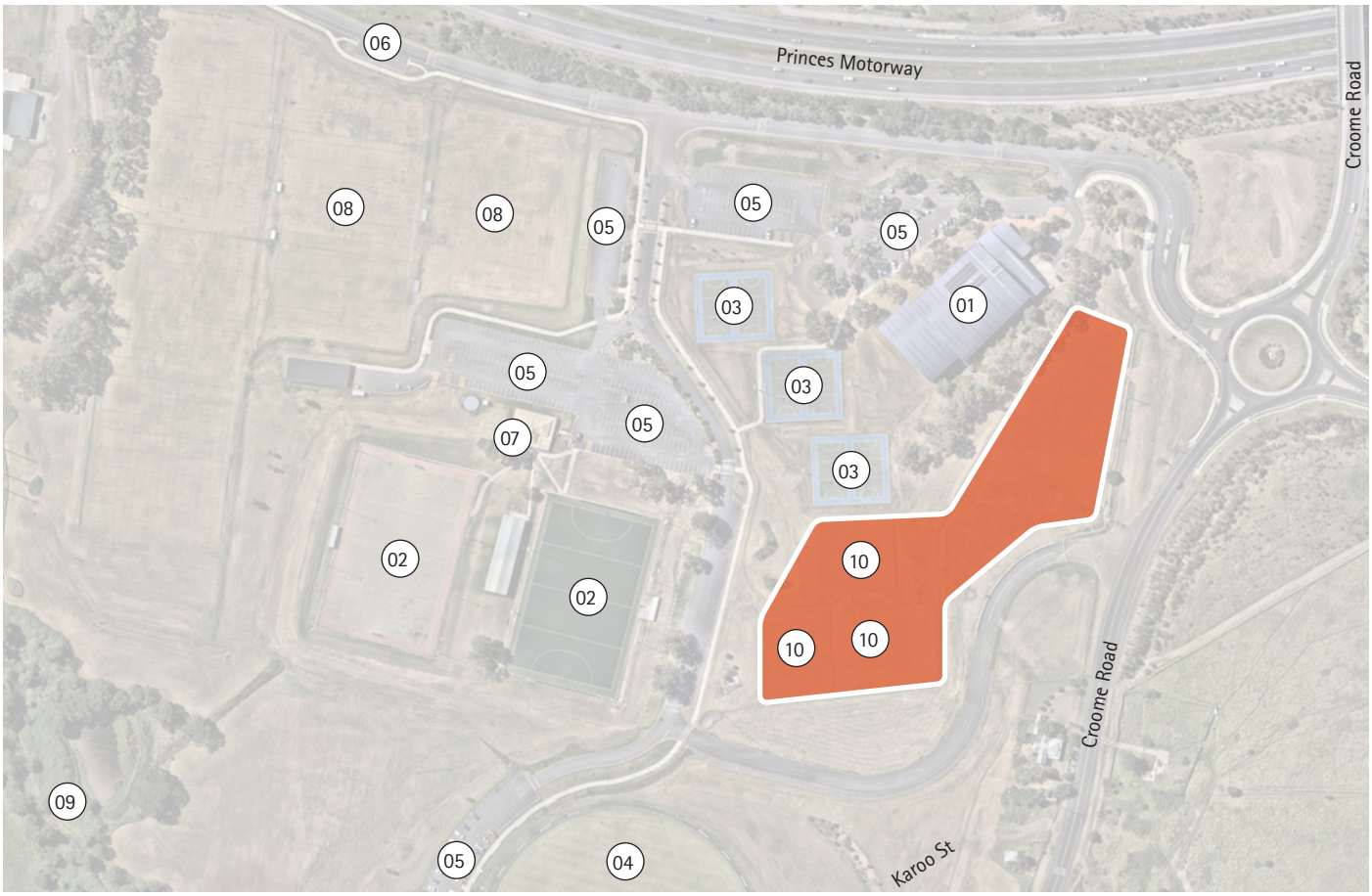


Figure 18. Con O'Keefe Park Existing Site Features and Identified Subject Site

ASSESSMENT

TOPOGRAPHY ASSESSMENT

The topography consists of a high point in the south east corner of the site and falling in a west to northwest direction. There are 3 terraces in the south west corner of varying elevations.

The northern portion of the subject may be subject to some flooding based on flood mapping of the *MacQuarie River Flood Study 2024*.

- General direction of fall
- Flood Area
- Terraced platform currently used for grassed netball court

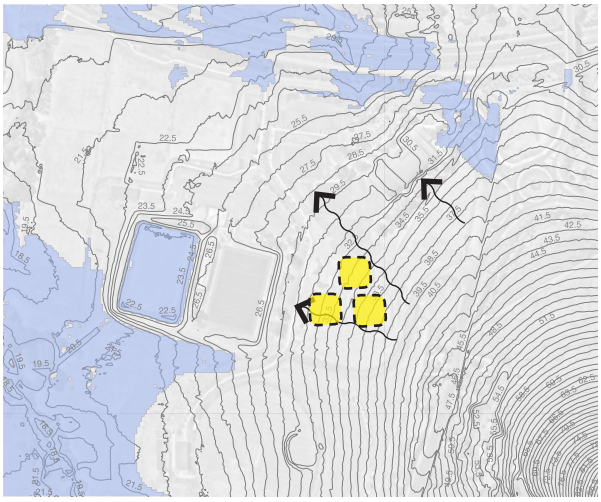


Figure 19. Topography

NETWORK ASSESSMENT

The site is well connected to existing vehicular and pedestrian/cyclists networks. Vehicular access is directly off of Croome Road with plentiful existing parking. A shared use path connects the site to other facilities within Croome Regional Sporting Complex and adjacent neighbourhoods.

- Public Road
- Vehicular Access into the carpark
- Carparking
- Shared Use Paths

Figure 20. Path Network

VEGETATION ASSESSMENT

There are two Plant Community Types (PCTs) adjacent the subject site however the subject site is nominated as "Not Native Vegetation".

The only vegetation within the subject site is a buffer between the northern portion of the subject site and the Shellharbour City Stadium

- South Coast Lowland Woollybutt Grassy Forest PCT 3330
- Shoalhaven Lowland Flats Wet Swamp PCT 4009

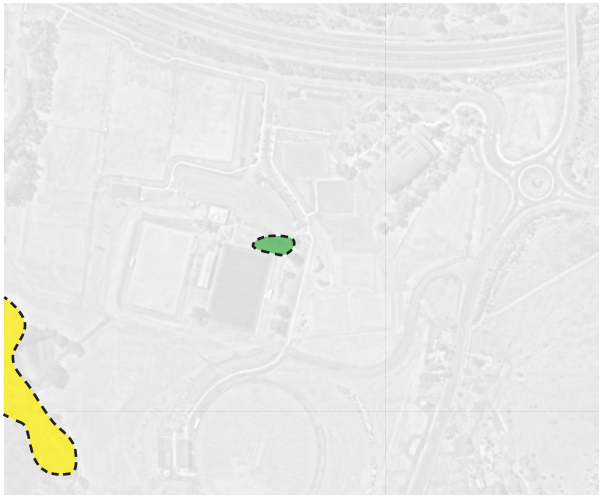


Figure 21. Biodiversity Assessment

SITE PHOTOS

Image 66. High point overlooking the grass netball courts at the southern end of the subject site

Image 67. Grass netball court

Image 68. Grass batters off grassed netball court platforms

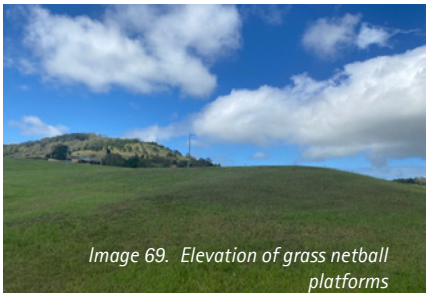


Image 69. Elevation of grass netball platforms

Image 70. Cluster of vegetation in south west corner of the subject site

Image 71. South west view from high point of the site

Image 72. West view from high point of the site

Image 73. Vehicular entrance into the site off Croome Road

Image 74. Vehicular entrance into the site off Croome Road

DESIGN GUIDANCE BY ANALYSIS

LOCATION & DEMOGRAPHIC

The subject site on Croome Regional Sporting Complex is located in the suburb of Croome forms part of the "Rural Balance". As such the population demographics account for a broad rural area with low population numbers and density.

The site is located adjacent Albion Park Rail and Albion Park so may locally benefit both of these suburbs:

- Albion Park Rail has a portion of the suburb included in the rural balance. As such it has the forth highest population but a density lower than average population growth. The youth population is projected to grow in line with the LGA average.
- Albion Park has the seventh highest density of all suburbs within the LGA. The projected population growth by 2046 of Albion Park is 47.8%, The number of youths is also projected to increase by almost 20% which is slightly above the LGA average.

Croome Regional Sporting Complex is a regional scale facility with adequate infrastructure and facilities to accommodate non-local persons to travel and use the complex. For this reason the analysis of and suitability of the demographics of the suburbs in immediate proximity to the subject site can be considered important but may hold less weight in the assessment of the sites feasibility assessment to accommodate a bike facility.

NEIGHBOURING SCHOOLS

There are no schools located within a 1km radius of the subject site at Croom Regional Sporting Complex.

There are three schools within 2km of the subject site:

- Albion Park Rail Public School
- Mount Terry Public School
- Albion Park High School

Important to note that Princes Highway runs between the subject site and Albion Park Rail Public School. Princes Highway is a physical barrier for vehicular traffic, However two shared pathways connect Croom Regional Park. The shared pathways traverse under the Princes Highway and link Albion Park to the north, south and west.

NEIGHBOURING FACILITIES

Within 1km of Wilson Memorial Park there are:

- The Southlake Illawarra BMX Club and Track
- No community facilities
- Seven recreational facilities including:
  - » Ovals
  - » Athletics facilities
  - » Cricket Oval and Nets
  - » Hockey Fields
  - » Netball Courts
  - » Rugby Fields
  - » Indoor Stadium

EXISTING ECOLOGICAL CONSIDERATIONS

The only potentially significant vegetation is the buffer planting along the eastern side of the Shellharbour City Stadium. It is anticipated that this holds no significant ecological value. The remainder of the subject site appears to be grass with altered landforms. It is anticipated that there will be no ecological constraints in developing this site.

Figure 22. Existing Vegetation

PLANNING

There was a masterplan completed and presented to Council for the Croome Regional Sporting Complex in 2015.

The document is a planning report prepared by Roads & Maritime Services (RMS) for the Croom Regional Sporting Complex. It outlines the development considerations for the complex in the context of a proposed 9.8-kilometer extension of the M1 Princes Motorway between Yallah and Oak Flats, intended to bypass Albion Park Rail. The report includes a detailed site analysis covering aspects such as wind, slope, sports field orientation, views/ landmarks, vehicular access, parking, and pedestrian/cycle/ equine circulation. It provides no discussion of bike/cycling infrastructure besides cycle circulation and connection through the site.

The site area in the masterplan is nominated as junior netball courts which exist as grassed courts in the southern portion of the subject site. The northern portion of the subject site was nominated for future tennis courts.

SITE OPPORTUNITIES

Figure 23. Croome Regional Sporting Complex Masterplan, RMS, 2015

- There is supporting infrastructure including carparking, access paths and roads, other sporting facilities immediately adjacent the subject site
- There is elevation across the site which may lend itself to a gravity fed bike facility like a short trail
- Suitable space to include multiple facility types in creating a park rather than a singular facility
- Good passive surveillance
- Good pedestrian and cyclist accessibility on the shared path network
- No direct residential neighbours that may oppose additional development
- Ease of access to other bike facilities nearby including the Southlake Illawarra BMX Track and the informal trails in the bushland south of the BMX track.
- The site should be serviced for water and electricity should lighting and water stations be required

SITE CONSTRAINTS

- Shaping of the southern portion of the site may present unfavorable for a bike park and require additional earthworks
- Shade structures, trees or other shelter structures may be required given the site is currently exposed with minimal shelter.

KEY ANALYSIS POINTS

01. The site is of a scale that could provide a bike park to a local or regional scale, rather than a stand alone facility. The supporting infrastructure around the site also supports this.

02. The topography of the site lends itself to facility types that utilises gravity such as flow trails

03. The existing terraces currently created could be utilised but will most likely require reshaping

04. This study recommends the same types of biking facilities at both Croome Regional Park and Terry Reserve. These two recreational areas are located adjacent to each other. Either facility should proceed, but not both due to likely duplication of biking facilities.

DESIGN DEVELOPMENT

- Utilise the existing terraces as best as possible to avoid excessive earthworks. The western most terraces would provide adequate fall to have the jump park run across them while the highest platform in the south east could provide the trailhead. The pump track could but in against the trailhead area providing a nice relationship between the levels.
- A large gathering area where most of the site is visible will increase supervision, spectator enjoyment and passive surveillance
- Access would come off the internal road and utilise existing parking provisions
- The norther portion of the site has capitalised on the fall across the site with a secondary trailhead at the highest point of the site and three flow trails falling to end at the primary trailhead.
- Two shared path access points could be provided into the site. Compliance with the DDA will require closer investigation with current and detail site topography
- One pedestrian and cyclist access point into the site on the shared us path should be designed to be the main entrance with facility information and maps

LEGEND

- Existing carparking
- Primary trailhead/gathering area
- Flow trail trailhead
- Jump park
- Pump track
- Existing shared use path
- Shared use path
- Access path/trail
- Beginner "Green" flow trail
- Intermediate "Blue" flow trail
- Advanced "Black" flow trail
- Vehicular access

PRECEDENT IMAGERY

Image 75. Bike park

Image 76. Local - Regional scale pump track

Image 77. Jump park

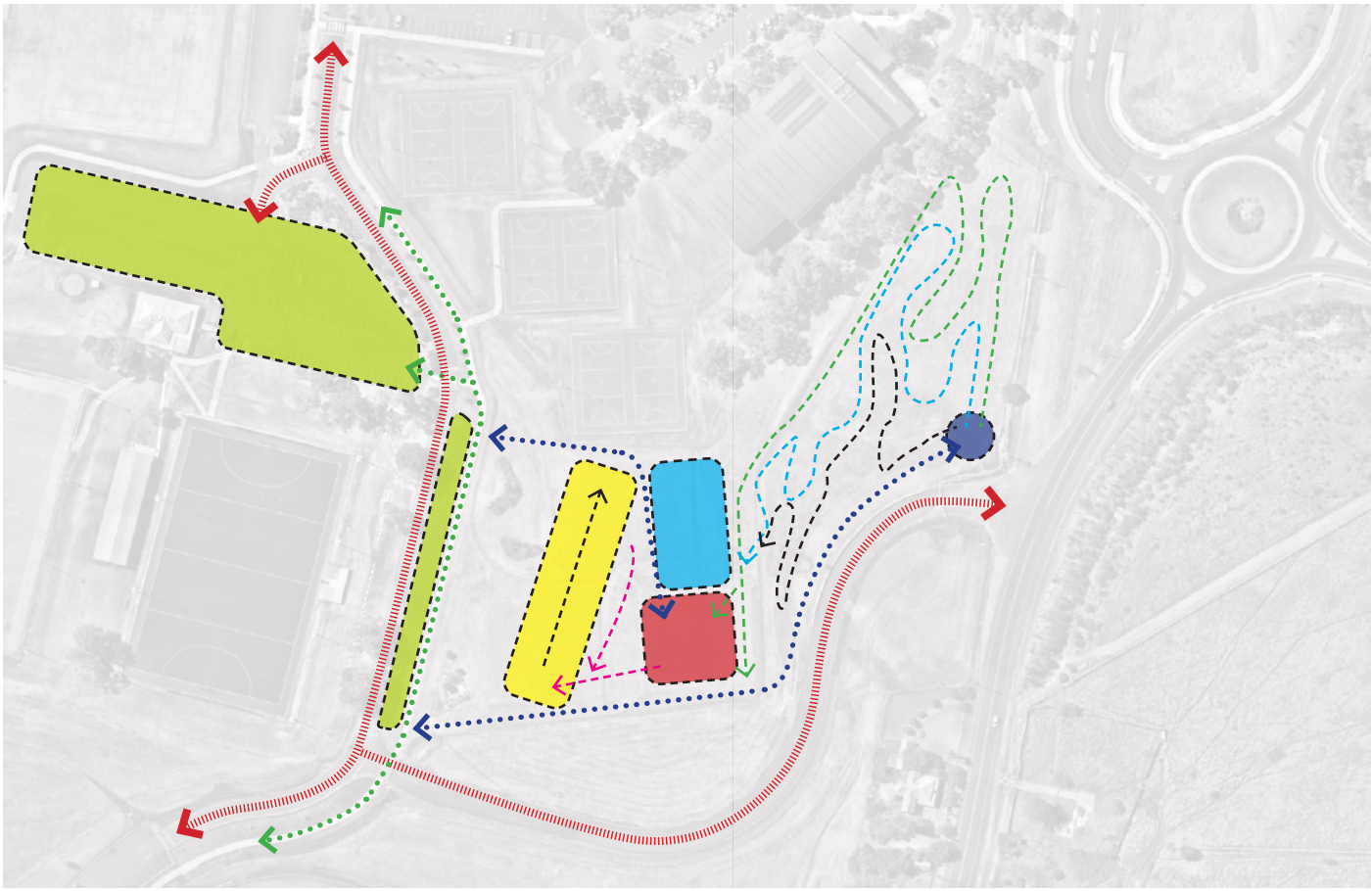


Figure 24. Indicative Design Development

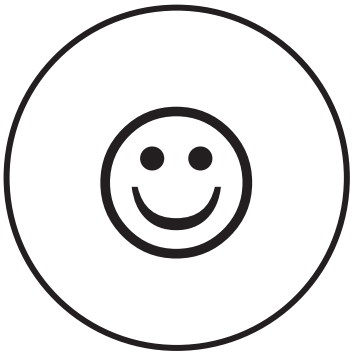
Image 78. Flow trail and beginner jump line

Image 79. Flow trails

Image 80. Community-Regional scale pump track adjacent other facilities

8.8 PIONEER PARK, SHELLHARBOUR

SUITABILITY OF THE SITE FOR A BIKE FACILITY



The physical characteristics, existing user groups, wheeled sports use, carparking and amenities make this site suitable for a bike facility development

MULTI CRITERIA SCORE

Second equal highest score on the Multi-Criteria Assessment

INTRODUCTION

Pioneer Park has a diverse range of uses. The Park is used by the Shellharbour Cricket Club in summer and the Shellharbour Sharks Junior Rugby League in the winter. In addition to this there are two annual events that occur on the grounds being the Shellharbour Carols in the Park and a summer carnival.

In the south western portion of the park there is the access road and a small sized carpark. Adjacent to this is the Shellharbour Scout Hall and a skate park. The skate park appears to be well used and has ancillary infrastructure such as a shelter, seating and a rubbish bin. The surrounds are landscaped to provide shade and amenity to the park. The skate park contains both a plaza street section and a bowl.

The remainder of Pioneer Park is playing fields however due to the irregular shape, size and topography not being flat these facilities are used more for informal play and training grounds rather than any form of competition. There are four rugby goalposts which likely double as soccer goals and a cricket pitch. These are all on the south eastern part of the site.

The Park is surrounded by roads on all sides including Shellharbour Road to the north west.

LAND INFORMATION

- **Subject Site Scale:** 25,815sqm
- Zoning: Public Recreation
- **Managed By:** Shellharbour City Council

LEGEND

- Reserve Boundary
- Subject Site
- **01.** Park entry road
- **02.** Shellharbour scout hall
- **03.** Carparking
- **04.** Skate park
- **05.** Cricket pitch
- **06.** Rugby goal posts
- **07.** Public Toilets
- **08.** Sportsfields change rooms (used as storage)
- **09.** Proposed location of toilet relocation

PRIORITY RANK

3 /8

The opportunity to develop the existing skate park and scout hall area into a larger youth space is a great opportunity

FACILITY SCALE

Local

The existing physical constraints and existing user groups of the site would restrict a facility much bigger than a local development

Figure 25. Pioneer Park Existing Site Features and Identified Subject Site

ASSESSMENT

TOPOGRAPHY ASSESSMENT

The topography of Pioneer Park is a crown shape. There is a high point just north of the eastern most corner from which the site falls in all direction from. The fall to the west is a softer gradient of approximately 1:40 while the fall to the north and north west steepens to a gradient of approximately 1:14.

The topography lends itself to a pump track, skills area or other facility suited to flatter topography adjacent the skate park. The shape and length of the site are restrictive to use the topography for a gravity based facility.

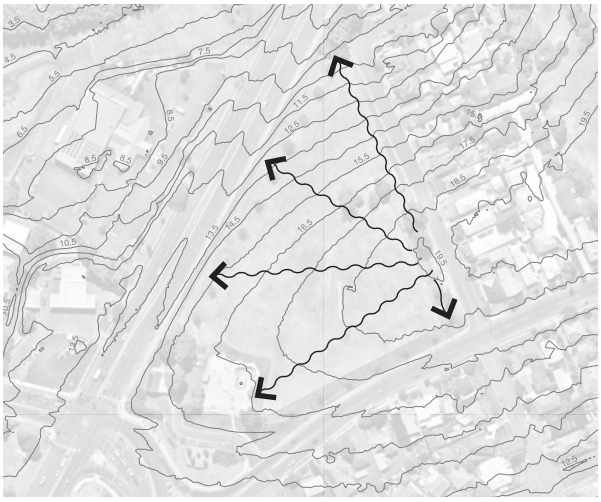


Figure 26. Topography

NETWORK ASSESSMENT

- The only vehicle access into the site is from Addison St to the carpark adjacent the skate park and Scout Hall. This is dual direction.
- There are shared 2.5m wide perimeter paths around the majority of the Park. These are along Shellharbour Rd, Harbour Blvd and Addison St.
- There are two 1.5m wide pedestrian paths into the site, one from the Harbour Blvd path that connects to the access road near the Scout Hall and the other connects from the Addison St path to the skate park.

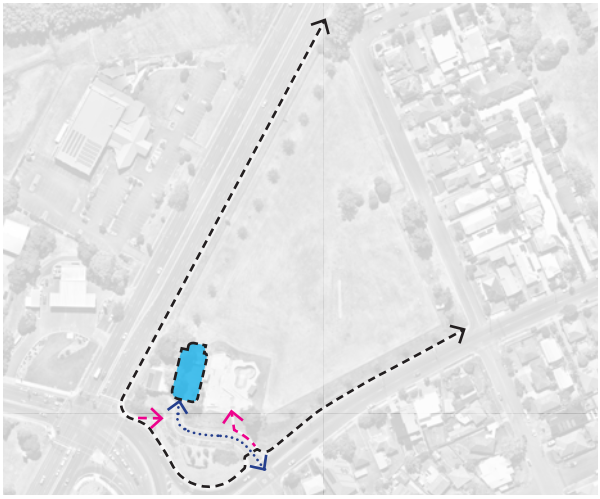


Figure 27. Path Network

VEGETATION ASSESSMENT

The majority of the site is open turf playing area. However the perimeter contains a few clusters of vegetation.

- Around the skate park, centrally along the eastern boundary and at the northern most corner there are groups of what appear to be well kept and relatively mature trees.
- Along the Shellharbour Rd and Addison St boundaries there are rows of Norfolk Island Pines.

Figure 28. Biodiversity Assessment

SITE PHOTOS

Image 81. Plaza portion of skate park

Image 82. Carpark adjacent skate park

Image 83. Open turf and existing vegetation

Image 84. Rugby/Soccer goal posts

Image 85. Cricket pitch

Image 86. Playing field

Image 87. Fall of topography down to Shellharbour Rd

Image 88. Playing field

Image 89. Skate bowl with skate plaza behind

Image 90. Shelter and seating overlooking skate park

LOCATION & DEMOGRAPHIC

Pioneer Park is located in the suburb of Shellharbour which has the eighth highest density of all suburbs within the LGA. The projected population growth by 2046 of Shellharbour is below the LGA average however the number of youth residents is expected to increase by 28.3%. The relatively high density and the increase in youth residents suggest that a bike facility within Shellharbour would be well positioned and utilised in regards to population and demographics.

NEIGHBOURING SCHOOLS

There are currently three schools within Shellharbour and all of them are within a 1km radius of Pioneer Park. They include:

- Amity College
- Stella Maris Catholic Primary School
- Shellharbour Public School

There are an additional 3 schools within 2km of Pioneer Park that are in neighbouring suburbs:

- Warilla High School
- Flinders Public School
- Shell Cove Public School

NEIGHBOURING FACILITIES

Within 1km of Pioneer Park there are:

- No bike facilities
- Eight community facilities including:
  - » Shellharbour Girl Guides Hall
  - » Shellharbour Surf Club
  - » Imaginarium
  - » Shellharbour Mens Shed
  - » Shellharbour Library
  - » Roo Theatre
  - » Shellharbour Club
  - » Shellharbour Beachside Holiday Park.
- Eleven recreational facilities including:
  - » Blackbutt Forest Reserve
  - » Beverley Whitfield Park (Sportsgrounds)
  - » Bardsley Park
  - » Little Park
  - » Russell East Park
  - » McNabb Park
  - » Ron Costello Oval
  - » Keith Hockey Park
  - » Sophia Park
  - » Myimbarr Community Park (Sportsfields)
  - » Flinders Reserve (Sportsfields)

EXISTING ECOLOGICAL CONSIDERATIONS

There are no known records of threatened species or endangered ecological communities on the site. The site has not been identified as one with significant natural features or an area of cultural significance in accordance with Section 36 of the LG Act.

The existing vegetation on Pioneer park has good amenity value and given its location and quantity it would be suggested that any development on Pioneer Park should be designed with best efforts made to protect and retain existing vegetation.

Figure 29. Existing Trees

SITE OPPORTUNITIES

- There is an opportunity for a bike facility to sit adjacent the existing skate park spatially arranged to share the existing gathering, viewing and supervising areas.
- Shared use of ancillary infrastructure would also be possible.
- An asphalt pump track would be a very suitable facility type in this location given its accessibility to all wheeled sports including typical users of skate parks.
- The topography of the site has areas with moderate fall and other ares that are near flat, meaning it could accommodate a range of facility types in different locations on the site.
- The pockets of existing trees would provide minimal constraints to developing a bike facility at Pioneer park and provide nice amenity to the bike facility if incorporated into design appropriately.
- The existing carparking, access road and pedestrian paths could be utilised.

SITE CONSTRAINTS

- There is a number of existing uses that may restrict the areas available for development within the open space/turf areas of the site.
- Adequate setbacks from the southern and western boundaries should be implemented to accommodate safety from the main roads.
- The north western portion of the site where the topography could accommodate a gravity facility is far removed from existing infrastructure and terminates along the main road of Shellharbour Rd.
- There is an upgrade project of the site toilets proposed which has identified the area to the east of the skate park as the preferred location. This may conflict with opportune area for a bike facility development.

KEY ANALYSIS POINTS

01. The site has an existing wheeled facility in the skate park with vehicular/pedestrian access, an existing carparking area and ancillary infrastructure. There is opportunity for economy in development of this site in utilising the existing infrastructure.

02. Opportunity to create a larger and more diverse active youth space with the inclusion of a pump track and/or jump park

03. There is limited constraints in developing in the area adjacent the skate park. It has the most suitable topography and very limited constraints with existing vegetation or otherwise.

04. Coordination would be required with the relocation of the toilets on the site to provide the best outcome and use of the space.

DESIGN DEVELOPMENT

- The focus of the indicative design of this site is to build upon the existing infrastructure and facilities to create a active youth space that caters to all wheeled sports.
- The site could accommodate a pump track that wraps around the north and east edge of the skate park to make cross-over use close and simple as well as making it easy for supervisors and/or viewers to watch both active spaces.
- The existing top deck of the skate bowl area could be expanded to be a large gathering and social area in between the skate park and pump track to accommodate the increase in user numbers and provide adequate safe space for movement.
- The existing pedestrian path that connects to the shared use path should be upgraded to be shared use while a connection path to the southern end and the northern end of the pump track could be provided
- The existing access road and carpark provide vehicular access to the site. Depending on the scale and intent of the development the carparking may require expansion.
- The development of a pump track should align and coordinate with the project of providing toilets to the site.

LEGEND

- Existing skate park
- Existing carpark
- Existing vehicular access road
- Existing pedestrian path upgraded to shared us path
- Extend the skate deck/platform for increased movement space between skate park and pump track
- Pump track
- New shared use paths

PRECEDENT IMAGERY

Image 91. Skate & pump interface

Image 92. Skate & pump interface

Image 93. Skate & pump interface

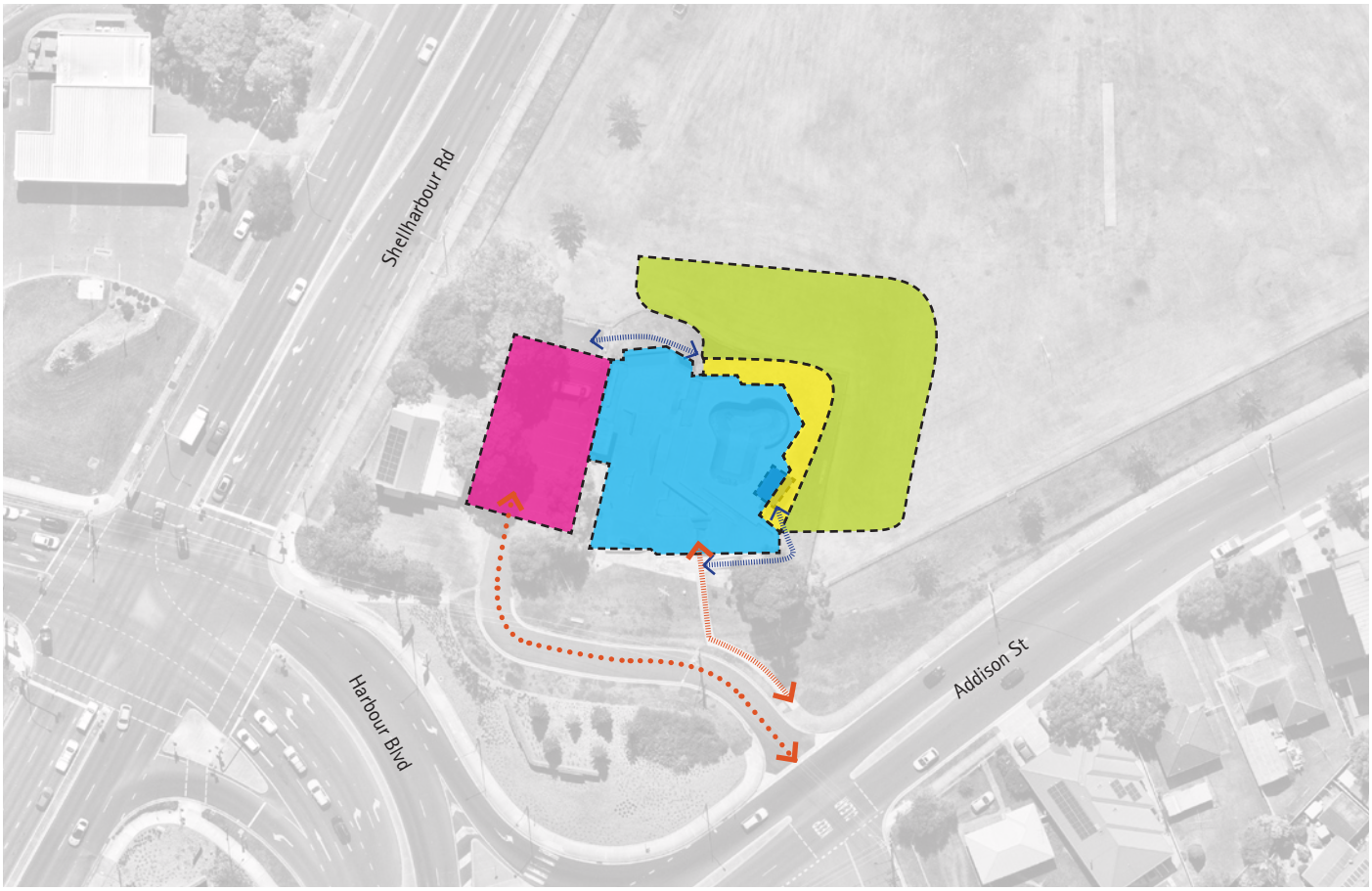


Figure 30. Indicative Design Development

Image 94. Skate & pump interface

Image 95. Jumps in a pump track

Image 96. Pump track

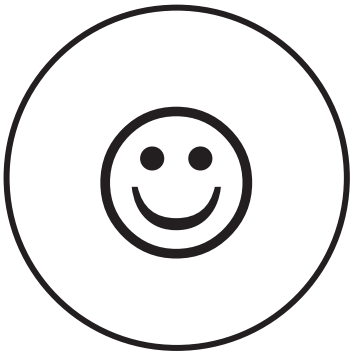
Image 97. Skate & pump interface

Image 98. Pump track features

Image 99. Pump track features including wallride

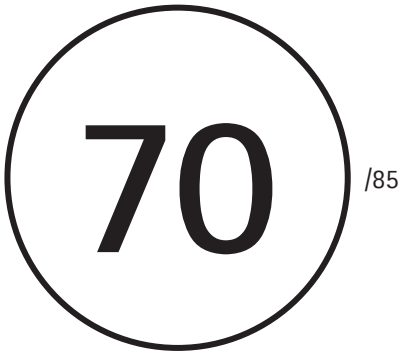
8.9 WILSON MEMORIAL PARK, ALBION PARK RAIL

SUITABILITY OF THE SITE FOR A BIKE FACILITY



Based on the existing use and infrastructure of the site a bike facility would be suitable at this site

MULTI CRITERIA SCORE



Forth highest score on the Multi-Criteria Assessment

INTRODUCTION

Wilson Memorial Park is a small scale park on the southern foreshore of Koona Bay. The site contains a playground aimed at younger users, a picnicking and BBQ area adjacent the playground, fitness equipment, seating and a bike rack. All of the features of the site are accessed from the shared path that runs along the northern edge of the site. The features are predominantly positioned along the southern edge and in between the shared path and features there is an open turf passive area which provides a nice balance to the park.

Carparking is available to the site in an informal gravel area on the western side of the site. Pedestrian and cyclist access is provided east and west along the foreshore shared use path.

LAND INFORMATION

- **Subject Site Scale:** 10,930sqm
- Zoning: Public Recreation
- **Managed By:** Shellharbour City Council

LEGEND

- Reserve Boundary
- Subject Site

01. Koona Bay
02. Carpark
03. Playground
04. BBQ and picnic area
05. Public Toilets
06. Exercise Equipment
07. Bike rack and bench seat
08. Swing set

PRIORITY RANK

4 /8

Based on the limited space, the disruption to the passive qualities of the Park and the focus likely to be for junior users only

FACILITY SCALE

Community

Due to the scale of the subject site

Figure 31. Wilson Memorial Park Existing Site Features and Identified Subject Site

ASSESSMENT

TOPOGRAPHY ASSESSMENT

The topography of Wilson Memorial Park is relatively flat from the Koona St road reserve through to the centre of the site before it starts to fall down to Lake Illawarra. Based on flood mapping of both Lake Illawarra and the MacQuarie River the entire park is subject to flooding during a "Probable Maximum Flood".

- General direction of fall

Figure 32. Topography

NETWORK ASSESSMENT

Wilson Memorial does not connect to any road reserve path network, instead it is connected to the east and west via the shared path network along the foreshore of Lake Illawarra.

- Shared Path (2.5m wide) that terminates at the road reserve of Koona St at both the east and west ends of the Park
- Vehicular Access into the carpark
- Informal gravel carpark with limited carparking and maneuvering space

Figure 33. Path Network

VEGETATION ASSESSMENT

There are three Plant Community Types (PCTs) identified within the Wilson Memorial Park.

The majority of the vegetation provides amenity and shade to the site and is an asset that should be protected and retained.

- Illawarra Escarpment Bangalay x Blue Gum Wet Forest
- Samphire Saltmarsh
- Estuarine Swamp Oak-Mangrove Forest

Figure 34. Biodiversity Assessment

SITE PHOTOS

Image 100. Playground with focus on younger user group

Image 101. Carpark and path entrance to Park

Image 102. Public Toilets

Image 103. Fitness equipment, seating and bike rack

Image 104. Shared path alongside open passive space with playground and picnicking area behind

Image 105. Parkland vegetation along Koona St road reserve boundary

Image 106. Lake beach in front of Wilson Memorial Park

Image 107. BBQ and picnic area

Image 108. Vegetation along foreshore edge of the Park

DESIGN GUIDANCE BY ANALYSIS

LOCATION & DEMOGRAPHIC

Wilson Memorial Park is located in the suburb of Albion Park Rail which is one of the suburbs within the LGA with the lowest density. The projected population growth by 2046 of Albion Park is also very low at 7.5%, well below the LGA average. The number of youths is also projected to increase slightly and remains very well aligned with the LGA average.

Albion Park Rail contains a portion of the suburb being Rural Balance, which will skew the population figures in regards to density. As such it is worth noting that Albion Park Rail has the forth largest population of all suburbs within the LGA however one of the lowest youth populations. As such is can be reasonably assumed that the density of the population in the residential areas of Albion Park Rail are considerably higher than those indicated above.

The demographic of Albion Park Rail suggests that a bike facility at Wilson Memorial Park may be a lower priority than other areas based on the youth demographics and the potential spread of residents.

NEIGHBOURING SCHOOLS

There is one school located within a 1km radius of Wilson Memorial Park. It is within the suburb of Albion Park Rail. This is:

- Albion Park Rail Public School

There are two additional schools within 2km of Wilson Memorial Park that are located in the neighbouring suburbs of Oak Flats:

- Oak Flats Primary School
- Corpus Christi Catholic High School

NEIGHBOURING FACILITIES

Within 1km of Wilson Memorial Park there are:

- No bike facilities
- Four community facilities including:
  - » McDonald Park Pigeon Club
  - » Aluna Child Care Centre
  - » Koninderie Child Care Centre
  - » Albion Park Rail Community Centre
- Five recreational facilities including:
  - » Bateman Park
  - » McDonald Park - includes pump track
  - » Kaylaur Reserve
  - » Keith Bond Oval
  - » Albion Oval (includes skate park)

EXISTING ECOLOGICAL CONSIDERATIONS

Wilson Memorial Park contains the Plant Community Types (PCTs) of Illawarra Escarpment Bangalay x Blue Gum Wet Forest, Estuarine Swamp Oak-Mangrove Forest 4027 and Samphire Saltmarsh. The two later PCTs both contain Threatened Ecological Communities as listed in the BC Act. All vegetation identified within this PCT is to be protected during any development of the site.

The majority of the vegetation is mature native trees in a parkland setting with no understorey. This allows for sightlines through a large portion of the site. There are some younger and more recent tree planting to further increase the amenity of the site. It is suggested that all the native vegetation should be protected and retained through a development process within the Park.

The remainder of the site is open turf areas which have no significant ecological value.

Figure 35. Existing Vegetation

SITE OPPORTUNITIES

- Pleasant location
- Existing recreational and passive uses already exist that a bike facility may be able to combine with to further increase the interest and play culture of the park
- Good passive surveillance
- Good pedestrian and cyclist accessibility along the foreshore shared path network
- Existing carparking on site
- The topography of the site is flat with ease of access for both construction and maintenance
- A good amount of ancillary infrastructure exists on the site that bike facility users could share with current users including seating, bike rack and toilets

SITE CONSTRAINTS

- All current features of the site sit on the higher southern portion of the site likely due to Lake Illawarra high water levels and possible subsequent damage. As such the development of a bike facility would need to follow suit and be located on higher ground upon a ground level of no lower than ~RL2.5.
- The site currently has a nice balance of passive and active space. The inclusion of a bike facility may throw this balance and start to 'crowd' the site.

KEY ANALYSIS POINTS

01. A smaller bike facility with a junior focus may be the most appropriate for the site given the constraints listed above. This could provide an extension of the existing playground in the form of a bike playground or learn to ride facility.

02. The bike facility would not contain jump or pump facility features in order to provide for a level area for learn to ride and playground for beginner ride users..

03. Development of the bike facility should be a "Community" scale development due to the scale of the site, and to not dramatically change the balance of active and passive space of the site.

DESIGN DEVELOPMENT

- A bike facility development needs to be conscientious of the small scale of the site and the existing balance of passive space vs active space.
- The development of bike facility should target a junior audience to provide additional play facility alongside the existing playground which targets younger users
- In the western end of the site there is the carpark, existing playground and BBQ/picnic area/infrastructure. A learn to ride track or a bike playground would be suitable as an additional facility in this area that should be designed to allow ease of flow between the playground, BBQ/picnic area and the playground. The development of a bike facility should be seen as an extension of the playground rather than another standalone facility.
- Either a learn to ride track or a bike playground are linear in nature (i.e. path/trail) so a small loop could be created at the western end which would limit the amount of passive space of the Reserve used.

LEGEND

- Existing carparking
- Existing playground
- Existing BBQ and picnic area
- Existing shared path
- Trailhead connecting bike facility, playground and BBQ/picnic area
- Bike playground or learn to ride track

PRECEDENT IMAGERY

Image 109. Bike playground feature

Image 110. Learn to ride features

Image 111. Learn to ride track

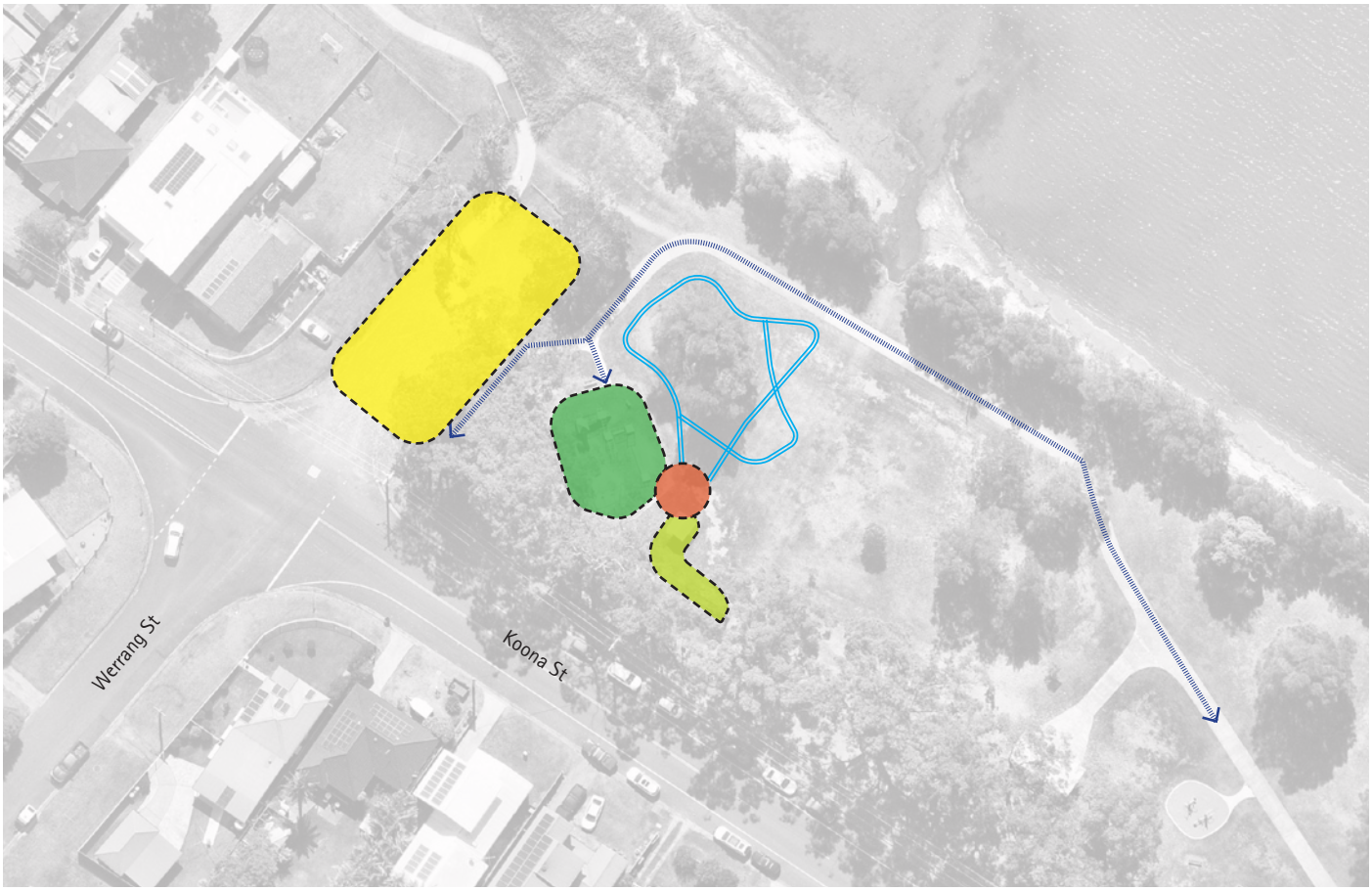


Figure 36. Indicative Design Development

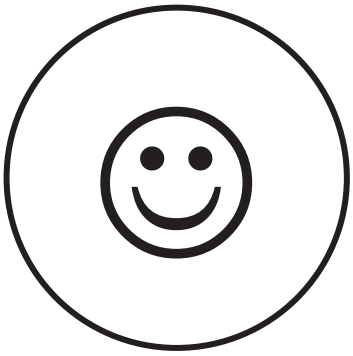
Image 112. Bike playground features

Image 113. Bike playground features

Image 114. Learn to ride facility

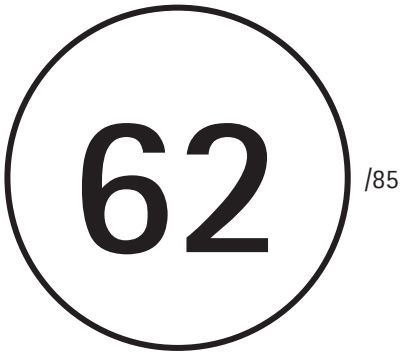
8.10 KINGSTON STREET PARK, OAK FLATS

SUITABILITY OF THE SITE FOR A BIKE FACILITY



Based on the existing use and infrastructure of the site a community scale bike facility would be suitable at this site

MULTI CRITERIA SCORE



Fifth highest score on the Multi-Criteria Assessment

INTRODUCTION

Kingston Street Park is a community park located in the suburb of Oak Flats. The park features a playground designed for younger children, a picnic area with BBQ facilities, seating, and open space for informal recreation. The layout balances active play areas with open turf space, providing a versatile environment for local families and visitors. Adjacent to Kingston Street Park, a network of sporting and recreational facilities enhances the area's appeal, including the Oak Flats Olympic Pool, Oak Flats Tennis Club, Geoff Shaw Oval, Keith Bond Oval, and the Oak Flats Dog Park, all within close proximity and contributing to a vibrant community hub.

The terrain of Kingston Street Park is falls at a mellow gradient from the north east corner toward the southern boundary. Vegetation includes scattered parkland trees, well-maintained and under-pruned for safety and visibility.

Parking for Kingston Street Park is informal, along Kingston Street or adjacent residential roads. However, the adjacent Oak Flats Olympic Pool provides ample parking for visitors, which can serve those accessing the broader precinct.

LAND INFORMATION

- **Subject Site Scale:** 7,530sqm
- Zoning: Public Recreation
- **Managed By:** Shellharbour City Council

LEGEND

- Reserve Boundary
- Subject Site

01. Oak Flats Swimming Pool
02. Geoff Shaw Oval
03. Keith Bond Oval
04. Oak Flats Tennis Club
05. Oaks Flats Dog Park
06. Parking lot (pool)
07. Playground and BBQ Area
08. Cricket Nets
09. Pavilion Building

PRIORITY RANK

5 /8

The site topography and dispersed trees, picnic areas and playground create a site that a bike facility can be integrated with and add another function to the park

FACILITY SCALE

Community

Due to the scale of the subject site and vegetation constraints

Figure 37. Kingston Street Park Existing Site Features and Identified Subject Site

ASSESSMENT

TOPOGRAPHY ASSESSMENT

The topography of Kingston Street Park falls from the boundary on the north side of the site in a south west direction at a grade of ~1:29. Based on flood mapping of the Horsley Flood Plain, the southern portion of the site may be impacted during a "Probable Maximum Flood".

- General direction of fall
- Horsley Flood Plan "Probable Maximum Flood"

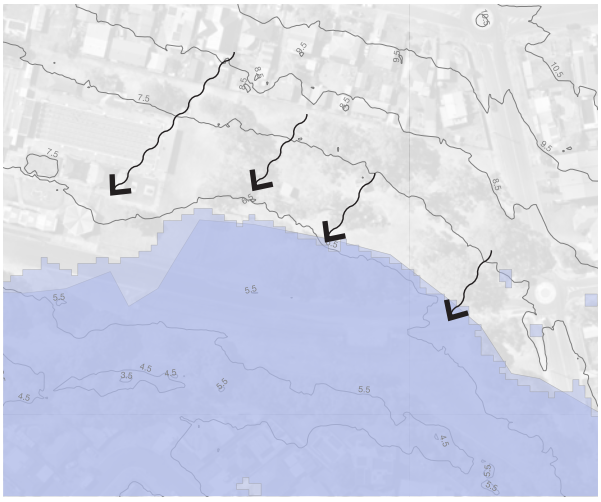


Figure 38. Topography

NETWORK ASSESSMENT

Kingston Street Park does not connect to any road reserve path network. There is a concrete path adjacent the roundabout in the south east corner of the site. There are no other paths within the park, instead it is open grass space for informal movement of users. A shared use path has been identified by Council for future development.

- Concrete path
- Vehicular access into the carpark
- Low fence to restrict vehicle access
- Pool and residential property fencing
- Future shared path

Figure 39. Path Network and Access

VEGETATION ASSESSMENT

There is one Plant Community Types (PCT) identified within Kingston Street Park and an additional two around the broader recreation site. The additional PCT not shown in Figure 40 is Estuarine Swamp Oak Mangrove Forest.

The majority of the vegetation provides amenity and shade to the site and is an asset that should be protected and retained.

- South Coast Lowland Woollybutt Grassy Forest
- Estuarine Swamp Oak Twig-rush Forest

Figure 40. Biodiversity Assessment

SITE PHOTOS


Image 115. Playground and picnic settings under shelters


Image 116. Southern boundary

Image 117. Oak Flats Pool fencing along western boundary


Image 118. Playground and picnic settings under shelters


Image 119. Open turf areas


Image 120. Adjacent dog off-leash park


Image 121. Picnic setting and shelters


Image 122. Drainage infrastructure on southern side of the Reserve


Image 123. Southern boundary road reserve and dog park on other side of the road

DESIGN GUIDANCE BY ANALYSIS

LOCATION & DEMOGRAPHIC

Kingston Street Park is located in the suburb of Oak Flats which has the sixth highest density of all suburbs within the LGA. The projected population growth by 2046 of Oak Flats is below the LGA average and the ratio of residents to be youth is also forecast to drop and be below the LGA average. The relatively high density suggests that a bike facility in this location would get well used however the marginal drop in youth residents may contribute to lowering the priority of this site.

NEIGHBOURING SCHOOLS

There are three schools located within a 1km radius of Kingston Street Park. They are all within Oak Flats:

- Corpus Christi Catholic High School
- Oak Flats Public Pre-School
- Oak Flats Public Primary School

There are an additional four schools within 2km of Kingston Street Park that is located Oak Flats and the neighbouring suburb of Albion Park Rail and Shellharbour City Centre:

- Oak Flats High School
- Balarang Public School
- Nazareth Catholic Primary School
- Albion Park Rail Public School

NEIGHBOURING FACILITIES

Within 1km of Kingston Street Park there are:

- No bike facilities
- Five community facilities including:
  - » Oak Flats Neighbourhood Centre
  - » Oak Flats Dog Park
  - » Little Peoples Early Learning Centre
  - » Milieu Early Education and Care
  - » Poka Dot Kids Early Learning Centre
- Five recreational facilities including:
  - » Oak Flats Olympic Pool
  - » Geoff Shaw Oval
  - » Keith Bond Oval
  - » Oak Flats Tennis Club
  - » Oak Flats Bowling and Recreation Club

Local community is known to have relatively lower access to open spaces comparatively to other areas of the LGA.

EXISTING ECOLOGICAL CONSIDERATIONS

Kingston Street Park contains the Plant Community Type (PCT) South Coast Lowland Woollybutt Grassy Forest. This PCT contains Threatened Ecological Communities as listed in the BC Act and the EPBC Act. A vegetation survey should be completed prior to any works occur on the site to determine if there are any threatened communities specifically on this site.

Besides a few shrub species sporadically located along the southern border of the park the remainder of the vegetation is semi mature - mature trees in a parkland setting in with no understorey planting. This allows for sightlines through a large portion of the site. It is suggested that all the native vegetation should be protected and retained through a development process within the Park.

The remainder of the site is open turf areas which have no significant ecological value.

Figure 41. Existing Vegetation

PLANNING

At the time of writing this report it is understood the Shellharbour City Council are preparing to commence with a masterplanning exercise of Kingston Street Park.

SITE OPPORTUNITIES

- Pleasant location with existing trees for shade and amenity and infrastructure for informal play and gathering
- Existing recreational and passive uses and a bike facility may be mutually beneficial to one another in creating a space with heightened recreation diversity and increased activity
- Good passive surveillance
- Existing informal on-street carparking suitable for a community scale facility. Potential to utilise the pool carpark also.
- The topography of the site is relatively flat with ease of access for both construction and maintenance
- The site is adjacent a collection of other recreational sites
- Ancillary infrastructure that exists on the site could be shared use with the users of the bike facility
- A bike facility would improve recreational outcomes for the Oak Flats residents who are recognised to have lower access to open spaces.
- Future development of a shared path along Moore St would increase accessibility of the Reserve.

SITE CONSTRAINTS

- The site borders residential properties along the northern boundary which may present opposition to additional recreational facilities in Kingston Street Park
- While the trees are not dense there are enough of them to constrain facility types and design opportunities should they all be required to remain
- There is no path network through the site or connecting to other paths adjacent the site. The development of a bike facility may require this to be reviewed and if required would come at additional cost

KEY ANALYSIS POINTS

01. The development of a bike facility would provide additional activity to the broader precinct which provides other recreational opportunities like swimming, tennis, oval sports and dog exercise. It would also provide the Oak Flats community an increase in recreational opportunity.

02. Development will need to be considerate of the existing vegetation

03. A bike facility could provide connection to the existing playground and sheltered picnic areas provide more diverse use of the Reserve.

04. Future development of a shared use path would provide safer access and increased connection to other locations and public transport stations in Oak Flats

DESIGN DEVELOPMENT

- A larger open area could accommodate a small community scale pump track while having limited impacts on existing trees.
- A larger pump track could be considered with the removal of some vegetation. This may require further assessment by an arborist.
- A skills trail provides a light touch on the site, which may be a suitable and desirable response in and around the existing trees.
- The pump track and skills loop could be designed to accommodate beginner and intermediate users with a inclusion of a junior area in close proximity to the playground.
- The layout of the bike facility should have a primary starting/gathering area near to the playground and seating under shelter to capitalise on this existing ancillary infrastructure
- The facility to be designed with connection to the future shared use path
- The facility can operate with an overland flow drainage strategy and/or if required/feasible an in-ground pit and pipe system connected to the existing infrastructure.
- Minimise the development of the northern boundary of the site and its subsequent impact to neighbouring residents

LEGEND

- Existing playground
- Existing picnic settings under shelters
- Proposed shared path
- Shared trailhead/social area
- Community scale pump track
- Skills trail
- Access Trail
- Shared use access path
- Vehicular/maintenance access
- Reserve Boundary

PRECEDENT IMAGERY

Image 124. Skill elements in park setting

Image 125. Skill elements in park setting

Image 126. Community scale pump track

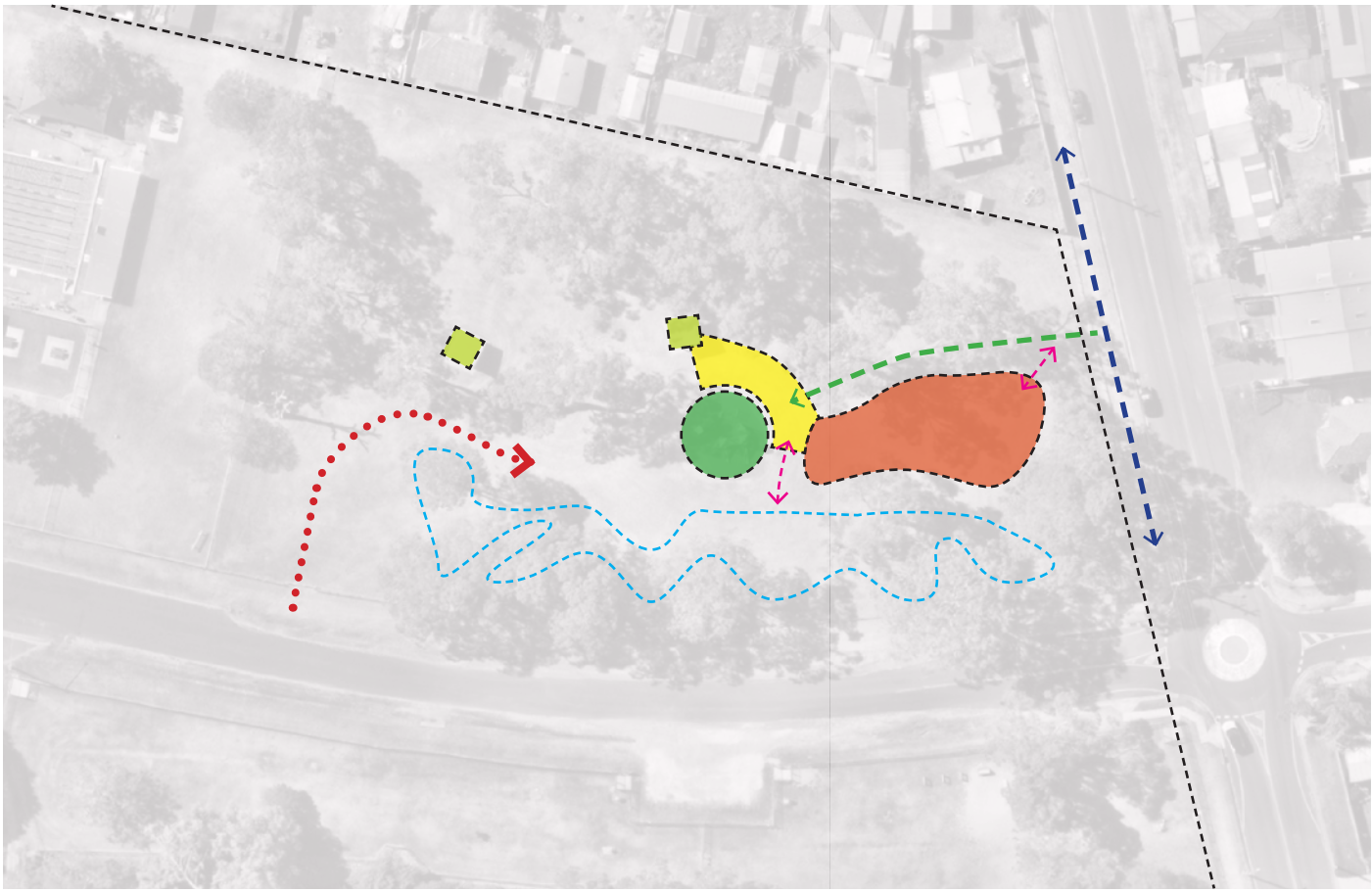


Figure 42. Indicative Design Development

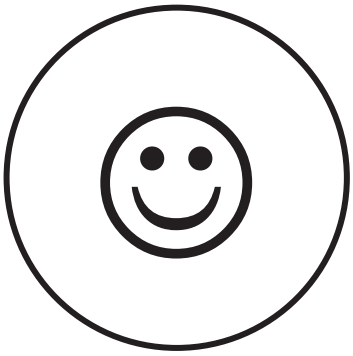
Image 127. Community pump track

Image 128. Skill elements in park setting

Image 129. Community pump track and playspace

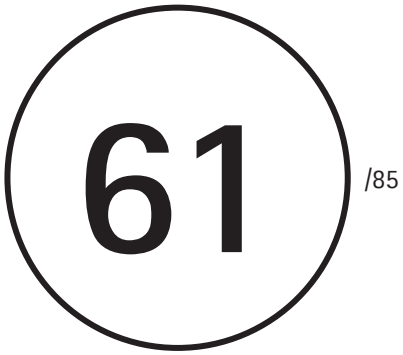
8.11 CON O'KEEFE PARK, ALBION PARK

SUITABILITY OF THE SITE FOR A BIKE FACILITY



A pump track would provide another activity type that aligns with the active nature of the park and diverse user groups

MULTI CRITERIA SCORE



Sixth highest score on the Multi-Criteria Assessment

INTRODUCTION

Con O'Keefe Park contains many of functions within a constrained space. The Parks eastern boundary is adjacent Terry St and a small commercial centre, the western and northern boundaries directly abut residential properties on its southern boundary is adjacent Church St and Albion Park High School.

The park is an important hub for community and visitors alike, and is well utilised. An open space masterplan has been adopted for the site and guides how the space will be enhanced over time. One feature of this masterplan is the removal of the existing skate park and creation of skate-able elements within a newly constructed plaza.

There are pockets of mature vegetation that has been identified as the Plant Community Type "South Coast Lowland Woollybutt Grassy Forest". These clusters of vegetation provide desirable amenity within the site.

LAND INFORMATION

- **Subject Site Scale:** 73,100sqm
- Zoning: Public Recreation
- **Managed By:** Shellharbour City Council

LEGEND

- Reserve Boundary
- Subject Site

01. Albion Park Youth and Community Care Clinic
02. Existing Skate Park
03. Carpark
04. Albion Park Swimming Pool
05. Con O'Keefe Oval
06. Albion Park Library
07. Di Gorman Oval
08. Proposed plaza with skate elements
09. Albion Park Pioneer Cemetery

PRIORITY RANK

6 /8

The site scores very well in many areas of the assessment however the physical space available for a bike facility is very limited

FACILITY SCALE

Community

Due to the scale of the subject site, the extensive mixed use of the park and the existing ecological constraints

Figure 43. Con O'Keefe Park Existing Site Features and Identified Subject Site

ASSESSMENT

TOPOGRAPHY ASSESSMENT

The topography of Con O'Keefe Park is relatively flat. The site does fall in a south west to north east direction. The average grade of the fall is ~1:40 with the oval areas being slightly flatter than the remainder of the site.

- General direction of fall

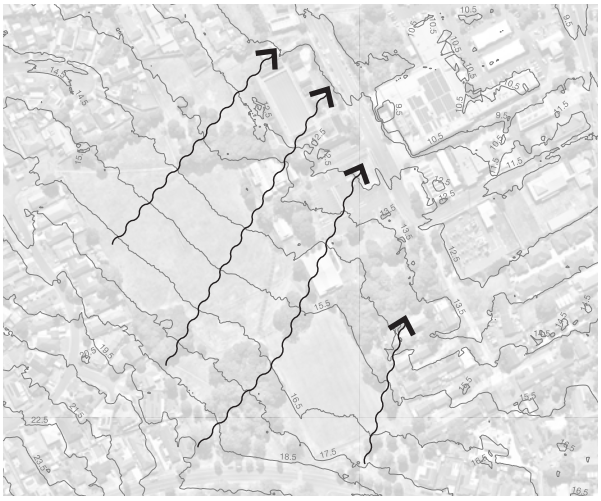


Figure 44. Topography

NETWORK ASSESSMENT

Additional networks to what is shown will be established in the park through the implementation of Con O'Keefe and Russell St Precinct Masterplan.

- Roadside path network
- Shared Path (2.5m wide)
- Pedestrian Path (1.2m wide)
- Vehicular Access to the carpark and the library
- Carpark

Figure 45. Path Network

VEGETATION ASSESSMENT

There is one Plant Community Type identified at Con O'Keefe Park being South Coast Lowland Woollybutt Grassy Forest. This is associated with Threatened Ecological Communities in the BC Act and should be protected and retained. Outside of this there are additional groups of vegetation that contains mature native trees and some planted garden beds. The majority of the groups of vegetation are just tree with minimal understorey vegetation.

- South Coast Lowland Woollybutt Grassy Forest
- Mature native parkland trees/garden beds

Figure 46. Biodiversity Assessment

SITE PHOTOS

Image 130. Pedestrian and Shared Paths passing through South Coast Lowland Woollybutt Grassy Forest Vegetation

Image 131. Future skate park location

Image 132. Carpark

Image 133. Edge of oval and adjacent vegetation

Image 134. Primary vehicular and pedestrian entrance to Con O'Keefe Park

Image 135. Location identified as a subject site for a bike facility

Image 136. Location identified as a subject site for a bike facility

Image 137. Parkland vegetation with pool in background

Image 138. Secondary entrance into Con O'Keefe Park

Image 139. Existing skate park

DESIGN GUIDANCE BY ANALYSIS

LOCATION & DEMOGRAPHIC

Con O'Keefe is located in the suburb of Albion Park which has the seventh highest density of all suburbs within the LGA. The projected population growth by 2046 of Albion Park is 47.8%, The number of youths is also projected to increase by almost 20% which is slightly above the LGA average. Based on the projected growth of both the population and the youth within Albion Park it suggests that Con O'Keefe is well located in the LGA for the development of a bike facility.

NEIGHBOURING SCHOOLS

There are four schools located in Albion Park that are also within a 1km radius of Con O'Keefe Park. They include:

- St Paul's Catholic Primary School
- Albion Park Public School
- Albion Park High School
- St Joseph's Catholic High School

There is one additional school within 2km of Con O'Keefe Park that is located in the neighbouring suburb of Tullimbar:

- Tullimbar Public School

NEIGHBOURING FACILITIES

Within 2.5km of Con O'Keefe Park there are the following wheeled sports facilities:

- BMX Club Illawarra Southlake at Croome Regional Park
- McDonald Park, Albion Park learn to ride cycle track and a mini pump trail facility
- Albion Park Skate Park

Within 1km of Con O'Keefe Park there are

- Five community facilities including:
  - » Albion Park Showground including the HACC Centre
  - » Rural Youth Hall
  - » Scout Hall
  - » Centenary Hall
  - » Albion Park Baby Health Centre
  - » Albion Park Community Centre and library
- Seven recreational facilities including:
  - » Thomas Park
  - » Hegarty Park
  - » Keith Barnes Oval
  - » Summit Park
  - » Federation Park
  - » Frasers Reserve
  - » Mood Park

EXISTING ECOLOGICAL CONSIDERATIONS

Con O'Keefe contains the Plant Community Types of South Coast Lowland Woollybutt Grassy Forest. Within the Sydney Basin Bioregion the PCT is recognised to contain Threatened Ecological Communities as listed in the BC Act. All vegetation identified within this PCT is to be protected during any development of the site.

There is significant vegetation not identified as South Coast Lowland Woollybutt Grassy Forest that contains high value ecological and amenity value. The majority of the vegetation is native trees in a parkland setting with no understorey. This allows for sightlines through a large portion of the site. It is suggested that all the native vegetation should be protected and retained through a development process within the Park.

The remainder of the site is open turf areas which have no significant ecological value but do have a recreation and functional value.

Figure 47. Existing Vegetation

SITE OPPORTUNITIES

- Good passive surveillance
- Potential wheeled sports crossover with skate-able elements in proposed plaza, suitable for a pump track
- Very active site with multiple uses would likely invigorate direct and indirect visitation to a bike facility
- The topography of the site is flat with ease of access for both construction and maintenance
- The existing path network provides access into and around the site.
- Carparking available on site

SITE CONSTRAINTS

- The site is spatially limited by the various uses, facilities and vegetation. The two identified subject sites within the park are small in scale. As such it is anticipated a bike facility would be limited to a Community scale facility.
- Existing vegetation borders both identified subject sites which may impose further seek backs and further reduce the scale of any facility

KEY ANALYSIS POINTS

01. Due to the high number of existing uses and facilities within the site there is very limited opportunity spatially for a bike facility. The two subject sites that have been identified are suitable for a development however are constrained so would both only be able to provide a small "Community" scale facility, such as a pump track.
02. Demographic and youth data indicate the location of the Con O'Keefe is a suitable location so a Community scale facility could be implemented here however this may not satisfy all users. As such a larger facility nearby in the LGA would likely be requested by the community especially as the users progress their skill level.
03. Consider providing a facility more suited to intermediate and advanced users given beginners are well accommodated at the nearby McDonald Park mini pump trail and learn to ride track.

DESIGN DEVELOPMENT

- Of the two subject sites, the northern most site has been selected as the most desirable for development however if preferred the southern subject site would respond to design in a very similar fashion to this site.
- The shape and size of the site would allow for a nice community sized pump track which would provide Con O'Keefe with another facility type and may have some cross users with the existing skatepark and future skate plaza.
- The layout of the pump track would have its primary start platform at the eastern end for ease of access from either path along the eastern and western edge of the subject site.
- The exiting vegetation to the north would provide nice amenity and some shade over the track
- Due to the vegetation and existing paths it is suggested that the track would be built up from natural ground level, and as such access up to the starting platform (~ +1.0m) would need consideration during design.
- The pump track should be designed to accommodate intermediate and advanced riders to best compliment the McDonald Park mini pump trail and learn to ride track which caters for beginner users well.

LEGEND

- Primary platform of the pump track (starting area and room for viewing)
- Pump track
- Existing pedestrian paths
- Future path as per masterplan to be shared use and connect pump track to plaza containing skate-able elements

PRECEDENT IMAGERY

Image 140. Community scale pump track

Image 141. Community scale pump track

Image 142. Community scale pump track features

Figure 48. Indicative Design Development

Image 143. Community scale pump track adjacent other facilities

Image 144. Pump Track forms

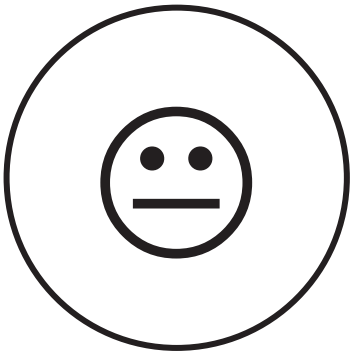
Image 147. Community scale pump track with mature vegetation and shade

Image 145. XC Trail width

Image 146. Pump track in the tree shade

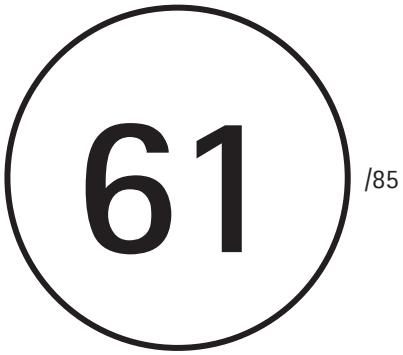
8.12 TERRY RESERVE (PART OF), ALBION PARK

SUITABILITY OF THE SITE FOR A BIKE FACILITY



Due to lack of infrastructure and passive surveillance the central portion of the site may require heavier infrastructure costs however the western portion of the site offers opportunity

MULTI CRITERIA SCORE



Seventh highest score on the Multi-Criteria Assessment

INTRODUCTION

The portion of Terry Reserve identified for consideration in this report is a parcel of land north of the existing Pony Club. The area of land is open grassland reserve with Frazers Creek running south-north through the centre of the site and along the eastern border of the site. However the subject site identified through investigation to be the most suitable for consideration of development is the western portion of the site.

The site is large in scale with undulating topography, however it is rolling in nature rather than there being large variances between the maximum and minimum levels of the site.

The Pony Club building and infrastructure is leased from Shellharbour City Council. A shared path runs in a north-south direction on the western side of the site in close proximity to the adjacent road reserve of Badgery St.

The site is subject to flooding as part of the Macquarie Rivulet system. The damage potential was evident after a recent flood event when the site visits were undertaken.

There has been some unsanctioned trail building within the area, predominantly in the Frazers Creek area. The trail consists of jump features in varying degrees of condition.

LEGEND

- Reserve Boundary
- Subject Site
- **01.** Pony Club
- **02.** Pony Club Access Road
- **03.** Shared Path
- **04.** Frazers Creek

LAND INFORMATION

- **Subject Site Scale:** 75,600sqm
- Zoning: Predominantly Public Recreation with an 80m wide strip along the eastern edge zoned as infrastructure
- **Managed By:** Shellharbour City Council

PRIORITY RANK

7 /8

The required infrastructure development costs, poor passive surveillance and hydrology renders this site questionable for development of a bike facility and a lower priority

FACILITY SCALE

Local/ Regional

Should investment be made the site could host a regional scale facility with multiple types of biking experiences , but otherwise may be limited to a local scale facility.

Figure 49. Terry Reserve Existing Site Features and Identified Subject Site

ASSESSMENT

TOPOGRAPHY ASSESSMENT

The portion of Terry Reserve under investigation has undulating topography typically between RL15.5 - RL12.5. The southern portion of the site has a ridge running north and south while the northern part of the site has a higher crown with topography falling away in each direction.

- General direction of fall
- Creek Lines
- Ridge landform
- Crown landform
- Macquarie Rivulet Flood Area

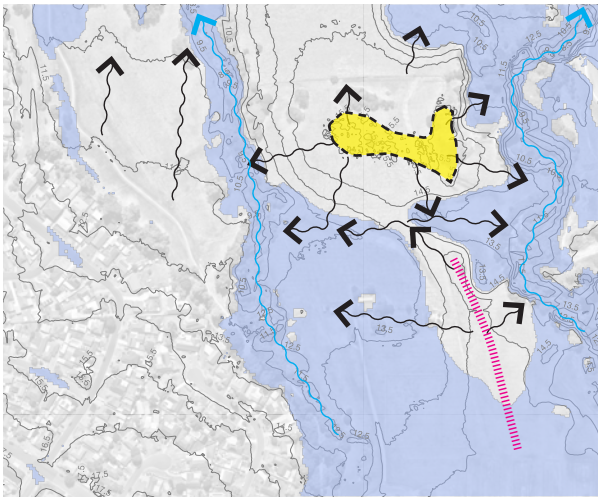


Figure 50. Topography

NETWORK ASSESSMENT

There is no pedestrian access to the western side of Frazers Creek which is the larger central portion of space. The existing shared path does provide access to the area between Frazers Creek and Fraser Cres. For vehicles, there is the existing access to the Pony Club which provides access to the southern portion of the site.

- Shared Path (2.5m wide)
- Vehicular Access as far as the Pony Club

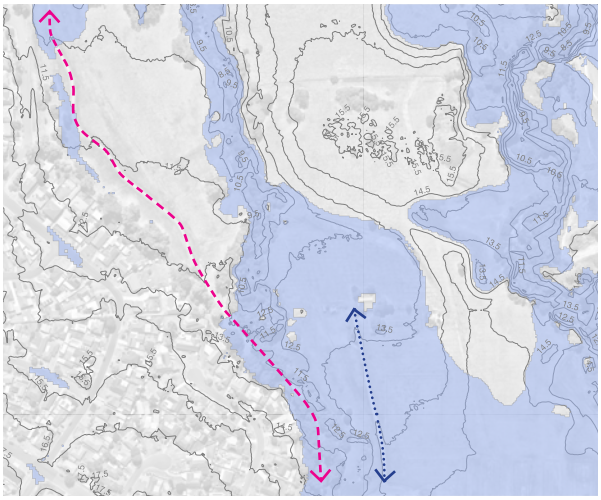


Figure 51. Path Network

VEGETATION ASSESSMENT

There is one Plant Community Type (PCT) type identified within Terry Reserve along both creek corridors and a central location between the two creek lines. The PCT is Shoalhaven Lowland Flats Wet Swamp Forest.

- Shoalhaven Lowland Flats Wet Swamp Forest

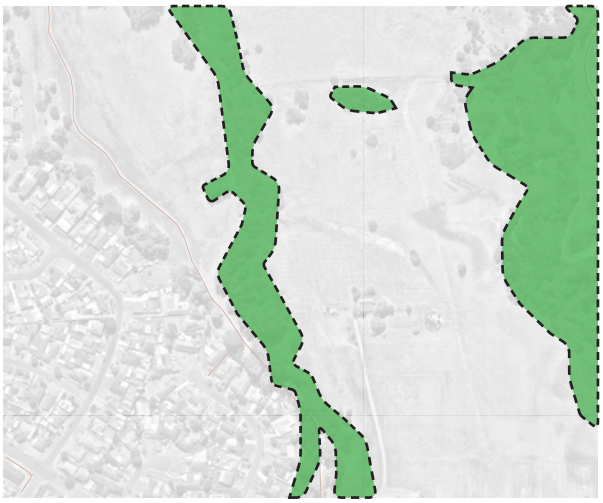


Figure 52. Biodiversity Assessment

SITE PHOTOS

Image 148. Frazers Creek flood damage and unsanctioned trail building/jump features

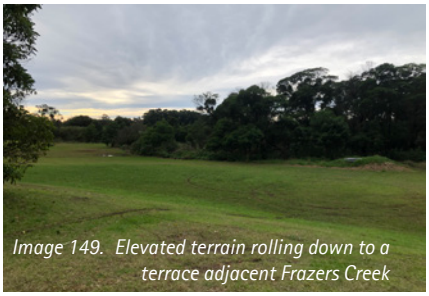


Image 149. Elevated terrain rolling down to a terrace adjacent Frazers Creek

Image 150. Open space

Image 151. Pony Club building

Image 152. Flood damage within the Frazers Creek corridor

Image 153. Low lying areas subject to wet ground conditions

Image 154. Frazers Creek

Image 155. Unsanctioned trail and feature construction

Image 156. Unsanctioned jump feature

DESIGN GUIDANCE BY ANALYSIS

LOCATION & DEMOGRAPHIC

Terry Reserve is located in the suburb of Albion Park which has the seventh highest density of all suburbs within the LGA. The projected population growth by 2046 of Albion Park is 47.8%, The number of youths is also projected to increase by almost 20% which is slightly above the LGA average. Based on the projected growth of both the population and the youth within Albion Park it suggests that Terry Reserve is well located in the LGA for the development of a bike facility.

NEIGHBOURING SCHOOLS

There is one school located within a 1km radius of Terry Reserve and it is within the suburb of Albion Park. This is:

- Albion Park High School

There are five additional schools within 2km of Terry Reserve. They are located within Albion Park and in the neighbouring suburbs of Albion Park Rail:

- Albion Park Public School
- St Paul's Catholic Primary School
- Albion Park Rail Public School
- Mount Terry Public School
- St Joseph's Catholic High School

NEIGHBOURING FACILITIES

Within 1km of Terry Reserve there are:

- Two bike facilities within Croome Regional Sporting Complex including:
  - » Southlake Illawarra BMX Club
  - » Trails south of Southlake Illawarra BMX Club
- Eleven community facilities including:
  - » Albion Park Community Centre
  - » Showground HACC Centre
  - » Rural Youth Hall
  - » Scout Hall
  - » Centenary Hall
  - » Albion Park Baby Health Centre
  - » Terry Reserve Club Room and Hall
  - » Croom Sports Complex (including Eagles Function Centre and Hockey Clubhouse)
  - » Albion Park Library
  - » Albion Park Village Shopping Centre

Six recreational facilities including:

- » Albion Park Showground
- » Frasers Reserve
- » Di Gorman Oval
- » Federation Park
- » Croom Regional Sporting Complex
- » Timbs Park

EXISTING ECOLOGICAL CONSIDERATIONS

Terry Reserve contains the Plant Community Type (PCT) Shoalhaven Lowland Flats Wet Swamp Forest. This PCT contain Threatened Ecological Communities as listed in the BC Act. All vegetation identified within this PCT is to be protected during any development of the site.

There are small clumps of vegetation not identified as a PCT. Typically these are standalone in the open turf areas. Development of a bike facility in this area would comfortably be able to safely retain them regardless of species or condition.

The remainder of the site is open turf areas which have no significant ecological value.

Figure 53. Existing Vegetation

SITE OPPORTUNITIES

- Vast open site with little physical barriers/restriction in terms of size of development
- The undulating topography provides interest and allows for facilities that require speed generation i.e. jump line drop in, speed for users for trail features like jumps
- The portion of the site between Frazers Creek and Fraser Cres is accessible from both Fraser Cres and the shared path. This as also a large area that is very flat that would be suitable for a range of bike park facility types and provide ease of access
- Western portion of the site has good passive surveillance
- Vehicular access exists to the southern edge of the site via the Pony Club access road
- Construction of unsanctioned trail indicates local interest in a bike facility and possible community support.
- Site is well connected to the rest of the Croom Sporting complex via shared trails. This provides access to toilet facilities and other recreational facilities.

SITE CONSTRAINTS

- Site is subject to flooding excluding the western portion and the ridge and crown landforms identified in the topography assessment
- Vehicular Access through the pony club may be problematic for Pony Club operations and will require upgrading/extending
- There is no supporting infrastructure on the site i.e. carparking, shelters, furniture, water etc
- The central portion of the site is isolated from any direct pedestrian/cyclist access as the shared use path is on the western side of Frazers Creek
- Very poor passive surveillance of the central portion of the site
- Eastern portion of site restricted by infrastructure zoning and presence of a gas line

KEY ANALYSIS POINTS

01. The western portion of the site contains ease of access for both vehicles and pedestrians, has good passive surveillance and has flat topography. This site may be better suited for a bike facility. It could accommodate a number of facility types including a pump track, jump park, skills trail, learn to ride track or a bike playground.

02. This study recommends the same types of biking facilities at both Croome Regional Park and Terry Reserve. These two recreational areas are located adjacent to each other. Either facility should proceed, but not both due to likely duplication of biking facilities.

DESIGN DEVELOPMENT

- The design development suggested is for the area to the west of Frazers Creek for reasons discussed in the previous site assessment pages.
- The scale of this site, the flat topography and lack of physical constraints on the site make it a blank canvas to develop a facility of multiple experiences. Given the flat topography it is suggested a pump track, jump park and skills trails be considered.
- There is an opening in existing vegetation adjacent Fraser Cres which provides an opportunity to develop an arrival space and carparking. Given the sites location and immediate surrounds it is anticipated it will be required.
- A primary gathering/trailhead space could be included with the pump track immediately adjacent the arrival space. A secondary gathering/trailhead space could be provided further south for the jump park and skill trails.
- The jump park ideally run south to north in direction to fall with the natural (minimal) slope of the site.
- There is potential to expand the facility further north, however this is outside of the advised subject site for this assessment and is currently not owned or managed by Shellharbour City Council.

LEGEND

- Parking/arrival area off Fraser Cres
- Existing shared use path
- Trailhead/platform area
- Pump Track
- Jump Park
- Easy skills trail
- Intermediate skills trail
- Difficult skills trail

PRECEDENT IMAGERY

Image 157. Bike park with pump track and jump park

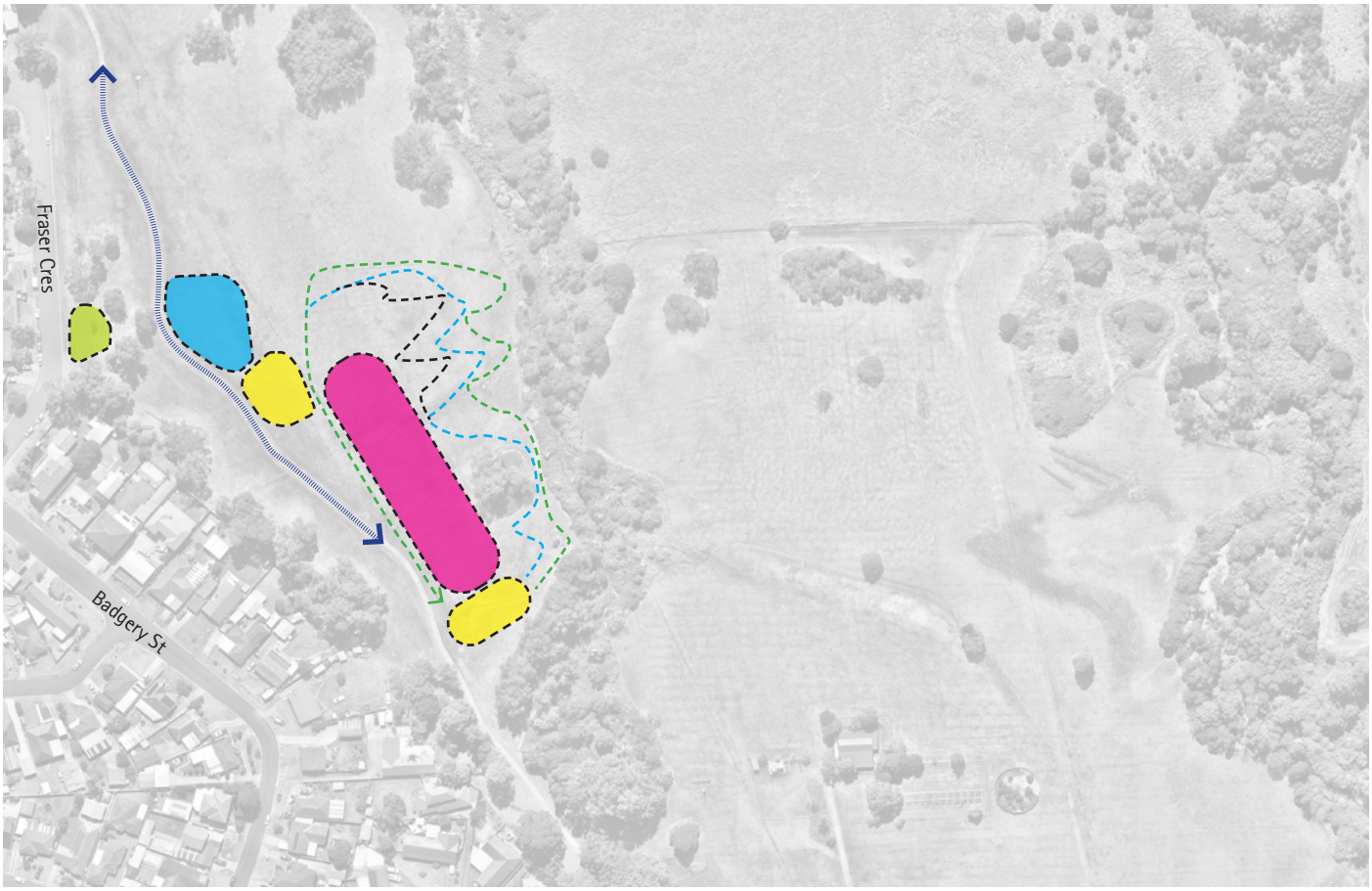


Figure 54. Indicative Design Development

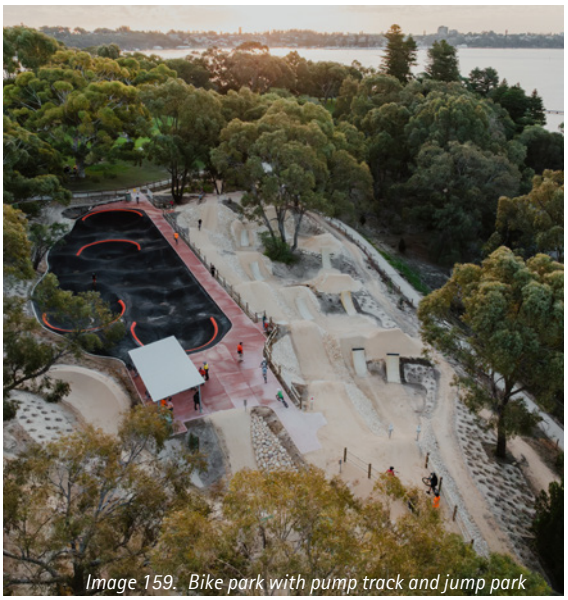


Image 159. Bike park with pump track and jump park

Image 158. Bike park with pump track and jump park

Image 160. Easy jump line

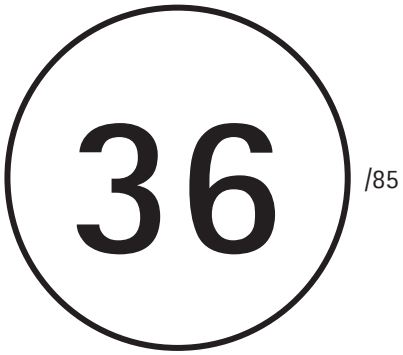
Image 161. Difficult and extreme jump features

8.13 JARRAH WAY (RESERVE 116), CROOM

SUITABILITY OF THE SITE FOR A BIKE FACILITY

Based on the hydrology, poor passive surveillance, the shape of the site and lack of connection and supporting infrastructure this site is not supported for a bike facility

MULTI CRITERIA SCORE



Lowest score on the Multi-Criteria Assessment

INTRODUCTION

Jarrah Way Reserve is a linear reserve that runs along the northern edge of the M1 highway. The Reserve contains a playground and picnic setting at the eastern end of the site and is accessed off Jarrah Way. The only other obvious function of the Reserve is drainage which was evidenced by the wetland vegetation in areas and the areas of standing water.

There are four formal public access points into the site. One off Jarrah Way, Lobelia St, Iron Bark Ave and Grevillea St. Centrally in the site is a vehicular access point which provides access to the drainage basins and infrastructure along the northern portion of the M1 road reserve.

There is a significant amount of mature trees along the full length of the reserve that create spaces of clear turf. This in conjunction with the northern edge of the reserve being the back boundary of the adjacent residential properties makes for very poor passive surveillance within the site.

LEGEND

- Reserve Boundary
- Subject Site

01. Playground & Picnic Settings
02. Low lying drainage area
03. Maintenance Access through Reserve

LAND INFORMATION

- **Subject Site Scale:** 96,780sqm
- Zoning: Public Recreation
- **Managed By:** Shellharbour City Council

PRIORITY RANK

8 /8

The only site assessed not supported for the development of a bike facility

FACILITY SCALE

Local

Constraints would severely limit the scale of a bike facility development should one be proposed

Figure 55. Jarrah Way (Reserve 116) Existing Site Features and Identified Subject Site

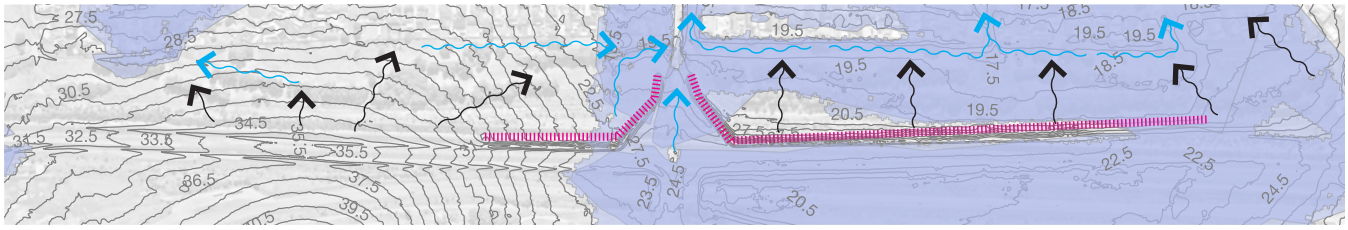


Figure 56. Topography

TOPOGRAPHY ASSESSMENT

The topography of the site typically flows in a northerly direction. Stormwater is picked up by a swale system in the northern portion of the site and conveyed to its nearest point to continue further north.

The site has two bunds between itself and the M1.

- General direction of fall
- Swales
- Bund
- Macquarie River Flood Area

Figure 57. Path Network

NETWORK ASSESSMENT

There is very limited access for pedestrians and/or cyclists into the site and around the site. There are four formal access points and one path from Jarrah Way to the playground. There is no off-street carparking, all visitors driving to the site need to park on the neighbourhood streets.

- Pedestrian Footpath (1.2m wide)
- Formal Entry Points

Figure 58. Biodiversity Assessment

VEGETATION ASSESSMENT

The vegetation on the site has not been identified as a Plant Type Community and in the LGA wide vegetation mapping it falls into a "Non-Native" area. The site visit showed there is a lot of mature native trees that have high value for amenity and as a buffer between the M1 and the residential lots. The zones of trees typically are long bands running east west that spatially divide the site into separate zones. Other vegetation includes wetland species in the drainage areas and turf.

- Mature Tree Bands

SITE PHOTOS

Image 162. Pedestrian path to playground and picnic areas

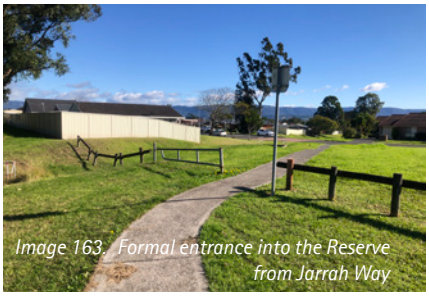


Image 163. Formal entrance into the Reserve from Jarrah Way

Image 164. Open space

Image 165. Existing swale

Image 166. Open space adjacent the playground

Image 167. Drainage basin area

Image 168. Landform with low lying areas

Image 169. Long narrow open spaces

Image 170. Long narrow spaces with poor passive surveillance

LOCATION & DEMOGRAPHIC

Reserve 116 is located in the suburb of Albion Park Rail which is one of the suburbs within the LGA with the lowest density. The projected population growth by 2046 of Albion Park is also very low at 7.5%, well below the LGA average. The number of youths is also projected to increase slightly and remains very well aligned with the LGA average.

Albion Park Rail contains a portion of the suburb being Rural Balance, which will skew the population figures in regards to density. As such it is worth noting that Albion Park Rail has the forth largest population of all suburbs within the LGA however one of the lowest youth populations. As such is can be reasonably assumed that the density of the population in the residential areas of Albion Park Rail are considerably higher than those indicated above.

The demographic of Albion Park Rail suggests that a bike facility at Reserve 116 may be a lower priority than other areas based on the youth demographics and the potential spread of residents.

NEIGHBOURING SCHOOLS

There are two schools located within a 1km radius of Reserve 116, one within the suburb of Albion Park Rail and the other in Oak Flats:

- Albion Park Rail Public School
- Corpus Christi Catholic High School

There is an additional school within 2km of Reserve 116, located in the suburb of Oak Flats:

- Oak Flats Public School

NEIGHBOURING FACILITIES

Within 1km of Reserve 116 there are:

- One bike facility:
  - » Trails south of Southlake BMX Park
- Five community facilities including:
  - » Albion Park Rail Community Centre
  - » Alunga Child Care Centre
  - » Koninderie Child Care Centre
- Two recreational facilities including:
  - » Yovelton House Playspace
  - » Albion Oval (includes skate park)

EXISTING ECOLOGICAL CONSIDERATIONS

The existing mature trees will provide three functions, amenity, buffer/shelter and habitat. It is suggested that the trees within this mix that are in good health and non-weed species should remain to upkeep these qualities to the reserve and surrounding residents.

The wetland and swale areas have a range of grasses and wetland vegetation species however weed infestation is unknown. These areas may need retention for a stormwater management perspective however the vegetation may require auditing to remove some weed species.

Figure 59. Existing Vegetation

SITE OPPORTUNITIES

- Open space adjacent the existing playground appears to be elevated and less impacted by the stormwater. A possible facility that utilises access to the playground could be placed here.
- The western end contains topography that may provide interest for a cross country trail
- Connection to the adjacent trails at the western end of the site may be a possibility

SITE CONSTRAINTS

- A lot of the open areas are low lying and were wet, or contained swales
- The site is broken in into two sides due to maintenance access, eliminating the opportunity of creating a linear facility to run the full length
- There is very poor passive surveillance
- There is very limited parking with the only available option being on-street in a residential network
- Access for construction of any facility will be very challenging
- No services on site

KEY ANALYSIS POINTS

01. The poor passive surveillance and limited open space created by both the vegetation and the stormwater function of the site will make this a poor location for a bike facility.

02. Parking at this location would either need to be developed either on or off-street to ensure surrounding residents aren't negatively impacted by increase parking on the street/verge areas

03. Connection to the existing trails to the west could likely be achieved however the value of this may be minimal.

04. The only possible bike facility would be a skills based trail, likely at the western end of the site where there is some variance in elevation in some areas clear of vegetation.

DESIGN DEVELOPMENT

- As noted in the site assessment pages of this site, Reserve 116 is not recommended as a suitable site for development of a bike facility. The suggested design development of the site does not indicate a recommendation, rather a suggestion of if this site was developed, what would be the best outcome.
- A trail network would be the best outcome based on the spatial constraints created by the existing vegetation and the low lying drainage areas as a trail can navigate to the best parts of the site while avoiding the poor areas.
- A trail development will be fitting and enhanced if a connection can be provided across Croome Rd to the existing trail network
- Skill features could be designed based on opportunities once the optimum trail alignment is established
- The trail ratings can be stacked with the easy trail being a loop from the primary trailhead, with the intermediate loop feeding further east from the easy trail followed by the difficult trail further east from the intermediate loop.
- The alternative to stacking the trail of various difficulties is to have one large easy rated trail however the features contain an easy, intermediate or difficult option.
- Signage is paramount to ensure users know the trail difficulty that they are taking, especially at trail junctions.

LEGEND

- Primary trailhead to include signage, shelter and furniture
- Secondary trailhead with signage
- Trail junction point with signage
- Very easy trail across Croome Rd and connecting to the existing trails to the west
- Easy skills trail with features
- Intermediate skills trail with features
- Difficult skills trail with features

PRECEDENT IMAGERY

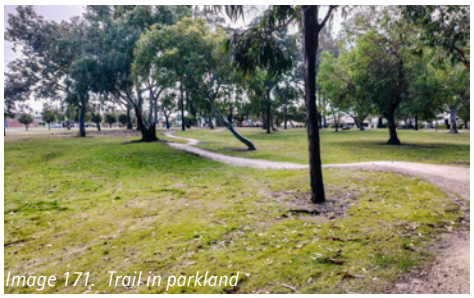


Image 171. Trail in parkland

Image 172. Skill based drop features

Image 173. Balance features and trail in parkland

Figure 60. Indicative Design Development

Image 174. Drop feature

Image 175. Wall ride trail feature

Image 176. Bridge/drop feature

Image 177. Trail rated for all users

9. SITES FOR MITIGATION

Image 128 - Creswick Pump Track, VIC

9.1 INTRODUCTION

Shellharbour City Council has identified Blackbutt Forest Reserve as a location with established unsanctioned mountain bike trail that is well used by the mountain biking community. The unplanned and unsanctioned trails have been developed without consideration to the environmental sensitivities of the area, and as such multiple trails run through and nearby sensitive ecological areas.

As part of the Bike Facility Feasibility Study an investigation into how the mountain biking activity can best be mitigated has also been included.

9.2 MITIGATION METHODS

PHYSICAL MITIGATION

Physical mitigation could include demolition of the existing trail networks or restricting public access to the reserve by gates at access points.

Physical mitigation without consultation and/or eduction with the community and user groups of the existing trails can be viewed as an aggressive approach and could create tension between the City and the community. While the trails are unsanctioned there has been a group of individuals that have spent a lot of time creating these trails and equal time spent by a group that maintains them. Physically destroying these trails without conversation may cause frustration and division between users and the City.

Restricting access to the reserve may not be possible giving the scale of the site and the multiple access points. Again, without conversation and/or education this may create friction between the community and the City.

EDUCATION

Education of the environmental factors and the conflict between conservation practice and trail use can be utilised.

This could include providing signage at all access points of the reserve and along the trails, especially those that go through or near high value ecological areas. In addition to this is an education campaign could be implemented through print, radio and social media to raise the awareness.

As a sole mitigation measure this may not be successful as there is no alternative facility for the existing users to move to. Mountain biking is often a activity that helps with both physical and mental wellbeing which needs to be supported. As such for some existing users even the most well delivered education of the ecology of the site may not be enough to deter them from using the trails.

DEVELOPMENT

Development mitigation is effectively what this feasibility study is setting out to achieve. Development mitigation is replacing the existing trails with bike facilities developed at more suitable locations.

This approach in conjunction with education may be a suitable path to eventually decommission the existing trails with limited friction with the existing users and community.

HYBRID EDUCATION AND RETENTION

The final mitigation measure is a hybrid approach to undertake a thorough review and planning exercise of the existing trails and environmental factors and identify opportune areas where trails can exist without detrimental impacts on the environmental qualities of the site. A design exercise can then be undertaken to develop a harmonious trail network which will typically result in a higher quality facility both in regards to layout and construction quality than typical unsanctioned built trail networks where all opportunities and constraints of a site have not been assessed.

Following this exercise being completed existing users may be more interested in the education and reasons why some trails will be decommissioned, however there will be enthusiasm with the prospect of receiving new trails that are supported by the City.

9.3 BLACKBUTT FOREST RESERVE OVERVIEW

Blackbutt Forest Reserve is a large predominantly vegetated reserve set amongst a highly populated area of the Shellharbour LGA. As such it is very popular with the community and is well visited.

The site contains an unsanctioned trail network that is used by both mountain bikers and pedestrians to experience and explore the Reserve. In addition to this there are three clear areas that contain open turf area with carparking and also a playground.

Access through the site is predominantly provided by a shared use path along the northern boundary that connects from Shellharbour Rd through to Wattle Rd.

Approximately half of the boundary of the site has residential properties immediately adjacent to the Reserve which limits access into the Reserve along those boundaries. The other half fronts directly onto Wattle Road or Shellharbour Road.

LEGEND

- Reserve Boundary
- **01.** Shellharbour Resort & Conference Centre
- **02.** Entrance to Blackbutt Forest Reserve
- **03.** Picnic Area
- **04.** Carpark
- **05.** Wattle Reserve
- **06.** Playground

Figure 61. Blackbutt Forest Reserve

9.4 SITE PHOTOS

Image 179. Trails in the forest

Image 180. Trails in the forest

Image 181. Trail features

Image 182. Trail features

Image 183. Trails in the forest

Image 184. Poor drainage on trails

Image 185. Trail features

Image 186. Trail features

Image 187. Shared path

Image 188. Trail features,very close to vegetation

9.5 EXISTING BIKE FACILITY ASSESSMENT

Formal pathways within Blackbutt Forest Reserve are limited with the only major path running along the northern boundary. It connects from Wattle Reserve through to Shellharbour Rd. The road reserves adjacent Blackbutt Forest Reserve typically include a pedestrian path.

The trail network within the Reserve contains easy, intermediate and difficult rated trails. All trail info has been obtained from Trailforks which may contain a margin of error.

- Shared Path (2.5m wide)
- Fire road
- One-way easy rated trail
- One-way intermediate rated trail
- Two-way intermediate rated trail
- One-way difficult rated trail
- Two-way difficult rated trail

TRAIL NAMES

01. The Noogal
02. Loop Around
03. Fun Drops & Staircase
04. Ryno's Run
05. Blackbutt Warm Up Left
06. Up and Down
07. Shortcut
08. Other Trail
09. Bat Sh*t
10. Home Run
11. Jump Line
12. West Descent

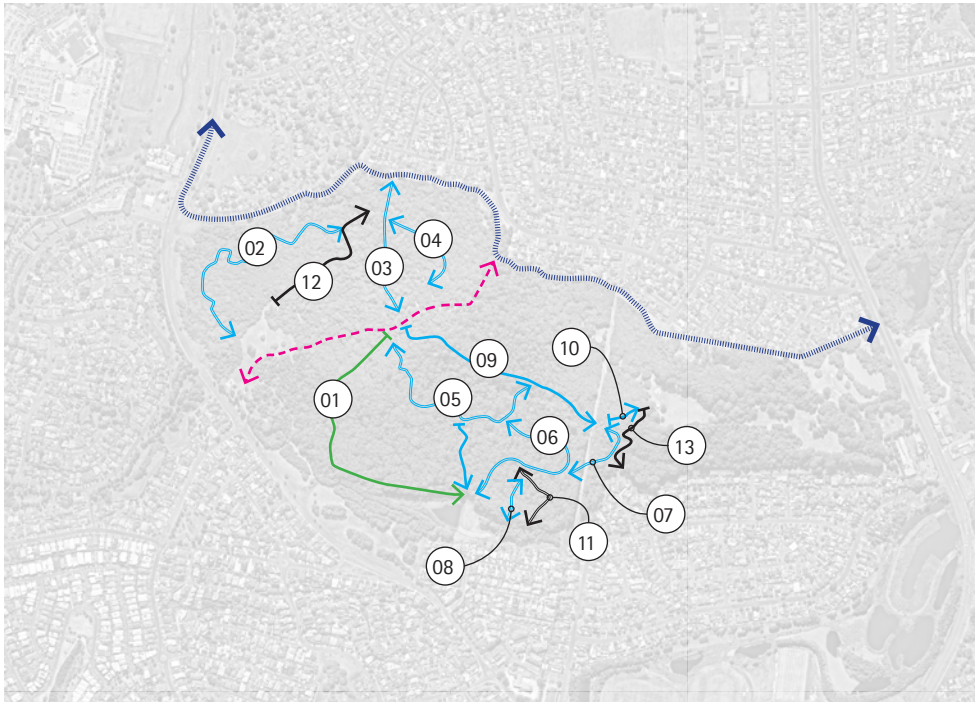
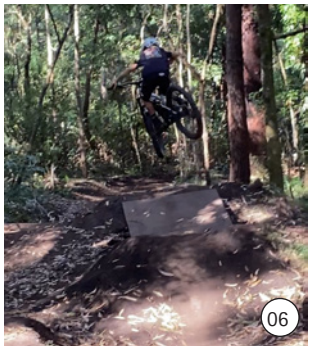


Figure 62. Path Network



9.6 ENVIRONMENTAL ASSESSMENT

Blackbutt Forest Reserve is a rich ecological site which is a key concern with the site also hosting mountain bike trails. The mapping adjacent demonstrates the locations of the Plant Community Types (PCTs) present on the Reserve[17] and threatened flora species are shown.

The Reserve also has a rich fauna community with a number of threatened species. These include the Eastern Bentwing-bat, East Coast Freetail Bat, Eastern False Pipistrelle, Southern Myotis, Large-eared Pied Bat, Grey-headed Flying-fox, Glossy Black-cockatoo, Barking Owl, Masked Owl, Sooty Owl, Powerful Owl, Bassian Thrush, Emerald Dove, Rose-crowned Fuit-dove, Topknot Pigeon, White-headed Pigeon, Regent Honeyeater, Swift Parrot, and the Green & Golden Bell Frog.[18]

PLANT COMMUNITY TYPES

- Illawarra Escarpment Warm Temperate Rainforest
- Illawarra Complex Dry Rainforest
- Illawarra Lowland Red Gum Grassy Forest
- Illawarra Blackbutt Moist Forest
- South Coast Lowland Wollybutt Grassy Forest
- Illawarra Escarpment Bangalay x Blue Gum Wet Forest

THREATENED FLORA

01. Spiked Rice Flower
02. Scrub Turpentine
03. Illawarra Zieria

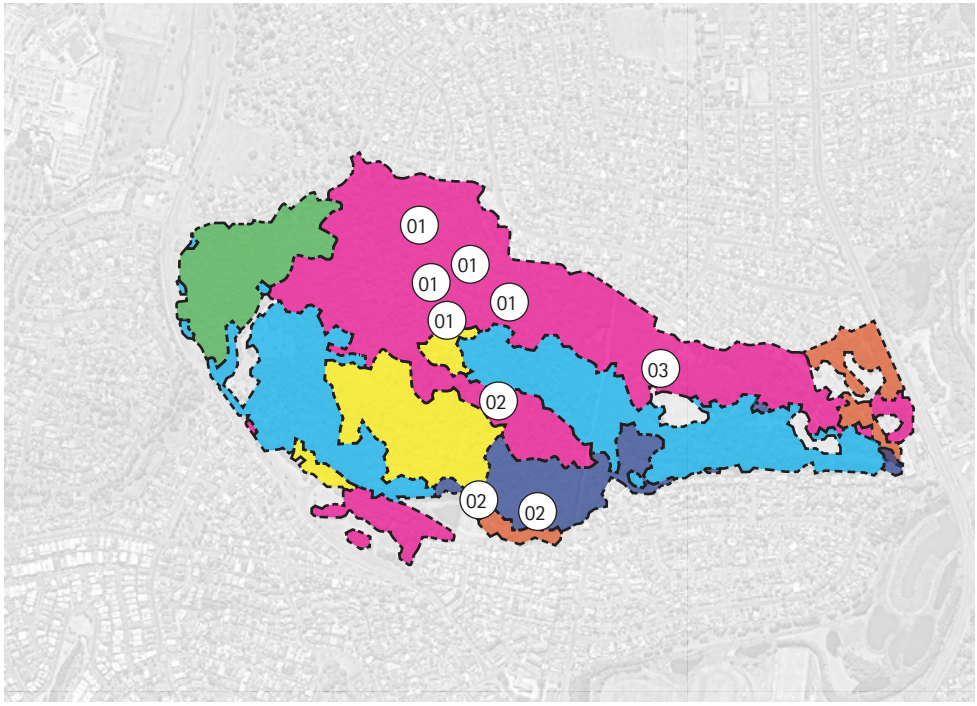


Figure 63. Path Network

Image 189. Barking Owl

Image 190. Grey-headed Flying Fox

Image 191. Green & Golden Bell Frog

9.7 MITIGATION OF ENVIRONMENTAL & TRAIL USE CONFLICT

The environmental and trail use assessment of the site demonstrate that there has not been adequate planning undertaken to determine the suitability of the two land uses being able to coexist. What is known is:

- The current trail alignments and use are detrimental to the high value and threatened environmental qualities of the site.
- The use of the existing trails are not likely to cease based on the community not having access to another facility providing the same or similar experience.

Two mitigation strategies are suggested for Blackbutt Forest Reserve and are as follows.

9.8 MITIGATION STRATEGY #1

This strategy utilises the hybrid retention and education mitigation method. It involves a detailed study of the environmental conditions of Blackbutt Forest Reserve to determine areas that require protection and to be avoided and areas that can utilised for recreation without detrimental impacts on the environment during construction and/or maintenance.

The following is a suggested process of this mitigation strategy:

01. Undertake detailed and current environmental mapping of both fauna and flora. The mapping report will need to clearly articulate areas where trail/recreation can and cannot exist within the Reserve and environmental conditions to be met in the areas that are deemed suitable for trails/recreation from the mapping. This may include conditions such as trail corridor maximum width, protection of vegetation species including threatened species and habitat vegetation.

02. In consultation with the Shellharbour City Council and representatives from the mountain biking community a reputable trail design and build company undertakes a feasibility study and design for a trail network within Blackbutt Forest Reserve that meets all conditions of the environmental mapping study.

03. If the feasibility and design project renders an outcome where a suitable trail network can be implemented then funding can be sought for the implementation of the trails.

04. An education strategy is developed concurrently to the implementation of the trails to educate the users of the trails about the environmental qualities of the site and the detrimental impacts of creating additional unsanctioned trail or leaving the sanctioned trails.

05. Environmental monitoring can be established in various areas within Blackbutt Forest Reserve to monitor the activity of the fauna and growth and retention of sensitive and threatened flora. This should occur in areas with and without trails.

9.9 MITIGATION STRATEGY #2

This strategy involves removing all mountain bike activity from Blackbutt Forest Reserve based on the Reserve being deemed unsuitable to support the trails and use of them without conflicting with the conservation of the sensitive and threatened environmental conditions.

The mitigation of the use and the eventual decommission of the trail networks requires two components; education of why the trails at Blackbutt Forest Reserve are environmentally inappropriate and secondly involvement of the community in the development of bike infrastructure elsewhere.

The process of this mitigation strategy is:

01. Involvement via community consultation of this feasibility study. This can be the introduction to the environmental concerns at Blackbutt Forest Reserve but more importantly can generate interest in the possibility of development of other bike facilities.

02. Involvement in the design and development of new bike facilities as a result of this feasibility study to ensure any development of a bike facility meets the needs and requirements of the community to ensure it is adequate in replacement of the Blackbutt Forest Reserve trails.

03. An education/information strategy is developed concurrently to the development of the new bike facility/facilities to educate the users of the environmental qualities of the Blackbutt Forest Reserve and the progress of the development of another facility occurring elsewhere. This can be achieved with signage at trailheads of the existing trails at Blackbutt Forest Reserve and through other media platforms.

04. Once the new bike facility/facilities are complete a decommission program of the Blackbutt Forest Reserve can occur. This may be a staged process to gradually eradicate the trails be removing features, ripping the trail surface and placing natural items like boulders in the trail alignments.

05. A monitoring program and strategy should be developed to ensure more unsanctioned trails are not developed at Blackbutt Forest Reserve. This is a critical step to ensure the environmental goals of Blackbutt Forest Reserve are not compromised and equally as important to ensure that Shellharbour City Council maintain a healthy relationship with the trail users to best ensure the needs of the trail users are met elsewhere in the LGA.

10. CONCLUSIONS

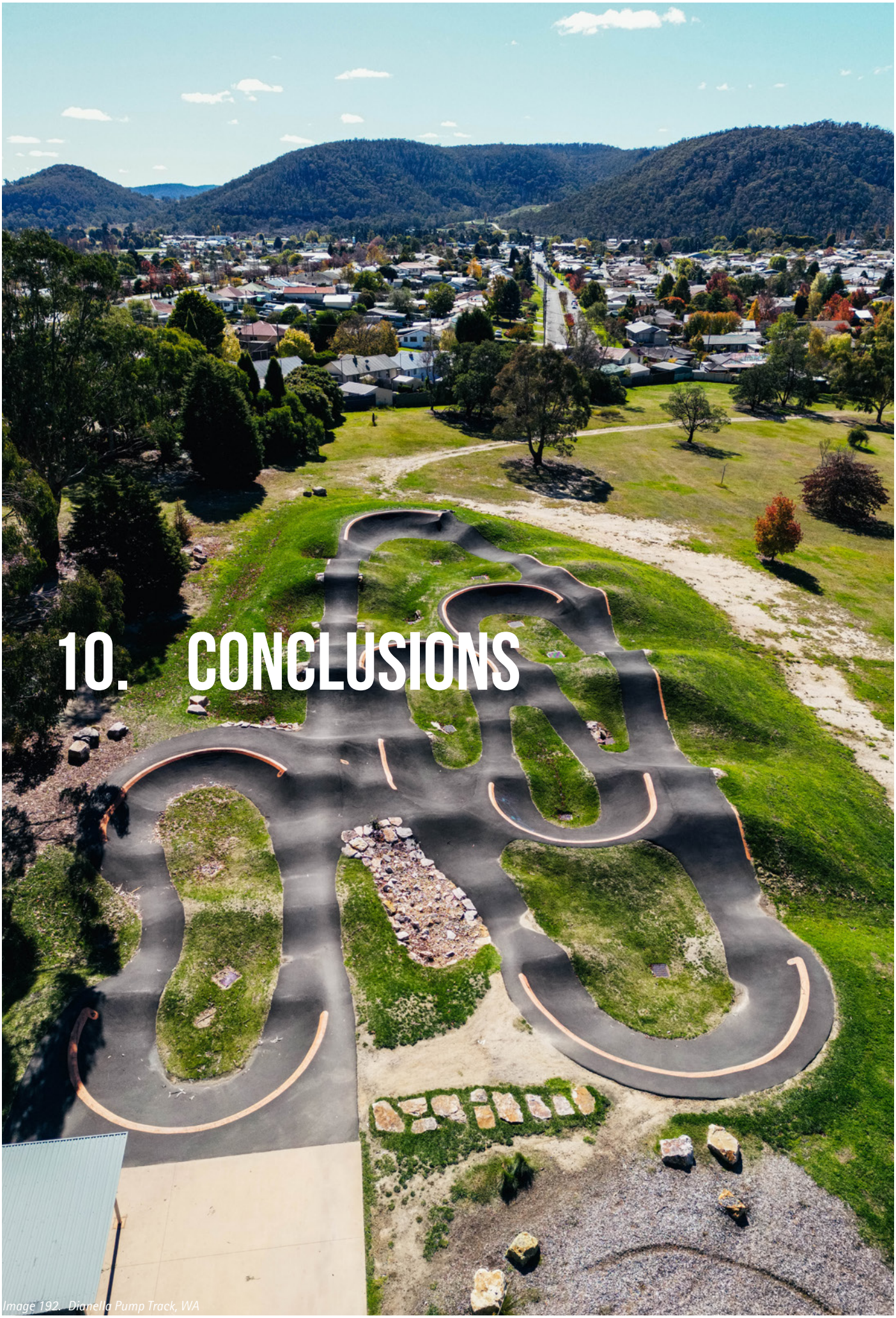


Image 192. Dianella Pump Track, WA

This section outlines recommendations for each of the eight sites evaluated in this report, assessing their suitability for bike facility development. For sites deemed suitable, specific guidance is provided to inform future steps. Prior to initiating any design or development processes, it is recommended that additional site-specific reviews, testing, and consultations such as geotechnical assessments not covered in this study be conducted.

10.1 CONCLUSIONS/SUMMARY OF FINDINGS

BALARANG RESERVE

Identified as the highest-priority site, suitable for a comprehensive bike park with multiple riding features. Its development is recommended due to the potential to create new trails, addressing the needs of existing trail users.

CROOME REGIONAL SPORTING COMPLEX

A close second priority, also suitable for a multi-feature bike park offering diverse riding opportunities. Its development would complement existing adjacent recreational facilities

PIONEER PARK

Offers an excellent opportunity to develop a facility complementary to the existing skate park. An asphalt pump track is recommended to enable cross-use between skate and bike activities, enhancing the park's recreational value.

WILSON MEMORIAL PARK

Suitable for a junior bike facility, such as a learn-to-ride track, which would integrate well with the existing playground equipment. This development would have minimal impact on vegetation and align with the park's current use.

KINGSTON STREET PARK

Supported by significant community interest, this park is ideal for a community-level pump track. Such a facility would diversify recreational activities within the park.

CON O'KEEFE PARK

Con O'Keefe has an opportunity to provide a community scale pump track that will support the plaza development that will contain skate-able elements. It is recommended the pump track accommodates intermediate and advanced users given beginners are well accommodated at the nearby McDonald Park.

TERRY RESERVE

An unconstrained site with excellent scale and topography for a multi-feature bike facility. However, the lack of existing infrastructure may increase development costs, which should be considered in further planning.

JARRAH WAY (RESERVE 116)

Not recommended for bike facility development due to multiple constraints, including unsuitable site shape, topography, hydrology, limited passive surveillance, and proximity to residential properties.

BLACKBUTT FOREST RESERVE

Existing unsanctioned trails require careful management. Shellharbour City Council should strategise trail closures and mitigation measures in collaboration with current users and trail "owners" to prevent community upset, further unauthorised trail building and environmental damage.

10.2 ADDITIONAL CONSIDERATIONS

COMMUNITY ENGAGEMENT

Community involvement is recommended at the time Council prepares designs for any of the feasible biking facilities described in this study. Engaging the community will foster ownership of new facilities and provide opportunities to educate users on design, construction techniques, and environmental impacts, including the harm caused by unauthorised developments.

GUIDING PRINCIPLES FOR PRIORITISATION OF SITES

- Sites suitable for trail development should be prioritised for their potential to replace unsanctioned trails at Blackbutt Forest Reserve. While replicating the exact trails may not be achievable, selected sites can support modern, well-designed trails that provide a comparable and enjoyable alternative.
- Sites suitable for regional scale biking facilities are recommended for prioritisation in a staged manner, subject to available funding.
- Multiple sites are feasible to provide flexibility for future biking facility provision. Council should have regard to the existing and planned provision of biking facilities over time. Provision of a future biking facility at certain locations could reduce the prioritisation of future biking facilities at the nearest locations identified in this study. For example: pump tracks in Albion Park that could duplicate the existing facility at Macdonald Park, proposed pump and jump facilities at Terry Road could duplicate Croome Regional Park facility.
- Sites suitable for local and community scale biking facilities may be considered as part of a future master plan which considers all opportunities and constraints regarding co-location of recreational facilities in one reserve.

Image 193. Hybrid Jump Line and Pump Track, Kingsley Park, WA

Image 194. Junior Learn to Ride Facility. Location unknown

Image 195. Urban flow trails, Dyoondalup Bike Park, WA

Image 196. Urban Jump Park, Dianella Bike Park, WA

10.3 FEASIBLE RECREATIONAL BIKING FACILITIES TABLE

SITE	FACILITY	FOCUS	SCALE	RATIONALE
BALARANG RESERVE	A trail-based facility featuring flow-style descending trails, supplemented by a pump track and jump park. A trailhead with supporting infrastructure can be located at the top and base of the trails, connecting to the existing playspace. The dual-use path can serve as a return route for trail users and link to toilet facilities and carparking across The Esplanade.	This site offers an opportunity for urban trail replacement for Blackbutt Forest Reserve. Prioritise trail development with additional supporting features like pump tracks or jump parks. Accommodate all skill levels from easy to difficult.	Regional	This large, mostly passive open space site is suitable for trail development without altering its overall character, as much of the site can remain unchanged. The topography supports ideal trail gradients, and existing infrastructure i.e. dual-use path, playground, toilets, and carparking can be utilised. Toilets and carparking, located across The Esplanade, are accessible via a proposed crossing upgrade.
CROOME REGIONAL SPORTING COMPLEX	The Croome Regional Sporting Complex site is suitable for a bike park with a jump park, pump track, trails, and trailhead areas, leveraging existing infrastructure like car parking, toilets, and dual-use path networks.	Develop a dynamic bike park with diverse facilities to serve a wide range of users, enhancing the recreational offerings of the Croome Regional Sporting Complex, the LGA's premier sporting hub. Accommodate all skill levels from easy to difficult.	Regional	The Croome Regional Sporting Complex is a well-used facility but lacks adequate bike riding amenities. While it offers a dual-use path network and access to the Southlake Illawarra BMX Club track, adding a bike park with diverse facilities would better serve the broader bike riding community.
PIONEER PARK	Pump Track	Create a pump track suitable for all wheeled sports, compatible with the existing skate park, and designed for beginner, intermediate, and advanced users.	Local	The site, home to the skate park and its infrastructure, can support a new pump track to enhance wheeled sports experiences. Using existing infrastructure, this addition will expand the skate park's user base, diversify its appeal, and attract more young people.

SITE	FACILITY	FOCUS	SCALE	RATIONALE
WILSON MEMORIAL PARK	Learn to Ride and/or Bike Playground	Develop a facility to enhance the youth-focused playspace, diversifying the recreational experience for young children in the park.	Community	The site's limited scale, existing vegetation, facilities, and parking make it ideal for a community facility. A bike playground or learn-to-ride area would complement the existing playground, with a linear design integrating easily around existing features.
KINGSTON STREET PARK	Pump Track	Build a small pump track nestled among existing trees, connecting to the park's playspace and picnic areas.	Community	The park, adjacent to recreation facilities lacking bike amenities, has limited space due to existing trees, a playground, picnic area, and minimal parking or paths. A community-scale pump track would offer a versatile experience, appealing to a broad cross-section of the community.
CON O'KEEFE PARK	Pump Track	Build a small pump track to complement the plaza's development, aligning with the site's masterplan and enhancing the recreational experience.	Community	The new plaza will include skate-able features, which would be complemented by a small pump track, offering an alternative experience for all wheeled users in the park. Consider catering towards intermediate and advanced users as beginners are well accommodated at the nearby McDonald Park mini pump trail and learn to ride track.
TERRY RESERVE (PART OF)	An urban bike park containing a pump track, jump park, skills trails and trailheads	Create a "flat land" bike park with diverse experiences for beginner, intermediate, and advanced users.	Local/ Regional	The site's flat, open terrain is ideal for a jump park, pump track, and skills trail, with sufficient space for supporting infrastructure to be developed as part of the bike park. Due to the site not being in immediate proximity to other recreation facilities and the vehicular access via residential streets this may not be a site for a facility of this scale.
JARRAH WAY (RESERVE 116)	Skills trails could be considered, but the site is not recommended for bike facility development.	Develop trails with features where terrain and hydrology permit, noting that industry-standard trails and expectation within the reserve may not be feasible.	n/a	The site's limited space, challenging terrain, hydrology, existing vegetation, irregular shape, lack of infrastructure, parking, bike/pedestrian access, and low passive surveillance make it unsuitable for a bike facility.

Table 9. Overall Recommendations

11. REFERENCES

1 *https://www.shellharbour.nsw.gov.au/node/31114?title=&field_ra_category_tid=132&field_ra_facilities_tid_selective=All&field_cmn_location_address_postal_code=*

2 *NSW and Local Government Area Business Profiles 2021, May 2021 - https://www.service.nsw.gov.au/system/files/2023-03/nsw-and-local-government-area-business-profiles.pdf*

3 *idcommunity Community Profile, Service age groups - https://profile.id.com.au/shellharbour/service-age-groups*

4 *idcommunity Population Forecast, Population and age structure map - https://forecast.id.com.au/shellharbour/population-age-structure?Year1=2021&Year2=2031&Year3=2046&AgeTypeKey=3*

5 *idcommunity Social Atlas, Population Density - https://atlas.id.com.au/shellharbour*

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8 *Shellharbour Bike Map - https://cdn.shellharbour.nsw.gov.au/sites/default/files/Things_to_do_documents/Shellharbour_bike_map.pdfidcommunity Population Forecast, Population and age structure map - https://forecast.id.com.au/shellharbour/population-age-structure?Year1=2021&Year2=2031&Year3=2046&AgeTypeKey=3*

9 *idcommunity Population Forecast, Population and age structure map - https://forecast.id.com.au/shellharbour/population-age-structure-map?Year1=2021&Year2=2031&Year3=2046&AgeTypeKey=3&CustomAgeFrom=0&CustomAgeTo=85*

10 *AusCycling, Mountain Biking in Australia: an economic and participation analysis - https://auscycling.org.au/page/about/publications*

11 *AusCycling, Mountain Biking in Australia: an economic and participation analysis - https://auscycling.org.au/page/about/publications*

12 *We Ride, The Australian Cycling Economy Report - https://www.weride.org.au/australiancyclingeconomy/*

13 *Ausplay data released 30 April 2025: https://www.clearinghouseforsport.gov.au/research/ausplay/results*

14 *2024 AusCycling Annual Report - https://www.auscycling.org.au/page/about/annual-reports*

15 *AusPlay, Skate Report 2015-2023 - https://www.clearinghouseforsport.gov.au/research/ausplay/results*

16 *AusPlay, AusPlay Survey Results July 2020 - June 2021, - https://www.clearinghouseforsport.gov.au/research/ausplay/results*

17 *https://datasets.seed.nsw.gov.au/dataset/nsw-state-vegetation-type-map*

18 *Blackbutt Reserve Ecological and Bushfire Plan of Management, May 2015, Version 1, Version Date: 03/08/2015*

APPENDIX A. DELIVERY AND COSTS

Image 197. Dianella Pump Track, WA

A.1 NEXT STEPS AND IMPLEMENTATION

Recommended next steps include progressing each location through appropriate development process including further investigations where required, community consultation, and development of concept plans for each proposed facility/site. Shellharbour City Council should consider the recommendations in context of other recreation facility priorities and projects, taking into consideration funding availability and future master planning at assessed sites.

Multiple sites are feasible to provide flexibility for future biking facility provision. Council should have regard to the existing and planned provision of biking facilities over time. Provision of a future biking facility at certain locations could reduce the prioritisation of future biking facilities at the nearest locations identified in this study. For example: pump tracks in Albion Park that could duplicate the existing facility at Macdonald Park, proposed pump and jump facilities at Terry Road could duplicate Croome Regional Park facility.

A.2 DELIVERY

There are three delivery methods which can be considered for the development of bike parks within Shellharbour; professional, professional with volunteer assistance and volunteer led. Delivery methods are often determined by location of the development, complexity of the construction project and the quality of facility required. Facilities developed in urban and urban fringe areas are typically led or undertaken by professional designers and contractors which will apply to the majority of sites assessed within this report. Developments located in the natural landscape have a higher potential for volunteer development. The following outlines the benefits and constraints with each of the delivery methods.

PROFESSIONAL

Professional design by industry specific designers, typically yields high quality and accurate documentation enabling competitive and accurate pricing. Professional design can be costly but typically ensures successful and highly desirable facilities. Typically professional designers will host workshops to foster community participation and ownership. Professional construction by industry specific contractors ensures high quality outcomes with a high level of accountability and is most appropriate when the project incorporates hard surfaces and landscaping requirements. It does however have higher capital costs and can lead to reduced ownership if not successfully delivered. Development progress is typically fast.

PROFESSIONAL AND VOLUNTEER ASSISTANCE

Community led design with professional documentation can yield high quality and accurate documentation and community ownership. It remains costly and can have compromised design outcomes if not successfully managed.

Professional led construction, by industry specific contractors, with volunteer assistance can yield high quality but with a reduced level of accountability. Volunteer assisted construction is most appropriate when the project incorporates a combination of natural and hardened surfaces. Volunteer assisted projects can be difficult to price and unless volunteer involvement is significant, it can increase the cost of development through increased management requirements.

VOLUNTEER

Community led design with minimal input from professionals can be low cost but can often lead to lower quality documentation and potentially less usable facilities. Volunteer led construction is most appropriate for natural surface developments in urban fringe and natural landscape settings. Accountability of the final outcome is significantly reduced and development progress is typically slow. Volunteer led construction can lead to significant community ownership, if the final product is desirable.

A.3 CAPITAL COSTS

The following capital cost guide has been determined based on previous Common Ground Trails design and construction contracts, and industry knowledge. Table 11 outlines costs associated with recommendations provided. It should be noted that these costs are indicative and subject to large changes based on scope, materials, additional site furniture, re-location of overhead or underground services, de-contamination of land, upgrades to existing parking, toilets and roads, and many other influencing factors. Shown costs don't account for staging of works.

Jarrah Way (Reserve 116) is excluded from the table below due to its unsuitability bike facility development.

All figures shown are excluding GST.

FACILITY	ITEM	DESIGN	CONSTRUCTION	NOTES
Balarang Reserve	Flow Trails	$45,000	$450,000	Approx 1.5km
	Trail Hub & Support Infrastructure	$15,000	$150,000	Shelter, furniture, paths, landscape finishes
	Pump Track	$40,000	$400,000	Approx 500sqm riding surface
	Jump Park	$36,000	$360,000	3 x approx. 70lm jump lines
	Subtotal	$136,000	$1,360,000	
	Balarang Reserve Total (ex GST)			**$1,496,000**
Croome Regional Sporting Complex	Flow Trails	$30,000	$300,000	Approx 1.0km
	Trail Hub & Support Infrastructure	$15,000	$150,000	Shelter, furniture, paths, landscape finishes
	Pump Track	$50,000	$500,000	Approx 600sqm riding surface
	Jump Park	$46,000	$460,000	4 x approx. 80lm jump lines
	Subtotal	$141,000	$1,410,000	
	Croome Regional Sporting Complex Total (ex GST)			**$1,551,000**
Pioneer Park	Pump Track	$64,000	$640,000	Approx 800sqm riding surface
	Facility infrastructure	$7,000	$70,000	Platform and additional shelter and seating
	Subtotal	$71,000	$710,000	
	Pioneer Park Total (ex GST)			**$781,000**

FACILITY	ITEM	DESIGN	CONSTRUCTION	NOTES
Wilson Memorial Park	Learn to Ride Track	$16,000	$160,000	Approx 130lm
	Trailhead and supporting infrastructure	$5,000	$50,000	Shelter and seating
	Subtotal	$21,000	$210,000	
	Wilson Memorial Park Total (ex GST)			**$231,000**
Kingston Street Park	Pump Track	$24,000	$240,000	Approx. 300sqm riding surface
	Trailhead and supporting infrastructure	$5,000	$50,000	Shelter, seating and pavement
	Subtotal	$29,000	$290,000	
	Kingston Street Park Total (ex GST)			**$319,000**
Con O'Keefe Park	Pump Track	$28,000	$280,000	Approx. 350sqm riding surface
	Trailhead and supporting infrastructure	$5,000	$50,000	Shelter and seating
	Subtotal	$33,000	$330,000	
	Con O'Keefe Park Total (ex GST)			**$363,000**
Terry Reserve (Part of)	Pump Track	$40,000	$400,000	Approx 500sqm riding surface
	Jump Park	$46,000	$460,000	4 x approx. 80lm jump lines
	Skills Trail	$20,000	$200,000	400lm trail and features
	XC Trail (Return Trail)	$7,000	$70,000	100lm trail
	Trailhead and supporting infrastructure	$15,000	$150,000	Shelter and furniture and pavement
	Subtotal	$128,000	$1,280,000	
	Terry Reserve (Part of) Total (ex GST)			**$1,408,000**

Table 10. Costings (ex GST) based on recommendations

FACILITY SCALE	BIKE PLAYGROUND	JUMP TRACK	LEARN TO RIDE	PUMP TRACK	SKILLS TRACK	XC TRAIL	FLOW TRAIL
COMMUNITY	$165-220K	$100-150K	$150-220K	$200-250K	$90-110K	$70/m	$200-400/m
LOCAL	$220-330K	$150-300K	$220-330K	$250-400K	$110-160K	$70/m	$200-400/m
REGIONAL	$330-550K	$300-600K	$330-550K	$400-650K	$160-275K	$70/m	$200-400/m
STATE	$550K+	$600K+	$550K+	$650K+	$275+	$70/m	$200-400/m

Table 11. Costing range (ex GST) based on facility type and scale (indicative cost for planning, design and construction, displayed in thousands. Excludes supporting infrastructure and landscaping)

A.4 ONGOING COSTS

Once a bike facility is established, it is essential to understand the ongoing upkeep required to maintain the facility to a safe and functional condition. A management plan should be developed for each site prior to development. This will outline required maintenance, resources, annual budgets and asset lifespan information. It is estimated that bike facilities outlined in this assessment if designed and constructed to best practice principles, meeting the required tolerances and specifications of current industry standards, will have a functional life of approximately fifteen years before major repairs, renovation or renewal is needed.

Over time, the facility will be exposed to user wear and tear, environmental impacts and natural weathering. These factors impact the asphalt, steel, timber, surface treatments, painting and other components. Regular maintenance of these facilities is extremely important for their function, to remain relevant, safe and prolong facility life.

Industry experience suggests the following guides for ongoing costs, note these estimates do not include maintenance for landscaped areas or parkland context.

	% OF ORIGINAL COST	TASKS
Ongoing maintenance (annual)	1-3%	Ongoing maintenance including minor repairs, inspecting for defects and ensuring facility is safe.
Renovation (5 years)	3-5%	Major renovation to rectify any significant issues
Renovation (10-15 years)	5-10%	Major renovation to rectify any significant issues
End of life (20 years)	100% plus inflation	Full replacement

Table 12. Ongoing maintenance rates

Image 198. Albany Youth Challenge Park. Photo: Albany City Council