

# FEASIBILITY ASSESSMENT OF THE LAKE JINDABYNE 'AROUND THE LAKE' TRAIL EXPERIENCE

May 2022

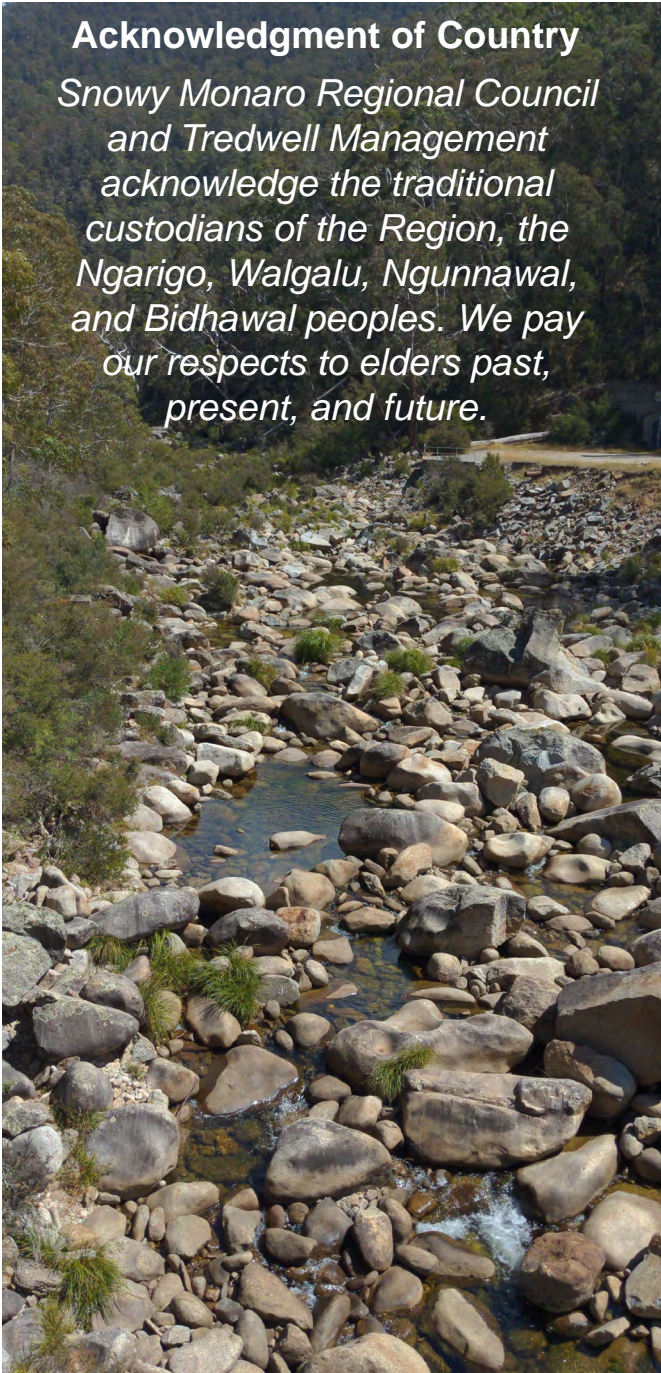
**TREDWELL**

 **SNOWY MONARO  
REGIONAL COUNCIL**



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*Snowy Monaro Regional Council  
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acknowledge the traditional  
custodians of the Region, the  
Ngarigo, Walgalu, Ngunnawal,  
and Bidjawal peoples. We pay  
our respects to elders past,  
present, and future.*



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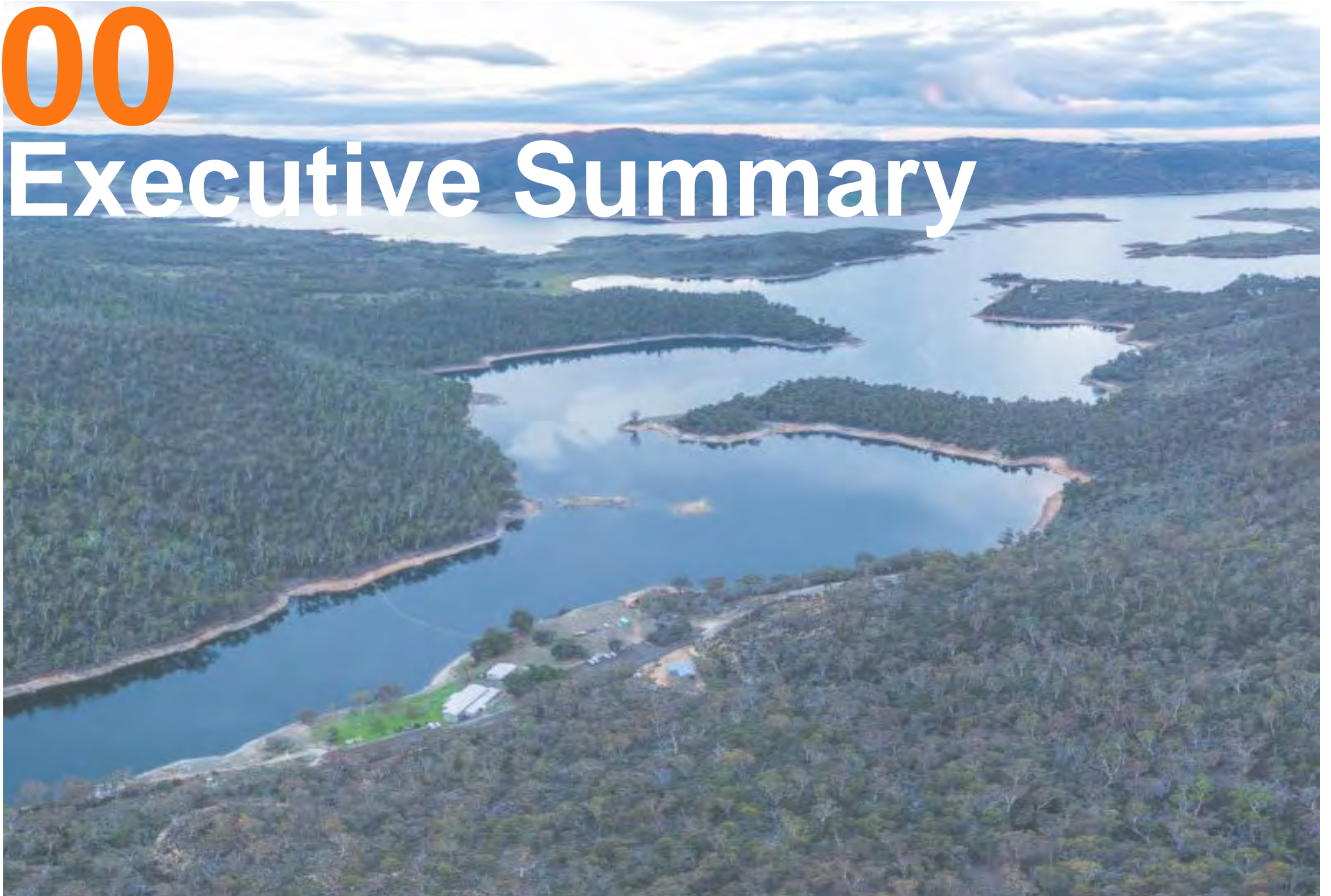
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# Executive Summary



## Executive Summary

The Snowy Monaro Regional Council (SMRC) is home to a diverse variety of trail experiences and users, with a range of landscapes and heritage features offering great potential as destinations for trail developments. Local and state government authorities, along with other land managers across the region, have contributed to the development of recreational trails in recent years, and a wide range of concepts have been proposed to Council by the community.

A key component of the scope for the Snowy Monaro Regional Trails Masterplan (Vol I) is to prepare a feasibility assessment of the Lake Jindabyne 'Around the Lake' Trail Experience. This is to ensure that Council is well informed about the opportunities and constraints associated with this trail concept, and that the project is appropriately prioritised with consideration of all trail opportunities across the region.

A major project is underway to provide a connected 60km walk/bike trail experience around the southern half of the lake, between Creel Bay and Kalkite. The project will be delivered in stages over a four-year period with final completion in July 2024. This project has been awarded \$11.8 million funding by the Regional Growth-Environment and Tourism fund, funded through Restart NSW.

There is no current plan in place for the connection of this trail between Kalkite and Creel Bay via the northern extent of Lake Jindabyne. While some options had been previously explored at a high level, additional investigations were required to

understand the constraints and opportunities associated with the northern section of the lake, and assessment of options to deliver an 'around the lake' experience. This is the project driver behind this Feasibility Assessment.

The five options considered in this Feasibility Assessment were:

A) Foreshore Shared Trail: A shared trail along the lake's edge, providing access to the northern extent of the Lake Jindabyne foreshore. Approximately 32km.

B) Iconic Backcountry Ride: A mountain bike trail incorporating the Lake Jindabyne foreshore, high country and the Snowy Plains. Approximately 66km.

C) Water-Based Transport Link: A water-based transport service linking key destinations of the Lake Jindabyne Shared Trail (e.g. Kalkite and Creel Bay) across the lake.

D) Gravel Ride Route: A marked route for cyclists along roads and management trails between Kalkite and Creel Bay, utilising existing Gungarlin Campground and vehicle bridges over the Eucumbene and Snowy Rivers. Approximately 80km.

E) Status Quo: Maintaining the Lake Jindabyne Shared Trail (Southern Section) which terminates at Kalkite in the east and Creel Bay in the West. Anticipated completion: July 2024.

The process for assessing these options included site appraisal, background review, user markets and trends, consultation, review of best-practice trail planning and management, and an options analysis.

In the options analysis, each option was subject to a SWOT (Strengths, Weaknesses, Opportunities and Threats) Analysis, followed by a Multi Criteria Analysis to provide an objective review against a set of criteria based on project objectives.

Key criteria used in this assessment included:

1. Connect Kalkite and Creel Bay  
Provision of a connected trail experience around Lake Jindabyne.
2. Iconic visitor drawcard  
Contribution to the region as a compelling tourism destination.
3. Community and user group support  
Likelihood of the development to be supported by the community and trail user groups.
4. Broad user market  
Attraction of a broad range of users and large market segment.
5. Maintenance of high quality experience  
Ability to maintain service levels which ensure high quality trail experience with well maintained infrastructure.
6. Flexible experience options  
Ability for trail users to tailor the experience to suit time, ability, fitness and personal appeal.

## 00 Executive Summary

7. Trail user safety  
Ability to effectively manage risks to personal safety.
8. Environment and cultural heritage  
Likelihood of delivery with mitigation of impacts to environmental and cultural heritage values.
9. Integration with facilities  
Integration with existing facilities/destinations, townships and contribution to the broader trail network.
10. Snowy Mountains SAP Draft Master Plan  
Alignment with initiatives identified in the *Snowy Mountains SAP Draft Master Plan* (2021).
11. Land owner support and collaboration  
Likelihood to gain support, approval and collaboration from landowners.
12. Snowy Hydro assets and operations  
Likelihood of delivery with mitigation of impacts to Snowy Hydro assets and/or operations.
13. SMRC organisational capacity  
Likelihood of SMRC having capacity to effectively deliver and manage as lead agency.
14. Private sector investment  
Likelihood of attracting private sector investment.

Each criteria was given a rating out of three for each of the five options. A higher score indicates higher achievement of the criteria. Anticipated project costs were also considered.

Scores achieved for each of the options were:

A) Foreshore Shared Trail:	21
B) Iconic Backcountry Ride:	25
C) Water-Based Transport Link:	34
D) Gravel Ride Route:	23
E) Status Quo:	32

Preferred option: C) Water-Based Transport Link.

It is recommended that the NSW Government, in partnership with SMRC, and in consultation with key stakeholders, undertake further investigations into the viability of establishing a water based transport service on Lake Jindabyne, which would service recreational trail users as well as other members of the public. While this option has been determined as the most suitable option to deliver a Lake Jindabyne 'Around the Lake' trail experience, further investigations are required into the technical and financial viability. It is expected that the operation of the water based transport service would be most viable as a commercial venture, with the potential need for public financial support during the initial phases of development. As demonstrated in the review of water taxi case studies (refer Appendix A), the majority of successful services in comparable contexts are privately operated.

As well as recreational benefits, the development of water based transport on Lake Jindabyne would also bring benefits to the region associated with improved connectivity and mobility (e.g. taking pressure off roads such as Kalkite Road and Kosciuszko Road), and complementing the region's tourism offerings with experiences such as scenic cruises, private charters and lake tours. It is anticipated that the water based transport would complement many of the developments which are planned for the region as part of the Snowy Mountains State Activation Precinct.

From a recreational perspective, the concept should be designed to transport trail users and their bikes between Jindabyne and the terminus points of the Lake Jindabyne Shared Trail at Creel Bay and Kalkite. The service may also have interim stops, such as at East Jindabyne and Western Lake Jindabyne. The most appropriate vessel and service options will depend upon the specific operator and stakeholder requirements.

The service is likely to be most effective if operated by a private operator on a user pays basis. Government can support this endeavour through undertaking feasibility studies, pilot projects, preparation of commercial prospectus/request for proposals, determining minimum standards, planning and establishing support facilities, subsidising operations, and procuring vessels.



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It is envisaged that the service would operate on a schedule during peak seasons (i.e. summer tourism season), and be available on-demand during other periods.

The level of infrastructure required to facilitate this concept will be heavily dependent on the type of vessel selected. Access/egress points may require boat ramps, pontoons or platforms, and will require support facilities such as car parking, ticketing areas, amenities and signage.

It is recommended that:

1. SMRC formally propose the concept of a water-based transport link across Lake Jindabyne to key stakeholders (i.e. Snowy Hydro, NPWS, NSW State Government) to seek in-principle support and understand key stakeholder requirements of such a service.
2. SMRC advocate for the inclusion of water-based transport on Lake Jindabyne as a component of the Snowy Mountains SAP Masterplan, specifically to connect Kalkite, Creel Bay and Jindabyne.
3. SMRC, in partnership with the NSW Government, commission a technical and financial feasibility study for the concept of water-based transport on Lake Jindabyne (specifically linking Kalkite, Creel Bay and Jindabyne).

A wide range of vessel and service options should be considered, including the use of new and emerging technologies, and provision of iconic and unique tourism experiences.

Consideration should be given to the following:

- Vessel requirements  
E.g. ability to operate on Lake Jindabyne with water level fluctuations, access/egress/docking, fuel/electric charge sources, storage).
- Service level requirements  
E.g. service routes and schedules, frequency of service, seasonality, safety requirements, quality assurance.
- Capital investment  
E.g. access/egress infrastructure and support facilities.
- Operational costs of service  
E.g. labour/staffing, vessel maintenance, fuel, insurances, licence fees, marketing.
- Business model/revenue  
E.g. service fee structure, subsidy options, packaged tourism offerings.
- Demand/patronage estimation  
E.g. patron capacity, complementary products, target markets, market trends.
- Broader context e.g. Final Snowy Mountains SAP Masterplan, roles and requirements of government agencies, Snowy Hydro operational requirements, *Kosciuszko National Park Plan of Management*.

A wide range of destinations utilise water-based transport to provide access for transport and tourism purposes. Many of these transportation vessels and services cater for the needs of recreational trail users, including cyclists and their bikes.

There is no 'one size fits all' approach to the design and specification of water based transport vessels and services. Examples are provided to support the identification of the Lake Jindabyne Service's desired characteristics and options available.

The following range of examples of different water-based transport options are highlighted:

- Lake Wānaka Water Taxi, NZ
- Bay2Bay Water Taxi, Taupō, NZ
- Picton Water Taxi, Queen Charlotte Sound, NZ
- Abel Tasman Sea Shuttle, Abel Tasman National Park, NZ
- Lake St Clair Ferry Service, Cradle Mountain-Lake St Clair National Park, Tasmania
- Freycinet Aqua Taxi, Coles Bay, Tasmania
- Lakes Explorer, Lakes Entrance, Victoria
- Aquaduck, Gold Coast and Sunshine Coast, Queensland
- Perth Waterbike Adventures, Western Australia
- Hovertravel, Isle of Wight, United Kingdom



01

# Introduction






## Project Overview

The Snowy Monaro Regional Council (SMRC) is home to a diverse variety of trail experiences and users, with a range of landscapes and heritage features offering great potential as destinations for trail developments. Local and state government authorities, along with other land managers across the region, have contributed to the development of recreational trails in recent years, and a wide range of concepts have been proposed to Council by the community.

This Feasibility Assessment has been developed to ensure that the Snowy Monaro Regional Council and the community are well informed about the opportunities and constraints associated with concept of the Lake Jindabyne 'Around the Lake' Trail Experience.

## Scope and Approach

The development of the feasibility assessment includes the following key components:

- 
- Site visits and appraisal
  - Review of background documents and strategic context
  - Understanding of market demand and trends
  - Consultation with the community and key stakeholders
  - Guidance on best-practice trail planning and development processes
  - Assessment of various options to deliver a Lake Jindabyne 'Around the Lake' Trail Experience
  - Recommendation on pursuing the opportunity
  - Development of a concept which addresses the recommended option and next steps

## Project Background

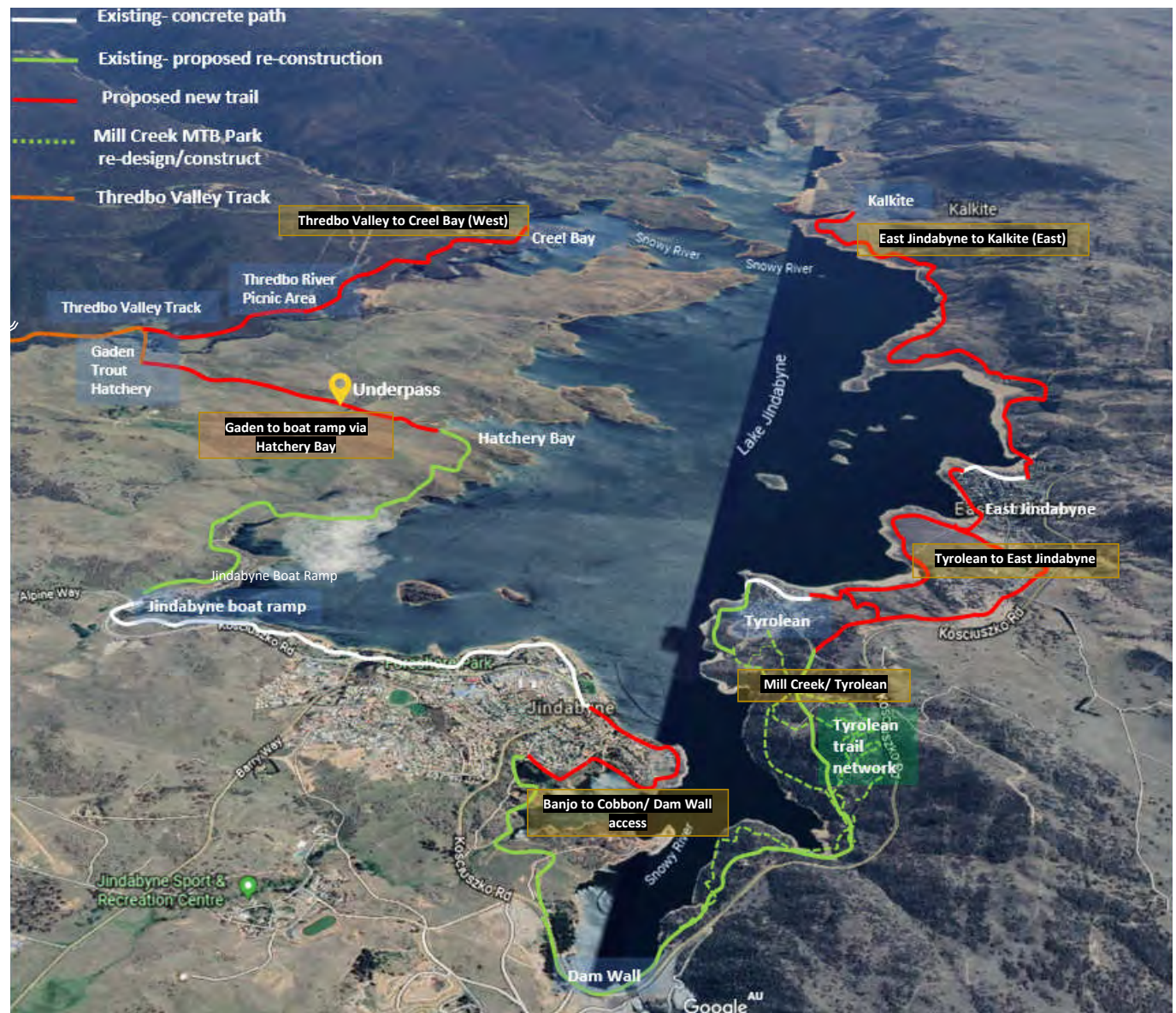
### Lake Jindabyne Shared Trail (Southern Section)

A major project is underway to provide a connected 60km walk/bike trail experience around the southern half of the lake, between Creel Bay and Kalkite via locations such as Gaden Trout Hatchery, Jindabyne, Tyrolean Village and East Jindabyne, as shown on the following map. The trail design will target mountain bike riders, walkers and trail runners.

The project involves extending the existing trail network to Kalkite Village on the East side of the lake and the Thredbo Valley Track to both Creel and Hatchery Bay on the West. Project funding will also cover improvements to the existing trail network along with supporting infrastructure such as car parking, trailheads and visitor day-use areas.

The project will be delivered in stages over a four-year period with the final completion in July 2024.

This project has been awarded \$11.8 million funding by the Regional Growth-Environment and Tourism fund, funded through Restart NSW. The funding program provides funding for infrastructure that supports regional economic growth, creates local employment opportunities and drives growth in the visitor economy.





The Lake Jindabyne Shared Trail (Southern Section) project has six components, which are:

## 1. Gaden to boat ramp via Hatchery Bay

This section formalises the link between the Thredbo Valley Track and the Lake Jindabyne Shared Trail. NPWS and Council have been working together to create the interlinking trail network which creates a 50km ride between Thredbo and Jindabyne.

The Hatchery Link will also undergo trail maintenance and upgrade works.

## 2. Banjo to Cobbon/Dam Wall Access

Investigation of options for trail connection via foreshore and/or existing public easements between Banjo Patterson Park and Cobbon Crescent.

Existing pedestrian access across Jindabyne Dam will also be designed and upgraded for shared walker and rider.

## 3. Mill Creek/Tyrolean

This section will include the addition of car parking and upgrades to parts of the trail network. A concept plan for trail improvements will be prepared with community input.

## 4. Tyrolean to East Jindabyne

The trail corridor has been determined and planning consent is complete for stage 1. This area will also require a trailhead/car parking and a day-use area. The site location is yet to be determined.

## 5. East Jindabyne To Kalkite

13km shared-use trail. Proposed trail design will be easy (level green classification) MTB, walking and trail running (grade 3).

## 6. Thredbo River Picnic Area to Creel Bay

4.5km of shared-use trail to Creel Bay. NPWS is working on the extension between The Lower TVT at Gaden to The Thredbo River Picnic Area.

There is no current plan in place for the connection of this trail between Kalkite and Creel Bay via the northern extent of Lake Jindabyne. While some options have been explored at a high-level, additional investigations are required to understand the constraints and opportunities associated with the northern section of the lake, and assessment of options to deliver an 'around the lake' experience. This is the project driver behind this Feasibility Assessment.

## ‘Around the Lake’ Trail Experience Options

The options being considered in this Feasibility Assessment are:

### A) Foreshore Shared Trail

A shared trail along the lake's edge, providing access to the northern extent of the Lake Jindabyne foreshore. Approximately 32km.

### B) Iconic Backcountry Ride

A mountain bike trail incorporating the Lake Jindabyne foreshore, high country and the Snowy Plains. Approximately 66km.

### C) Water-Based Transport Link

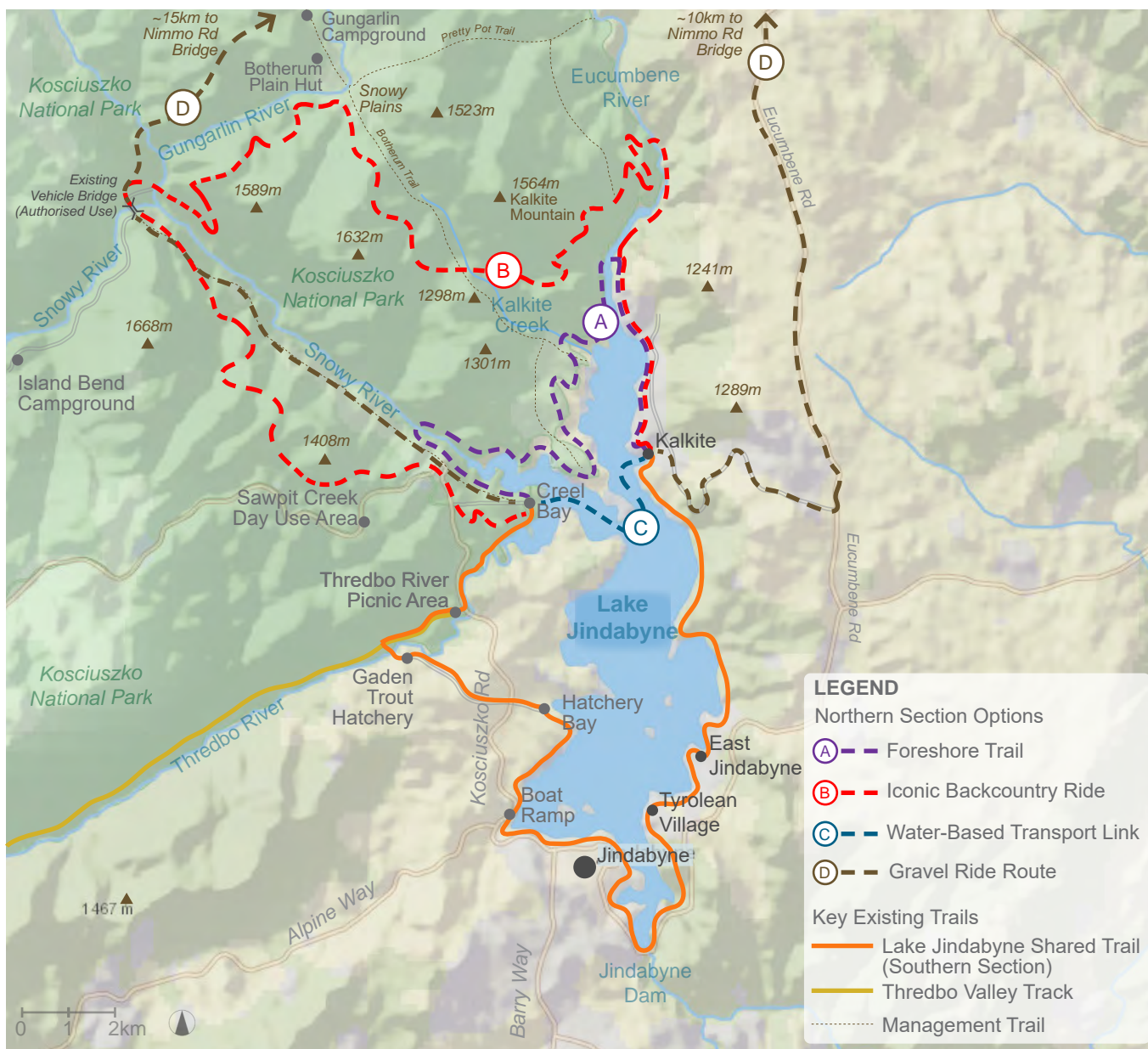
A water-based transport service linking key destinations of the Lake Jindabyne Shared Trail (e.g. Kalkite and Creel Bay) across the lake.

### D) Gravel Ride Route

A marked route for cyclists along roads and management trails between Kalkite and Creel Bay, utilising existing Gungarlin Campground and vehicle bridges over the Eucumbene and Snowy Rivers. Approximately 80km.

### E) Status Quo

Maintaining the Lake Jindabyne Shared Trail (Southern Section) which terminates at Kalkite in the east and Creel Bay in the West. Anticipated completion: July 2024.





02

# Site Appraisal





### Topography

The rugged topography of the land to the north of Lake Jindabyne is dominated by a series of mountains, ridges and intervening valleys with wild alpine rivers. The Snowy and Eucumbene Rivers are two of the most significant streams in the broader region and are key components in the Snowy Mountains Hydroelectricity Scheme.

The Snowy River flows into Lake Jindabyne from the north west, to the south of Creel Bay, with an approximate width near the lake's edge of 145m, narrowing to approximately 65m from 1500m upstream to the west.

The Eucumbene River flows into Lake Jindabyne from the north, with a width near the lake's edge of more than 300m, narrowing to approximately 65m from 3500m upstream to the north.

The relief of the area between the Snowy and Eucumbene Rivers is approximately 620m. The highest peak reaches an elevation of more than 1600m while the edge of Lake Jindabyne is at approximately 980m above sea level. The most prominent and known peak is Kalkite Mountain which overlooks Lake Jindabyne from the north west, with a peak elevation of 1564m.

The area on the eastern side of the Eucumbene River, north of Kalkite, is less mountainous, with peaks reaching elevations of up to 1309m.

The area's topographical profile is illustrated on the map to the right, as well as the digital elevation model and 3D terrain view on the following page.

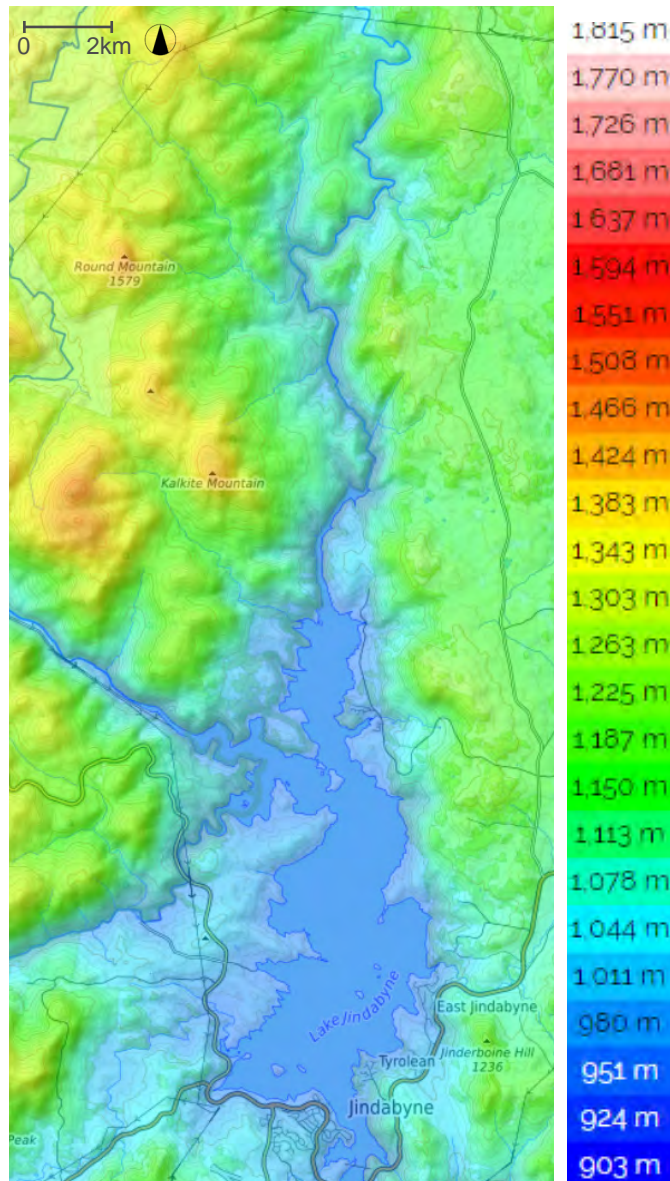
Topographic Map





## 02 Site Appraisal

Digital Elevation Model



3D Terrain View





### Land Tenure

The areas surrounding the northern extent of Lake Jindabyne are subject to the following land tenures, as shown in the map to the right:

#### National Parks and Wildlife Service:

The land to the north west of Lake Jindabyne is entirely contained within Kosciuszko National Park and is subject management in line with the Kosciuszko National Park Plan of Management.

#### Private Freehold:

The land between Kalkite and Nimmo Road (i.e. along the eastern side of the Eucumbene River) is entirely private freehold land. Between Kalkite and the Eucumbene Crossing proposed in Option B, there are more than 10 parcels of private freehold land.

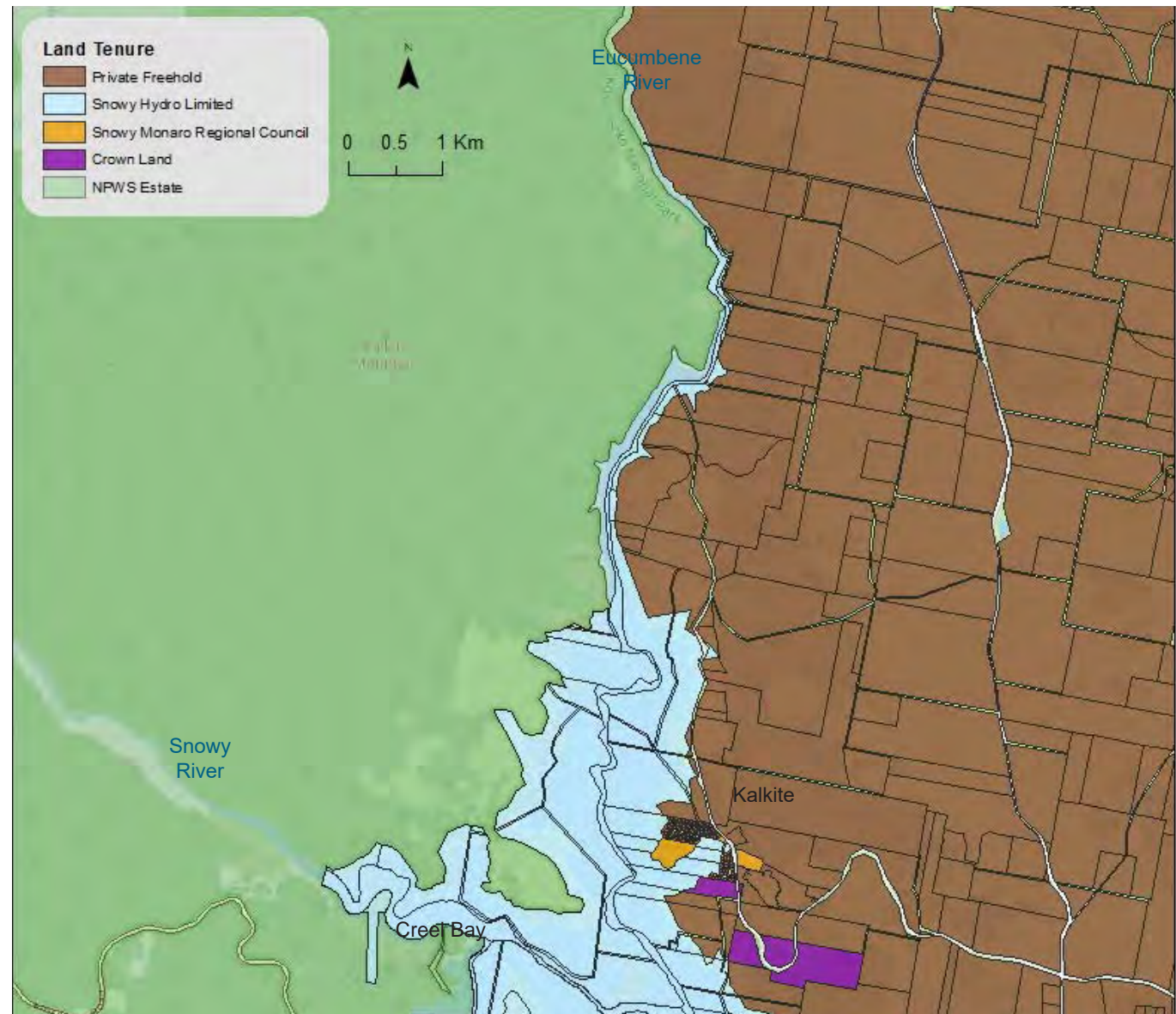
#### Snowy Hydro Limited:

Lake Jindabyne itself and the direct foreshore area is managed by Snowy Hydro Limited for the purpose of operating the Snowy Mountains Hydroelectricity Scheme. Snowy Hydro allows access to the lake and its foreshore for recreation (as exemplified in the Lake Jindabyne Shared Trail (Southern Section)). The lake and rivers are managed in partnership with the NSW Roads and Maritime Service.

#### Snowy Monaro Regional Council:

SMRC manage a number of small parcels/ corridors of land near Kalkite Village for the purpose of open space and recreation.

Land Tenure Map





## Existing Facilities and Access






The areas surrounding the northern extent of Lake Jindabyne are very remote. Existing facilities and access routes are shown on the map to the right.

There is an existing vehicle bridge across the Snowy River along the Island Bend Fire Trail, approximately 11km west of Creel Bay. This bridge is utilised for management access and for the operations of Snowy Hydro Limited. There is also an existing vehicle bridge across the Eucumbene River approximately 17km north of Kalkite.

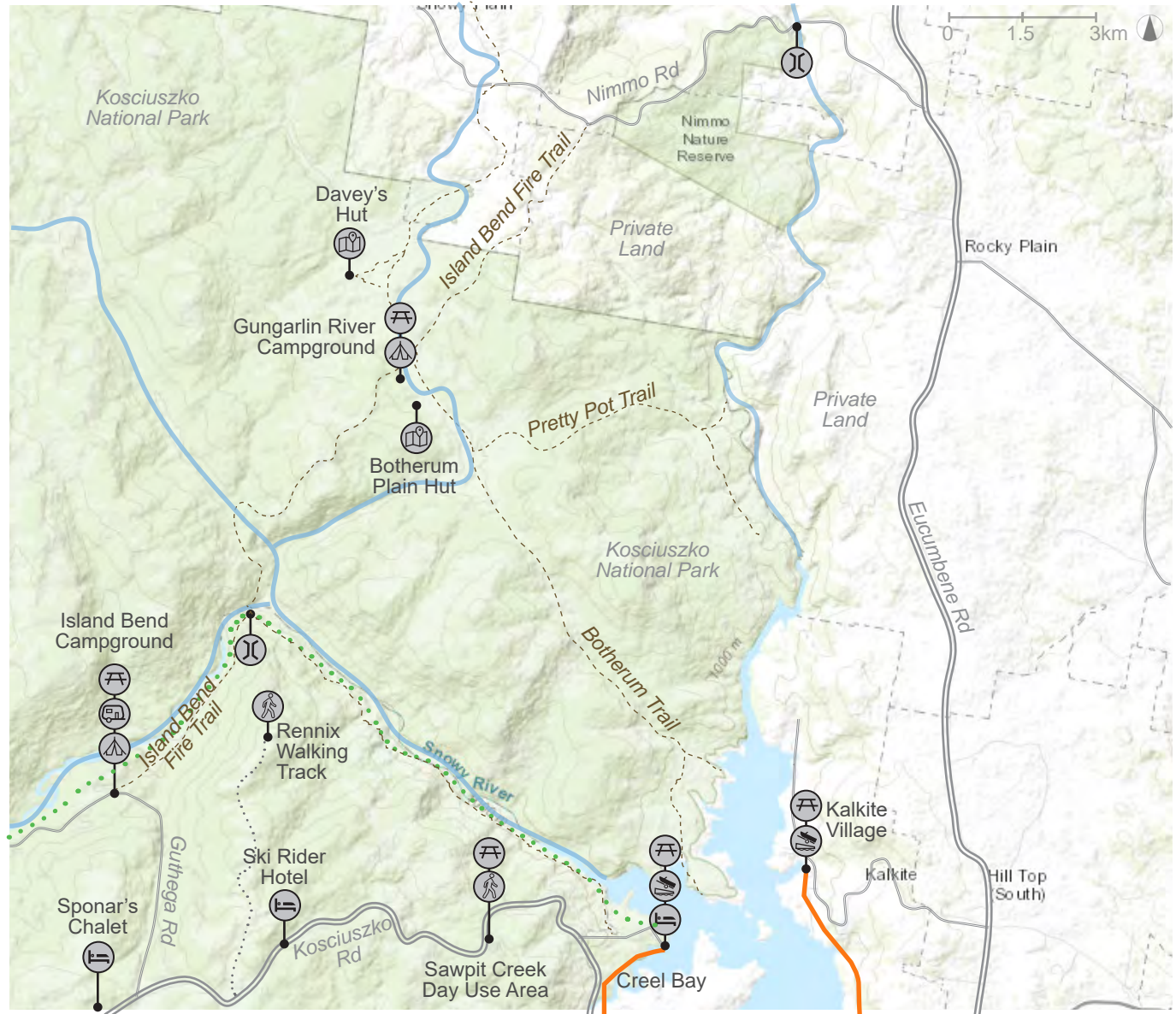
Accommodation, walking tracks and day use facilities are located along Kosciuszko Road, and Island Bend Campground is accessed via Guthega Road which caters for camping and recreational vehicles (RVs). The remote Gungahlin River Campground is accessible via 4WD vehicle along the Island Bend Fire Trail, and is nearby the heritage features Davey's Hut and Botherum Plain Hut.

There are no public facilities along the private land between Kalkite and Nimmo Road.

### LEGEND

	Management Trail
	Road
	Lake Jindabyne Shared Trail (Southern Section)
	Snowy Valley Walk (Proposed)
	Campground
	RV Sites
	Accommodation
	Heritage Hut
	Boat Ramp
	Bridge
	Walking Track/s
	Picnic Area

Existing Facilities and Access Routes Map





### Existing Usage

The areas surrounding the northern extent of Lake Jindabyne are used for recreational fishing, horse riding, mountain bike riding, and to a lesser extent walking. Due to the rugged and remote nature of the area, it is primarily suited to those who are physically fit and self sufficient in remote natural areas.

Beyond the management tracks, there are no recreational trails or support facilities provided, except for amenities at the remote Gungarlin River Campground.

A review of Strava's Global Heatmap provides an indication of where bike riders and walkers/runners are tracking their activities via the popular Strava app. The heatmap shows 'heat' made by aggregated, public activities over the previous two years. As is evident in the maps to the right, a number of people are using the management tracks (such as Island Bend Fire Trail) and public roads (such as Eucumbene Road and Kosciuszko Road). The Botherum Management Trail appears to be a popular route for cyclists to access Lake Jindabyne.

Cycling appears to be more popular in this section of the park than walking which is expected in such a vast and remote area. Walking and cycling does not appear to be commonly occurring beyond the management trails.

Strava Heat Map (June 2021) Cycling



Strava Heat Map (June 2021) Walkers/Runners





### Constraints and Opportunities

The identification of positive and negative control points is an important step in the process of locating a sustainable trail alignment.

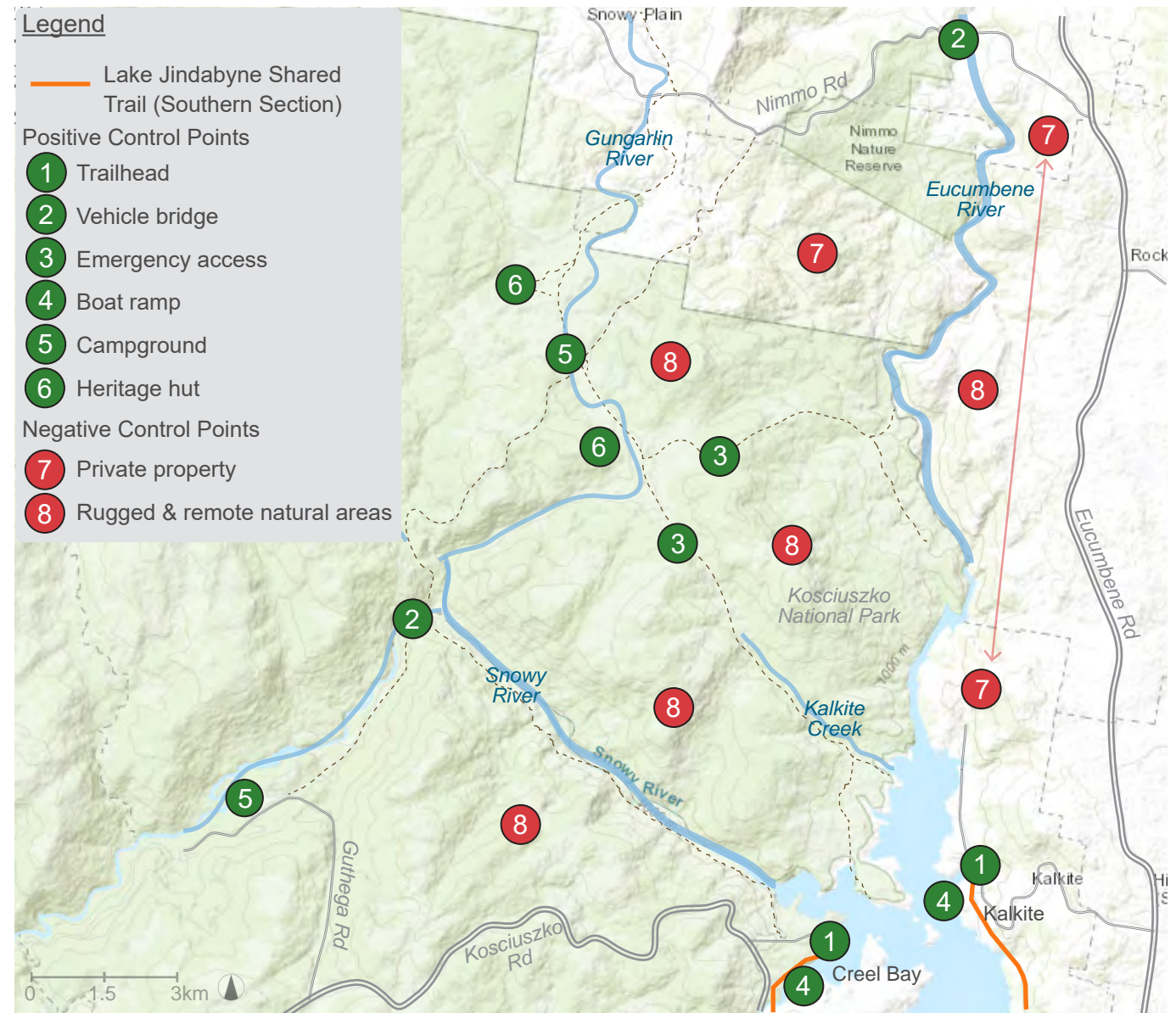
Positive control points (i.e. opportunities) are places that trail users will want to visit, and locations/facilities that support the trail.

Negative control points (i.e. constraints) are places that the trail should avoid.

Control points around the northern extent of Lake Jindabyne have been identified in the following map, based on the site appreciation, consultation and background review undertaken as part of the Feasibility Assessment process.

These control points have been identified at a high level to inform the options analysis and the development of the concept and recommendations. Identification of control points should be revisited in greater detail during corridor evaluation - prior to detailed design occurring. This should include information sourced from on-ground site assessments (including due diligence for environmental and cultural heritage impacts) and consultation with all relevant project stakeholders, particularly land owners.

Control Points Map



03

# Background Review





## 03 Background Review

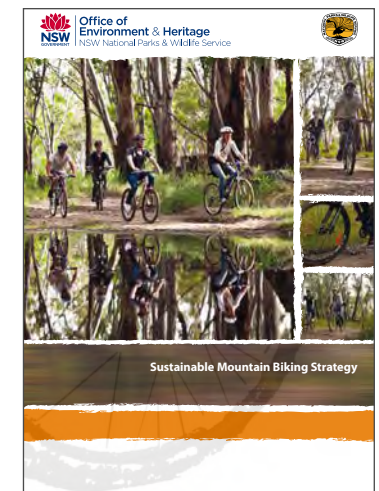
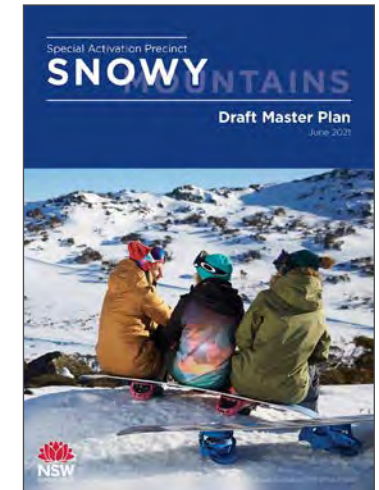
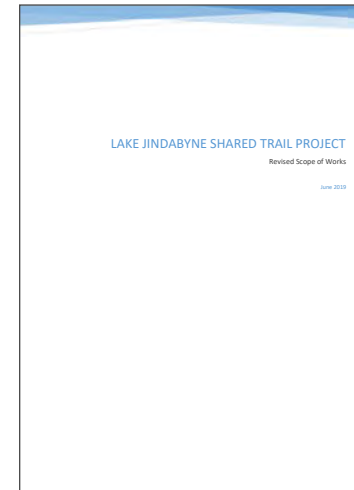
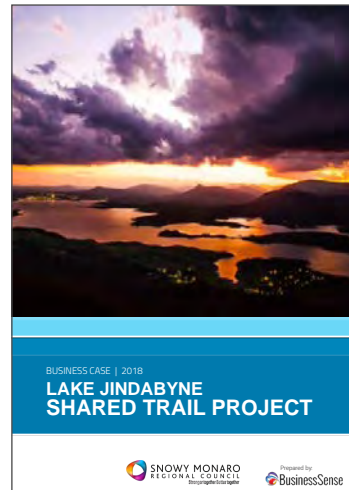
### Key Documents

Significant levels of planning have been undertaken which relate to Lake Jindabyne and the 'Around the Lake' Trail Experience.

The following documents have been reviewed to provide information relating to previous planning and strategic context for the options being assessed:

- Lake Jindabyne Shared Trail Business Case (SMRC, 2018)
- Revised Costing and Map for Jindabyne Lake and Backcountry Experience (SMRC, 2019)
- Snowy Mountains Special Activation Precinct draft Master Plan (NSW Government, June 2021)
- Kosciuszko National Park Plan of Management (NSW NPWS, 2006) and Amendments (2010 and 2014) and draft Amendments (2021)
- Kosciuszko National Park Cycling Strategy (NSW NPWS, 2017)
- NSW NPWS Cycling Policy
- *Sustainable Mountain Biking Strategy* (Office for Environment and Heritage, 2011)
- *Go Jindabyne Mobility and Connectivity Study* (2019)
- *Lake Jindabyne Southern Foreshore Management Plan* (2005)

Relevant information from each of the background documents is outlined over the following pages.



## 03 Background Review

### Review of Key Documents

#### Lake Jindabyne Shared Trail Business Case (2018)

In 2018, Snowy Monaro Regional Council developed a *Business Case for the Lake Jindabyne Shared Trail*. The Business Case was developed for a proposed shared trail circumnavigating Lake Jindabyne, as shown in the figure to the right.

This report builds the case for the shared trail, particularly highlighting the trail's role in linking Creel Bay, Kalkite, East Jindabyne and Tyrolean Village to the service hub of Jindabyne, and linking with Thredbo and Crackenback via the Thredbo Valley Track (TVT).

The core components of the Project include:

- Gaden Trout Hatchery to Jindabyne (TVT Link)
- Lake Jindabyne Southern Network (Jindabyne to Creel Bay and Kalkite)
- Lake Jindabyne Northern Network (Kalkite to Creel Bay)

#### Funding Received

The project's funding application received \$11million of funding through the NSW Regional Growth Environment and Tourism Fund. The funding was allocated to the delivery of the Lake Jindabyne Shared Trail between Creel Bay and Kalkite via Jindabyne (i.e. the Southern Section). It was determined that the full circumnavigation of the lake (i.e. the Northern Section) requires further investigation along with community and stakeholder consultation.

Initial Lake Jindabyne Trail Concept (2018)



#### Estimated Costs - Northern Section

Key costs which are outlined in this business case for the Lake Jindabyne Northern Network are:

- Detailed Trail Design: \$142,914
- Trail Construction Kalkite to Eucumbene River (Segment 2, 8.8km): \$352,000
- Bridge Construction Eucumbene River: \$1,610,000
- Trail Construction Eucumbene River to Snowy River (Segment 3, 16.4km): \$656,000
- Bridge Construction Snowy River: \$1,040,000
- Trail Construction Snowy River to Creel Bay (Segment 4, 7km): \$280,000

These components equate to \$4.24M, acknowledging that detail design would further refine the project costs.

#### Management and Maintenance

It is suggested that ongoing trail maintenance budgets will require \$1,000 to \$1,500 per kilometre of trail per annum.

The proposal stated that on completion, the Project it would be handed over to SMRC's Recreational Manager, who would be responsible (supported by the Assets Manager) for the ongoing management and maintenance of the trail. Hence, Council would be responsible for the allocation of adequate budget for operations, maintenance and depreciation.



## 03 Background Review

### Jindabyne Lake and Backcountry Experience (2019)

In 2019, SMRC worked with specialist mountain bike trail planners to develop an alternate concept for the northern section of the Lake Jindabyne Trail, with cost estimates. The concept and the estimated cost breakdown are shown in the figures to the right.

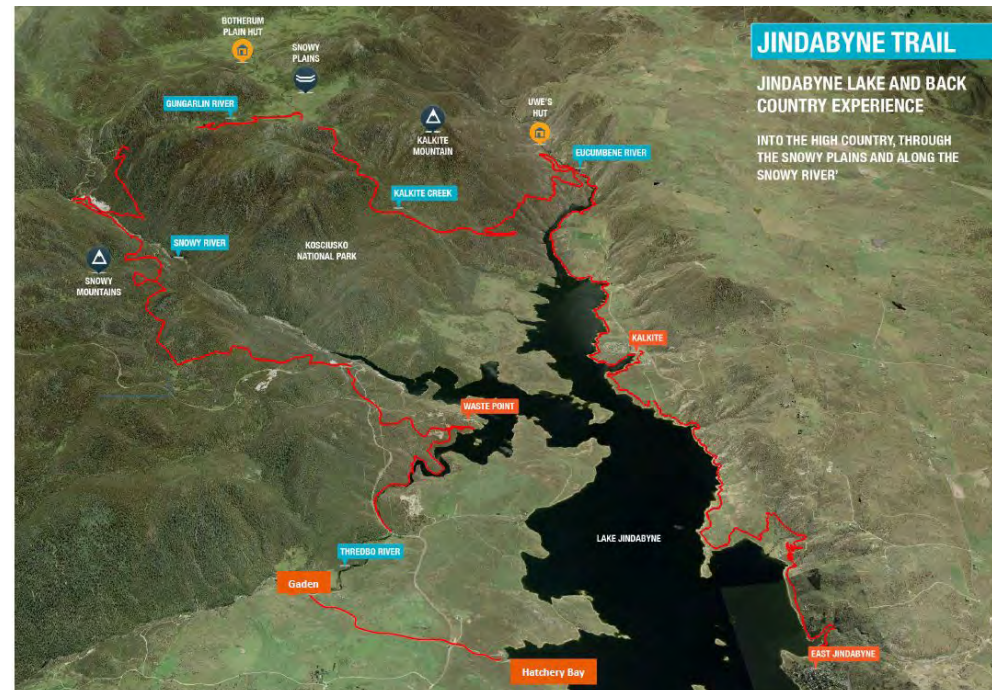
This concept proposes a 'wilderness backcountry riding experience' from the edge of Lake Jindabyne near Kalkite, into the high country, through the Snowy Plains and along the Snowy River linking with Creel Bay. Such a trail is estimated to be 66km long (between Kalkite and Creel Bay) cost approximately \$8M to deliver.

This concept was informed through a helicopter aerial survey to gain further understanding of the topographical constraints of the rugged area.

This revised concept was developed with the intention to:

- Provide a more iconic and distinct experience - a different offering to the 60km foreshore trail provided in the southern section
- Utilise existing bridges where possible - i.e. the Snowy Hydro vehicle bridge across the Snowy River
- Avoid as many major waterway crossing sites as possible - achieved through traversing the high country at a higher elevation
- Avoid traversing close to sensitive Snowy Hydro infrastructure

Revised Concept for Northern Section - Backcountry Experience



Cost Estimates for Northern Section - Backcountry Experience

Trail Section	TRAIL LENGTH		BRIDGES AND CROSSINGS					TOTAL BRIDGES		per m		TOTAL
	Length of Trail	Cost	20-40m Large Bridge	15-20m Small Bridge	10-15m Major Crossing	5-10m Large Crossing	0-5m Minor Crossing			Boardwalk	Culverts	
Rates		\$ 50	\$ 300,000	\$ 150,000	\$ 70,000	\$ 30,000	\$ 7,000			\$ 700	\$ 2,000	
Kalkite to Eucumbene Crossing	10300	12360	1	3	7	11		22		100	5	
Eucumbene Crossing to Kalkite Mountain	10800	12960		1		2	9	12		100	5	
Kalkite Mountain to Snowy Plain	7200	8640			1	2	4	7		100	5	
Snowy Plain to Snowy River	10,000	12000			2	5	4	11		100	5	
Snowy River to Hydro Lookout	12700	15240		1	1	7	6	15		100	5	
Hydro Lookout to Waste Point	4000	4800					5	5		100	5	
<b>Total Construction QTY</b>	<b>66000</b>		<b>1</b>	<b>5</b>	<b>11</b>	<b>27</b>	<b>28</b>	<b>72</b>		<b>600</b>	<b>30</b>	
<b>Total Construction COST</b>		<b>\$ 3,300,000</b>	<b>\$ 300,000</b>	<b>\$ 750,000</b>	<b>\$ 770,000</b>	<b>\$ 810,000</b>	<b>\$ 196,000</b>	<b>\$ 2,826,000</b>		<b>\$ 420,000</b>	<b>\$ 60,000</b>	<b>\$ 6,606,000</b>
Project Management	9%											\$ 594,540
Cost escalation to 2021	2%											\$ 132,120
Sub Total All Costs												\$ 7,332,660
Contingency on all costs	10%											\$ 733,266
<b>GRAND TOTAL</b>												<b>\$ 8,065,926</b>

## 03 Background Review

### Snowy Mountains SAP draft Master Plan (June 2021)

In late 2019, the NSW Government announced the establishment of a Special Activation Precinct (SAP) in the Snowy Mountains, focusing on Jindabyne, and Kosciuszko National Park.

SAPs are being delivered by the NSW Government's \$4.2 billion Snowy Hydro Legacy Fund, following the sale of the Snowy Hydro Scheme to the Commonwealth Government.

The SAP aims to grow the Snowy Mountains' visitor economy into a year-round destination by stimulating economic development and investment. It aims to leverage the region's natural beauty and unique climate to improve tourism amenity, and invest in infrastructure and services.

Components of the draft Master Plan which may impact upon the feasibility of the Lake Jindabyne Around the Lake Trail are outlined in the table to the right.

The draft Master Plan has been released for public exhibition until 12 August 2021.

#### Key Information

While the SAP draft Master Plan acknowledges the development of the Lake Jindabyne Shared Trail (Southern Section) it does not acknowledge the concept for the Northern Section of the trail.

Component of SAP draft Master Plan	Implication on Lake Jindabyne Trail
<b>Jindabyne Mountain Bike and Adventure Park</b> A nationally significant Mountain Bike and Adventure Park with over 100 kilometres of purpose-built mountain bike trails for different skill sets and mountain biking types.	This development will impact on the supply and demand ratio for mountain bike experiences in the Snowy Mountains.
<b>Water Based Transport</b> Key Objective: <i>Investigate water-based transport tourism modes to connect points of interest around Lake Jindabyne.</i> The opportunity of having a pontoon and water taxi or ferry service to the Jindabyne town centre from Western Lake Jindabyne is also specifically identified.	Facilities and services for water-based transport will impact the way the Lake Jindabyne Trail is used, and contribute positively to the viability of linking key destinations via water-based transport.
<b>Development of Creel Bay/Waste Point</b> Development at Creel Bay in line with the site master plan (2019) (NPWS, 2019), including upgraded accommodation and interpretation of the site.	Development at Creel Bay will be beneficial to the Lake Jindabyne Trail, as this is a key destination/node along the route.
<b>Island Bend Campground</b> The Island Bend Campground will be upgraded, with additional accommodation facilities, providing gravel rider enthusiasts access to the management trail network, and walkers access to the proposed Snowy Valley Walk.	Island Bend may offer a suitable overnight accommodation option for the Lake Jindabyne Trail Northern Section - accessible via a spur trail (of approximately 5km each way).
<b>Snowy Valley Walk</b> A proposed walking trail along the Snowy Valley from Guthega to Lake Jindabyne.	Need to ensure that the walk and ride experiences do not negatively impact each other.



#### Long distance recreational trails connecting places & creating new adventures

1. Lake Jindabyne Shared Trail: east and west extensions designed and funded
2. Thredbo Valley Track: with new connection from Gaden Trout Hatchery to Lake Jindabyne
3. Snowy Valley Walk: new proposed trail to link Guthega to Lake Jindabyne via Snowy River
4. Snowies Iconic Walk: new trails in development to complete the walk



## 03 Background Review

### Kosciuszko National Park Plan of Management (Amended 2021)

The Plan of Management provides a framework of objectives, principles and policies to guide the long-term management of the broad range of values contained in the park, specifically including: natural, cultural and recreational values.

The Plan, as published in 2021, includes the 2014 and 2021 amendments which include references to mountain biking and shared use tracks.

The key principle that forms the foundation of this plan of management is the imperative of maintaining or improving the condition of the natural and cultural values that together make the park a special place.

The Plan acknowledges the park's recreation and tourism significance, and also identifies 'recreational use' as a potential threat to the park's values which requires close management a mitigation measures.

Key initiatives to support recreation and tourism in a sustainable manner include:

- Zoning scheme that codifies appropriate recreational activities and facilities for different parts of the park
- Managing recreational activities or sites within predetermined impact limits
- Controlling environmental impacts through permit systems for some recreational uses
- Capping bed numbers in resorts

#### Park Zoning

The park is divided into five management zones:

- **Wilderness Zone:** Wilderness areas declared under the *Wilderness Act 1987*
- **Back Country Zone:** Those parts of the park without public road access and not within declared wilderness areas
- **Minor Road Corridors:** Corridors along minor public roads and associated visitor developments
- **Major Road Corridors:** Corridors along major sealed and unsealed public roads and associated visitor developments
- **Visitor Services Zone:** Alpine resorts, development nodes and operational centres

As shown in the map below, the areas of interest for the Lake Jindabyne Trail Northern Section are within the Back Country Zone.

#### Back Country Zone

The Back Country Zone covers those parts of the park that are without public vehicular access and not included in declared wilderness areas. Generally, these places are relatively remote and display high degrees of naturalness.

Parts of the park included in this zone contain vehicular trails that are closed to the public but retained for management purposes. Most of the infrastructure associated with the operation of the Snowy Mountains Hydro-electric Scheme is located within this zone.

The management focus for the Back Country Zone is to primarily retain these parts of the park free from further development and, where appropriate, restore their ecological integrity.

Within this zone, motorised boating and various commercial recreational activities and special events are allowed in certain areas, cycling is permitted on most management trails. Horse riding, including some related commercial activities, is permitted in parts of this zone.

The Back Country Zone will be managed as relatively unmodified country within which:

- Capacity for natural ecological processes and systems to evolve in the absence of human interference is preserved and enhanced;
- Suitably experienced and equipped visitors can enjoy challenging recreational experiences in natural or natural-appearing settings.

#### Park-wide Accommodation Policy

The 2021 Amendment to the Plan of Management supports the Snowy Mountains Special Activation Precinct through allowing for the provision of additional accommodation at specific locations within the Park. One of these areas, which is in close proximity to Lake Jindabyne's northern extent is the Island Bend where it is proposed that the existing camping area is improved and the future development of cabins and glamping facilities at the site is allowed.

## 03 Background Review

### Cycling

The public roads and management trail network in the park provides a diversity of cycling opportunities through the park. The cycling experiences afforded by sealed roads such as the Alpine Way, Kosciuszko Road and Snowy Mountains Highway vary markedly from those available on the narrow, unsealed Barry Way which descends steeply into the valley of the lower Snowy River. Different again are the remote country cycling experiences available along the hundreds of kilometres of management trails within the park which are closed to motorised vehicles.

Mountain bike riding is the most popular form of cycling in the park. In the south, Thredbo Village is a hub for downhill mountain bike riding (with chairlift access) and the shared-use Thredbo Valley Track is very popular. Day trips along the management trail from Dead Horse Gap to Cascade Hut and along the old Kosciuszko Road from Charlotte Pass to Rawson Pass are also popular, as are trips along trails in the Long Plain – Cooleman Plain areas to the north.

The park is traversed by 182km of the Bicentennial National Trail (BNT). Within the park the BNT is a series of management trails, linked by short sections of public road.

Except for the major public roads, cycling in the park is a seasonal activity. Most management trails in the park are closed during the wet winter months to protect trail surfaces and minimise trail erosion.

Opportunities exist to promote cycling as an alternative means of experiencing and appreciating the values of the park in a leisurely and relaxed way beyond the confines of motorised vehicles. Managed appropriately, cycling can be enjoyed by significant numbers of visitors with few environmental or social impacts.

Management issues currently associated with mountain bike riding in the park include:

- Damage to trail surfaces including erosion (especially steep sections and wet conditions)
- Vegetation damage and destruction
- Conflicts with walkers on shared trails
- Management problems created by extended cycle touring trips involving camping are similar to those associated with other remote area overnight use and include:
  - Vegetation disturbance and soil erosion at campsites
  - The accumulation of rubbish and human waste
  - Degradation due to firewood collection and campfire use

Cycling along the public roads within the park creates few, if any, environmental or social impacts. It may, however, have significant safety implications for cyclists. This is especially problematic at times of heavy traffic, and on narrow winding sections of road.

**8.11.1 Management Objective (Cycling):** A range of cycling opportunities is provided that encourages visitors to appreciate the values of the park in ways that minimise adverse impacts.

#### Relevant Policies and Actions

- Permit cycling on all roads, management trails, purpose-built cycling tracks, shared-use tracks and multiple-use trails - subject to risk and environmental assessments and approval
- Prohibit cycling that does not occur on roads, management trails, purpose-built cycling tracks, shared-use tracks or multiple-use trails; & prohibit cycling on designated walking tracks
- Close some roads, trails, cycling tracks and shared-use tracks to cyclists on a seasonal basis, as necessary, and in response to extreme weather, fire and other hazards
- Introduce a booking system for cyclists in the Wilderness Zone during peak periods. Extend the system if and when necessary
- Monitor the environmental impact of mountain biking and manage within threshold limits
- Prepare a cycling strategy that strategically identifies appropriate areas for and constraints on the development of purpose-built cycling tracks, particularly in the Back Country Zone
- Develop cycling opportunities on management trails - with Snowy Hydro and cycling groups
- Prepare and distribute a code of conduct for cycling in the park



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## 03 Background Review

### Kosciuszko National Park Cycling Strategy (2019)

This Strategy has been developed to guide the management of cycling in Kosciuszko National Park (KNP), aiming to achieve:

- Increased contribution towards conservation of park values through growth in new markets that enjoy and value national parks
- Environmentally sustainable, fit-for-purpose cycling opportunities that enhance or protect conservation, recreational, social and cultural values
- Increased visitation including overnight stays to the park and surrounding region
- Transparent and consistent assessment of new proposals to ensure they achieve the outcomes above

The strategy identifies appropriate cycle networks and their management and promotional requirements. Although the strategy is focused on Kosciuszko National Park, it recognises that the full range of opportunities for cycling can only be delivered in partnership with other stakeholders. The desired outcome is a suite of complementary cycling opportunities spread across the park and other land tenures.

**Vision:** By 2025 Kosciuszko National Park will have made a positive contribution to the wider Snowy Mountains region, being recognised nationally for outstanding ecologically sustainable cycling experiences.

The Cycling Strategy highlights the need to continue to cater for the mountain bike rider market. Of all recreation activities occurring in the national park, mountain biking showed the most growth in the 5-10 years leading to 2019.

The Cycling Strategy identifies that there is a lack of commercially supported backcountry or wilderness rides that could enable better access for a wide range of visitors to some spectacular country.

The concept for the 'around the lake trail of Lake Jindabyne' was raised during consultation with the Snowy Mountains Trails Destination Group. However, pursuit of the 'around the lake' experience was not included in the directions of the Strategy, citing the issues to overcome being 'lack of riding appeal and difficulty in gaining access through private property to secure a trail completely around Lake Jindabyne'.

### Goals and Key Relevant Actions

**Goal 1:** Manage cycling to produce positive and sustainable outcomes for conservation, recreation and tourism.

- Ensure proposals for new trails are assessed against criteria designed to ensure that only tracks that can deliver positive and ecologically sustainable outcomes for conservation, recreation and tourism are approved.
- E-bikes (<250 watts capacity) are allowed on all fire trails, management trails and tracks within the park that are approved for cycle use.
- Motorised bikes (>250 watts capacity) are only allowed on public roads within the park if registered (considered motor vehicles).

**Goal 2:** Improve existing tracks, trails and cycling experiences to meet consumer demand and add value to the park's natural and cultural values.

- Over the next decade, focus investment in KNP on a selection of 'Top Rides' that will complement cycling opportunities outside KNP.
- Focus promotional effort on a number of quality mountain-biking experiences to simplify decision making for new park visitors.
- Undertake regular monitoring of cycling activity in the park (along with other visitor activities) in order to better understand use of existing tracks and trails, cyclist preferences, demographics and spending patterns.

## 03 Background Review

**Goal 3:** Develop new tracks and opportunities that meet consumer demand and are compatible with KNP's natural and cultural values including responding to external investment proposals.

- Investigate options and viability for commercial and recreational tour operators to provide day and/or overnight biking tours
- Consider opportunities for new trails that meet ecological sustainability, visitor safety, resource availability and quality experience criteria
- Encourage private investment in cycling opportunities
- Assess proposals for cycling experiences using criteria that includes:
  - Ecological sustainability
  - Appropriateness of the location
  - Provision of a quality experience for cyclists
  - Balancing competing visitor demands
  - Consideration of opportunities and demand for cycling across the region
  - Protection of visitor safety
  - Availability of resources to provide and maintain the experience

**Goal 4:** Collaborate with cycling organisations, local communities and the private sector to maintain and promote cycling opportunities.

- Explore options with stakeholder groups for shared mountain bike trail maintenance and potential new single-track development within the park
- Advocate for and collaborate with other stakeholders to complete the proposed Lake Jindabyne Foreshore Track linking Jindabyne with the Thredbo Valley Track extension
- Engage with cycle tourism operators, regional tourism organisations, shires and local mountain bike and cycling groups to transfer skills and share lessons learned with trail construction, marketing, management and sustainable financing arrangements for trail maintenance
- Collaborate with the alpine resorts to maximise and improve the connectivity of cycling experiences across the park, ensuring consistency in sustainable track construction and management

### NPWS Cycling Policy

The Cycling Policy applies to all of the NPWS estate. Its objectives are to provide:

- Ecologically sustainable cycling in parks
- Proactive and responsive management of cycling in parks
- Effective communication between the park authority, cycling communities and other land managers

The policy considers 'the most appropriate cycling experiences in parks are those which in addition to providing a quality visitor experience also foster public appreciation, understanding and enjoyment of nature and cultural heritage.'

The policy states that the following criteria will be used for managing new or improved trails:

- Ecological sustainability
- Appropriateness of the location (refer to Sustainability Assessment Criteria for Visitor Use and Tourism in New South Wales National Parks)
- Provision of a quality experience for cyclists
- Balancing competing visitor demands
- Consideration of opportunities and demand for cycling across the region, including other land tenures
- Protection of visitor safety
- Availability of resources to provide and maintain the experience



## 03 Background Review

### Sustainable Mountain Biking Strategy for NSW Parks (2011)

In 2011, the NSW Office for Environment and Heritage (OEH) developed the *Sustainable Mountain Biking Strategy* in response to the increasing popularity of mountain biking as a recreational activity in national parks.

**Vision:** Excellence in mountain biking is a normal part of recreation management in NSW national parks and reserves, where high quality mountain biking experiences are provided in an ecologically and socially sustainable manner across the landscape, and where riders are advocates for parks acknowledging that the NPWS provides some of the best mountain biking experiences in NSW.

#### Assessment of opportunities

All projects will need to be assessed against the criteria identified in the NPWS Cycling Policy and will be subject to a cost–benefit analysis. Priority will be given to areas where there is strong community support for developing and maintaining trails in partnership with NPWS. Projects will only be commenced once appropriate resources are realised for the development and ongoing maintenance of the trail.

To determine whether a proposed mountain biking experience integrates with the existing site character and landscape context, relevant sections of the Sustainability Assessment Criteria for Visitor Use and Tourism in New South Wales National Parks will be consulted.

#### Cross Tenure Planning

Where a mountain bike experience through other land tenures could be particularly enhanced by providing a link or section through NPWS parks, creating such a link will be prioritised.

#### Minimising of Environmental Impacts

The use of IMBA standards will help minimise negative impacts. Individual features of prospective mountain bike experiences will be subject to environmental assessment to gauge their potential effect on the conservation, heritage and ecology values of the park and their appropriateness within the surrounding landscape.

Careful planning and quality construction can greatly reduce levels of maintenance required. Planning for ongoing maintenance is essential.

The capacity to maintain and resources for maintaining existing tracks will be assessed before constructing new tracks.

#### Target Markets

When planning and designing track networks, the following target market segments will include:

- A) families and travellers seeking cultural recreational and holiday experiences, for instance, nature tours or food and wine tours
- B) recreational mountain bikers seeking 1–4 hour single-track loops, for instance via community events that introduce new visitors to parks and encourage younger people to become involved via legitimate channels.

#### Frame of Reference

The first step in planning is to set a frame of reference by considering factors relating to sustainability, liability, infrastructure management and maintenance. By answering questions about the proposed development early on and sticking to the framework provided by the answers, unexpected liabilities may be avoided. The following questions are examples provided to support this process:

- **Scope and Scale:** What length of trail?; Will the it cross land tenures?; What zone is it in?
- **Objectives:** Will the track cater for anticipated demand?; How will the track minimise risks?; Will the track create business opportunities?
- **Market:** Who is the target market?; What other similar experiences are available in the area?;
- **Product:** What kind of tracks are required?;
- **Standards:** Which set of standards will guide planning, design and construction?: How will these be implemented, audited and reviewed?
- **Delivery:** Who will do the work?: What are the roles, responsibilities and tasks?
- **Management:** Who will manage the project?: Who will manage the tracks, and how?: Will the track resolve, rather than create management and maintenance issues?: What role will the track play in managing the interface between park visitors and nature?:
- **Funding and Resources:** What are the funding sources?: Where will resources come from?

## 03 Background Review

### Lake Jindabyne Southern Foreshore Management Plan (2005)

The Management Plan covers the area which was leased by Snowy River Shire Council from Snowy Hydro, and extends approximately 10 kms from the 'Haven' (locally known as Stinky Bay or Pooh Bay) around to 'Curiosity Rocks' on the western side of the town. While this is not the study area for the Lake Jindabyne 'Around the Lake' Trail Experience Feasibility Assessment, it is useful to include as contextual and historical information. The document includes information relating to land tenure, guidelines for use and management of the foreshore, and outlines the operational requirements for Lake Jindabyne. The Management Plan was prepared for the Snowy River Shire (prior to merging into the Snowy Monaro Regional Council) and Snowy Hydro Limited (Snowy Hydro).

The report acknowledges that Lake Jindabyne is a key operational water storage for Snowy Hydro, and is also one of the most important recreational and tourism assets in region.

#### Lease Arrangement

Snowy Hydro owns Lake Jindabyne and its foreshore. In 1984 Snowy Hydro leased the southern part of the lake foreshore to the Council for an 82 year period (expires in 2067) to provide Council with day to day management of the foreshore.

Under the terms of the lease, the Council agreed to numerous conditions, including (but not limited to):

- Use the foreshore and facilities consistent with the Lake Jindabyne Foreshore Development Planning Study 1981 or as amended and adopted by Council
- Not, without the consent in writing of Snowy Hydro:
  - Affix advertising signs, assign, transfer, demise or sublet any parts of the lease
  - Cut down or destroy trees
  - Erect any building or improvement, and/or
  - Remove, alter, demolish or re-site any building
- Indemnify the lessor from and against all actions, claims, demands, losses, damage, costs and expenses for which the lessee shall or may be liable for.

One aspect of the lease refers to "full and free right-of-way for all members of the public at all times to be upon and to go, pass and re-pass on foot over the strip of land 20 metres wide immediately above the water level from time to time of Lake Jindabyne".

#### Operational Requirements

The main role of Lake Jindabyne is as a managed water storage where water is stored and pumped by Snowy Hydro to the Murray region for subsequent use.

The key aspects of the operational requirements for the lake are:

- Water is pumped from Lake Jindabyne to the Snowy – Geehi Tunnel at Island Bend
- There will continue to be large variations in the water levels at times during the year within the Minimum Operating Level (MOL) being at the 896m level and the Full Supply Level (FSL) at 911m level (the maximum design level for the lake is 916m)
- About half the water flow into the lake occurs between October – December with the snow melting and thus water levels are kept lower by the end of winter to maximise water storage capacity
- Water levels are generally highest in November and become lower during the summer and autumn months with water being pumped to the Murray region
- The water levels can fluctuate quickly due to rainfall within the catchment and pumping requirements

During summer months, the lake levels are generally high which coincides with the peak use of the foreshore and lake for a range of land and water based recreational activities. The low water levels can expose navigational and safety risks for users, albeit these have been progressively removed over time.



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## 03 Background Review

### Go Jindabyne Mobility and Connectivity Study (2019)

The *Go Jindabyne Mobility and Connectivity Study* provides an understanding of the current demand on the existing transport networks operating in Jindabyne and surrounding, assesses the potential impacts of forecast growth on these networks, and provides recommendations on appropriate upgrades and/or new infrastructure required to facilitate the growth and function of Jindabyne, ultimately informing the Go Jindabyne Masterplan.

Of key interest to the options being considered for the Lake Jindabyne 'Around the Lake' Trail Experience is recommendation PT7: *Explore the possibility of the of a ferry service connecting Jindabyne to Tyrolean Village, East Jindabyne.*

### Appendix C: Lake Jindabyne Service Investigation

A high level investigation of the potential of a water-based service on Lake Jindabyne was undertaken in response to recommendation PT7 of the *Go Jindabyne Mobility and Connectivity Study*. This report is included as Appendix A to this Feasibility Assessment.

In order to provide further information on the potential viability of a water-based tourist service on Lake Jindabyne, GTA Consultants undertook the following tasks:

- Identification of similar water-based tourist services in Australia or overseas
- Desktop review and benchmarking of similar tourist services as case studies
- Summary of key findings and implications for Lake Jindabyne associated with a similar tourist service

Costs associated with the service, as well as demand estimation and vehicle specification were not included within the scope.

The following case studies were reviewed:

- Lake Wanaka, New Zealand
- Lake Wakatipu, New Zealand
- Lake St Clair, Tasmania
- Lake Argyle, Northern Western Australia
- Pittwater - Palm Beach - Wagstaffe, Sydney, NSW
- Lake Como, Italy
- Lake Bled, Slovenia
- Lake Tahoe, USA

From the case studies presented, there are similarities for inland lakes such as Lake Jindabyne, including being rural/remote in nature, with water-based tourist services. All examples, except for one at Lake Como, Italy, are privately funded and operated.

Key findings include the following:

- Most lakes have private operators
- Many services are tourist based with a range of different destinations and durations
- Using water-based services for both public transport and tourist services could be beneficial for Jindabyne
- Most services operate year-round, however a precedent for Lake Jindabyne would be Lake St Clair in Tasmania which has scheduled summer services and operates winter services on demand

04

# User Markets and Trends





## 04 User Markets and Trends

### Social and Tourism Trends

Society, and the tourism sector, are continually evolving. New trail developments need to consider the changes that likely lie ahead. Understanding trends in the tourism sector will help ensure that a Lake Jindabyne 'Around the Lake' Experience appeals to future users. Key relevant trends have been listed below.



Popularity of nature-based tourism and eco-accommodation



Increasing participation in individualised activities



Increasingly high standards & expectations



Loss of biodiversity & heritage



Need for balance of recreation and conservation



Increased intensity and frequency of bushfires



Ageing people are increasingly active



Desire to stay connected



Technology advancements



Public critique of parks management



Need for long-term strategic planning



People seeking experiences over products, and transformational travel



Recognising trails as achieving numerous policy objectives (i.e. health, economic, environmental)

### Impacts of COVID-19

COVID-19 has had a profound impact on the SMRC region's visitor economy, with lockdowns occurring during the 2020 and 2021 peak winter season. While it is impossible at this time to predict the future with a strong degree of certainty, a range of trends and issues are becoming apparent since the beginning of the COVID19 pandemic (March 2020), relating to the following:

Growth in popularity of nature-based and trail-based activities

Confidence in shorter trips and local travel

Social distancing is here to stay

Preference for drive tourism and touring trips

Renewed interest in our own surroundings

Border closures blocking international tourism markets

Last minute trip planning



### Snowy Mountains Tourism

Tourism is the most important sector of the Snowy Monaro regional economy. In 2019/20, *Accommodation and Food Services, Retail Trade and Arts & Recreation Services* made up 34.6% of the region's employment, compared to these sectors making up 18.1% of jobs across NSW.

The Snowy Mountains is a very well established destination for outdoor adventure, particularly known for snow-based activities in winter, and in recent times has grown to become a renowned destination for outdoor activities in summer such as bushwalking and mountain biking.

As identified in the *Snowy Monaro Destination Management Plan* (2019), the seasonal nature of visitation to the Snowy Mountains region presents several challenges that prevent the achievement of a sustainable and economically viable year-round tourism industry. These include maintaining a permanent labour force in the region, attracting investment in new tourism products / experiences and infrastructure and resourcing the operational maintenance of improvements to existing infrastructure, given the impacts of weather and the remoteness of many attractions and pieces of visitor infrastructure. Numerous plans are underway to grow the visitor economy into a year-round destination and mountain biking is identified as a key opportunity to do so.

The vision for the Snowy Mountains as a visitor destination is to be 'the best nature adventure destination in Australia'.

### Target Markets

The *Snowy Monaro Destination Management Plan* (2019), identifies the following existing and new target markets:

#### Existing markets:

- **Nature tourism:** a market segment based around outdoor and nature experiences. The adventurous segment of this market is likely to be attracted to an iconic backcountry ride around the northern extent of Lake Jindabyne (Option B).
- **NSW family market:** travel fulfills a key role in busy family lives by offering a chance for families to reconnect, recharge and have a break from normal routine. A domestic holiday is often a weekend break or a short break (2 to 4 days) providing an opportunity for families to relax and to open lines of communication between adults and children without time pressures. This market is being targeted by the development of the Lake Jindabyne Shared Trail (Southern Section). The foreshore trail around the northern extent of Lake Jindabyne (Option A) is considered to be the more 'family-friendly', however, this is limited due to the isolated and rugged nature of the area, with no existing visitor facilities and limited access. Connecting Kalkite and Creel Bay via water-taxi (Option C) is likely to appeal to the family market.

#### New Markets:

- **Road trippers:** a market segment attracted to a destination by strong positioning for drive tourism supported by planned itineraries and high-quality experiences. While some road trippers will be attracted to the long-distance trail around Lake Jindabyne, this market is most commonly attracted to short out-of-car experiences, such as short walks with less than 5 hours duration.
- **International backpacker:** a market segment seeking a diversity of experiences often with an active and adventure focus. An increase in adventure product, especially in summer and better transport to and within the region will underpin growth for this market. It is noted that with current international border closures associated with COVID-19 the Snowy Mountains is not accessible to international tourists. When this market returns to Australia, it may offer potential as a key user market for the proposed trail - depending on the cost involved in traversing the trail with equipment, accommodation and transport as this market is highly price-sensitive.



### Key Trail Developments

It is important to recognise the existing suite of trails across the region to understand where a potential Lake Jindabyne 'Around the Lake' Trail Experience would fit within the broader recreational trail network. Existing trails and potential future trail opportunities for SMRC are identified in the *Snowy Monaro Regional Trails Masterplan* (2022). There are also many walking and mountain bike trails within Kosciuszko National Park. This includes a section of the 655km Australian Alpine Walking Track (Victoria to Australian Capital Territory) and the extensive network of management trails which permit use for walking, bike riding and horse riding.

Major trail development projects in the vicinity of Jindabyne and surrounds are outlined in the following table, along with their status and the organisation responsible for their management and maintenance.

The following three commercially operated mountain bike networks also operate in the areas around Jindabyne:

- **Thredbo Mountain Bike Park**  
A downhill mountain bike park with chairlift access to the top of the trails. Thredbo hosts a variety of high profile mountain bike events
- **Bungarra Mountain Bike Park**  
A trail network of more than 20km of singletrack, with trails of varying in difficulty, and skills areas
- **Lake Crackenback Resort Trail Network**  
18km of mountain bike tracks from beginner to advanced as well as a Pump and a Flow Track.

Major Trail Development Project	Status	Management/Maintenance
<b>Lake Jindabyne Shared Trail</b> SMRC has secured funding from the Restart NSW Regional Growth Environment and Tourism Fund to develop the shared trail along the edge of Lake Jindabyne from Creel Bay to Kalkite. Development has commenced with a target completion of 2024.	Completion anticipated in 2024.	SMRC
<b>Tyrolean/Mill Creek Trail Network</b> A very popular trail network a short ride/walk/run from Jindabyne. It caters for mountain bike riders, walkers and trail runners and is currently subject to concept planning process which will to guide the extension and improvement of the trail network.	Concept Plan underway. Extension identified in SAP draft Master Plan.	SMRC with support from Jindabyne Trails Stewardship
<b>Mt Gladstone Mountain Bike Park</b> The Mt Gladstone Nature Reserve has an extensive network of mountain bike trails with rides starting at easy, progressing to intermediate and advanced. Trail runners and walkers also utilise this reserve.	Opened in 2018.	SMRC with support from Snowy Mountains MTB Club
<b>Thredbo Valley Track (TVT)</b> A shared-use (walk/bike) trail linking the Thredbo Alpine Resort to the Thredbo Valley Picnic Area and Lake Jindabyne Shared Trail (Southern Section). The final stages of the TVT (beyond the Gaden Trout Hatchery) are currently being developed. The track has proven to be extremely popular during summer seasons since opening in 2015. The Thredbo Valley Track may have potential to achieve the highly regarded IMBA Epic trail accreditation.	Opened in 2015, extension under construction.	NPWS
<b>Snowies Iconic Walk</b> A 55 kilometre, 4 day trek crossing the summit of Mount Kosciuszko and linking the resorts of Thredbo, Charlotte Pass, Guthega, Perisher and Lake Crackenback.	Completion anticipated in 2022.	NPWS
<b>Snowy Valley Walk</b> A walk along the Snowy River from Guthega to Lake Jindabyne.	Proposed in SAP draft Master Plan.	NPWS
<b>Jindabyne Mountain Bike and Adventure Park</b> A nationally significant Mountain Bike and Adventure Park on land to the west of Jindabyne.	Proposed in SAP draft Master Plan	To be determined

### The Mountain Bike Rider Market

#### Market Segments

The mountain bike rider market is generally comprised of the following six types of users:

- **Leisure:** Includes general cyclists of all ages and abilities and is potentially the largest market. Typically, they ride infrequently, often have limited skills and require very accessible trails. They are most likely to use highly accessible routes close to home or make the journey to trail facilities with amenities and services such as bike hire, cafes, and toilets. Market potential: Significant
- **Enthusiasts:** Enthusiasts are purely recreational riders with moderate skills and variable fitness, and ride weekly. They are typically aged 29-49 and form the majority of the market. They typically don't compete in events and possess limited outdoors experience. They prefer trails with good signage and seek technical but not too challenging trails. These riders are the most likely to take short breaks to different areas. Market potential: Significant
- **Sport:** Competitive mountain bikers, who ride regular routes multiple times a week and are members of mountain bike clubs, they are a small but influential market. They are willing to seek less accessible trails and have high fitness level and are technically proficient but may have limited outdoor skills. They ride a very wide variety of trails. Market potential: Small (but influential)
- **Independent:** Skilled outdoor enthusiasts who ride once a week and are technically proficient with a good level of fitness. Generally, they are a small market. Often involved in other outdoor activities, they are capable of planning their own rides and ride a very wide variety of trails. The adventurous aspect is more important than the technical challenge and they seek more remote trails. Market potential: Small
- **Gravity:** Highly skilled technical riders who seek very challenging trails, typically ride at least once a week and are often members of clubs. They represent a small market that requires purpose-built trails, which are repeatedly used in a concentrated manner. Gravity riders seek specific trails with the highest classification. Market potential: Small (but rapidly growing)

The Lake Jindabyne Shared Trail (Southern Section) is being developed to cater primarily for 'Leisure' market segment. As leisure riders are generally attracted to riding facilities in close proximity to amenities, a trail around the remote northern section of Lake Jindabyne is less suitable for this market segment.

It is anticipated that a backcountry trail through the rugged and remote areas to the north of Lake would primarily attract the 'Independent' market segment.



## 04 User Markets and Trends

### Market Trends

Mountain biking is a growing recreational and tourism activity that has significantly increased in popularity over recent decades across Australia and internationally. Mountain bike riding as a recreational and tourism activity is influenced by broad social trends, with specific impacts on the activity. Key relevant trends are outlined in the table below.

Trend	Implication on the Lake Jindabyne 'Around the Lake' Trail Experience
<b>Electric Mountain Bikes (eMTB)</b> Bikes, and the ways people use them, are changing rapidly as technology advances. Bicycle Industries Australia reports that sales of e-bikes have increased by 800% across Australia between 2016 and 2021. With the introduction of Light eMTBs, e-bikes are gaining more preference in the mountain bike market, and are likely to continually grow in popularity as technology advancements lead to smaller batteries and longer run time.	With the use of e-MTBs, a wider range of people of varying levels of fitness will be interested in riding the Lake Jindabyne 'Around the Lake' Trail. The concept of a trail around the lake must consider the distance/time range of e-bike batteries. This is likely to increase in the future with further technology advancements. The <i>Bosch E-bike Range Assistant Tool</i> helps to calculate the range of e-bikes under various conditions. It is estimated, for example, that an average e-bike would run for approximately 36km on 'touring' mode (in mountainous terrain, on soft forest paths, in moderate wind conditions and with few stops).
<b>Budget Mountain Bikes</b> High quality mountain bikes are n costly and most accessible to people with high levels of disposable income. However, the quality of beginner and budget bikes is continually increasing.	Mountain bike riding is becoming more accessible to people at different socio-economic levels with higher quality bikes on the market without the prohibitive price. This opens the potential market for the Lake Jindabyne 'Around the Lake' Experience to a wider and more diverse market of potential users.
<b>On-Bike Storage</b> With increased interest in bike-packing and longer days on the trails, bike manufacturers are incorporating innovative storage solutions into bikes to enable riders to be prepared with more supplies.	With the ability to carry more items, mountain bike riders, particularly on all mountain trails, are becoming increasingly self sufficient with the ability to carry their own water, food, tools and camping gear.
<b>Gravel and Fat Tyre Bikes</b> Riding on gravel, snow and sand has become more accessible and appealing with the development of fat-tyre bikes.	While soft terrain, such as gravel, snow or sand used to be prohibitive to bike riders, this is now more accessible as bikes can be specifically designed for such terrain. Sections of the Lake Jindabyne 'Around the Lake' Trail Experience may incorporate softer terrain which may require specialised bikes, such as those with wider tyres.
<b>Web-Based Systems and Apps</b> Mountain bike riding has been transformed by GPS-enabled social technologies which have created online communities, such as Strava which connects millions of riders and shares their experiences. Mobile phones and wearable devices, such as smart watches, facilitate and enable these technology based advances.	Competitive levels of mountain bike riding no longer require a formalised event structure. Competitions can be held on virtual platforms, allowing trail users to compete against themselves and the times/skills of others, based on GPS-enabled apps. The widespread availability of this technology is allowing enthusiastic riders to progress and monitor their improvements.
<b>User-Generated Content</b> Online trail information is becoming increasingly accessible via user-generated platforms and applications (e.g. Trailforks, Strava, Instagram).	While user-generated trail information can be an excellent initiative led by user groups, it is important that these online platforms are developed and maintained in partnership with trail managers to ensure accuracy of information, particularly to ensure that unauthorised use of trails is not promoted.

### Mountain Bike Riding Economic and Participation Analysis

Mountain bike riding, and cycle tourism more broadly, is one of the fastest growing recreational tourism activities globally. The popularity and increasing growth of mountain biking has been trending over recent decades and the economic impacts of this have been highlighted through the study entitled *Mountain Biking in Australia: An Economic and Participation Analysis* (2021), published by AusCycling.



This study establishes a baseline of the current levels of participation in mountain biking at a national level, and where possible quantifies the value, of the economic, social and environmental benefits of the activity.

#### Participation

Between 2014 and 2019, Mountain Bike Australia, memberships increased by 60% to reach 17,625 members nationwide. Participation more broadly (including non-members) is estimated to include approximately 341,900 people across Australia, who are estimated to directly spend a total of \$630.8 million per annum and support 6,095 full time employees annually through riding at their local trails.

The *Australian Mountain Bike Market Profile* (2016) found that mountain bike participation is skewed towards males, aged 35-44 and that most respondents rode 2-3 times per week, for 1-2 hours.

#### Benefits

The study quantified the social values of mountain biking, as follows:

- **Health benefits:** The personal and health system benefits due to healthier, active individuals = \$1.58 per km ridden
- **Productivity benefit:** Improved workplace productivity through decreased absenteeism and presenteeism = \$7.59 per ride
- **Human capital uplift:** Positive association between sport and physical recreation and educational outcomes = \$2.50 per ride
- **Consumer surplus:** The satisfaction people derive from participating in sport and active recreation = \$25.98 per ride
- **Criminal and social justice benefit:** Benefits from decreased crime rates due to increased engagement from sport and recreation = 0.78 per ride
- **Civic/volunteering benefit:** The value people place on volunteering and enjoying sport and recreation activities: \$3,214 per volunteer per year

#### Expenditure

The study found that the average expenditure per mountain bike ride is \$27.10. The expenditure breakdown is shown in the table below.

Component	Spend \$
Transport to and from trails	\$12.35
Meals and beverages	\$6.25
Purchase from supermarkets or other retail shops	\$7.40
Bike rental hire	\$1.10
Average Expenditure Per Ride	\$27.10

In addition to the \$27.10 per ride, there are also several other larger more infrequent purchase items. It was found that Mountain Bike Australia members on average spend \$5,991, whilst non members spend \$8,875 on larger items such as a new bike purchase, services, equipment, clothing & spare bike parts per year.



05

# Consultation





### Consultation Process

Consultation has been undertaken with key stakeholders, key local clubs/user groups, and the community.

#### Key Stakeholders

Representatives of the National Parks and Wildlife Service and Snowy Hydro Limited were engaged through targeted meetings to discuss issues and opportunities associated with the potential Lake Jindabyne 'Around the Lake' Trail experience. Representatives of these organisations also had the opportunity to provide comment on the Discussion Paper and Preliminary Draft Report.

#### Key Local Clubs/User Groups

Targeted interviews/meetings were held with representatives of key bicycle user groups in the Jindabyne area (Jindabyne Trails Stewardship and Jindabyne Cycling Club). The issues and opportunities associated with the Lake Jindabyne 'Around the Lake' Trail Experience were discussed.

#### Community Members

Community consultation on the topic of the Lake Jindabyne 'Around the Lake' Trail Experience was included as a component of the consultation undertaken for the development of the Snowy Monaro Regional Trails Masterplan. This included an online survey and a community workshops.

### Key Stakeholder Perspectives

#### Snowy Hydro Limited (SHL)

Meetings were held with Snowy Hydro Limited in June and September 2021 to discuss the options. Key information gained includes:

- **Working Reservoir**  
It is important to note that Lake Jindabyne is a working reservoir and water levels fluctuate often and rapidly.
- **Asset Security**  
Sensitive Snowy Hydro assets (e.g. Pumping station, bridges, access tracks) are located in this section of the Park and for this reason park visitor movement was restricted/further managed following 9/11.
- **Water-based Transport**  
This concept would require significant engineering to develop pontoons which can accommodate the lake's fluctuating water levels - likely to be very costly.  
As this concept/proposal would likely be driven by private enterprise – it would require business viability.  
Snowy Hydro would not be able to guarantee water levels which would have impacts upon the viability of such a concept/proposal (E.g. this was an issue with floating restaurant in the past). Legal/risk implications of allowing this would need to be seriously considered by Snowy Hydro.

- **Public Access to Lake's Edge**  
Snowy Hydro provides public access to the land within 20m of the reservoir edge.
- **Waterway Crossings**  
A crossing point over the Eucumbene River would require significant investment in a bridge. The existing bridge over the Snowy River (authorised vehicles only) is a working asset. Promoting use of this bridge to recreational trail users may have safety/security implications.

Following review of preliminary reports (at Stage 3 and 4), SHL reiterated the following:

- SHL has concerns regarding the shared trail proposal and highlights the need for ongoing consultation, particularly in relation to the following:
  - Proximity to Jindabyne Pumping Station (JPS) within SHL's operational areas
  - Access points for channel crossing near JPS - proximity to SHL's operational areas
  - Access points across river channels
  - Access/egress for the "water based transport link"
- Any proposed future development must be managed so as not to present a risk nor potentially constrain SHL operations.
- Going forward, SHL will continue to work with Council and NPWS to provide input and feedback on these proposals.



### National Parks and Wildlife Service (NPWS)

A meeting was held with NPWS in June 2021 to discuss the feasibility of the concept. Key information gained includes:

- **Thredbo Valley Picnic Area to Creel Bay**  
The Southern Section includes trail traversing through Kosciuszko National Park which will be managed by SMRC (Thredbo Valley Picnic Area to Creel Bay). A trail license agreement will be prepared for this section of trail.
- **Key Challenges**  
Key challenges for the northern section are likely to relating to environmental impacts, trail maintenance and trail management.
- **Management and Maintenance**  
Key consideration needs to be what organisation will take on the ongoing management/maintenance requirements of the trail. It is very important that a license agreement would clearly state this, and that the organisation with responsibility (e.g. SMRC) has the capacity to do so.
- **Funds and Resources**  
NPWS is unlikely to support a funding model requiring fees for trail use, however likely to support tour operator permit fees.
- **Snowy Hydro Assets**  
NPWS is guided by Snowy Hydro with respect to protecting assets from public access. For example, the Pump House Track used to be utilised for events however this is no longer supported by Snowy Hydro.

- **Existing Usage of this section of the Park**  
The area to the north of Lake Jindabyne is very remote and 'off the beaten track'. Currently only a small portion of park visitors access this area (access requires 4WD). However, places such as Gungarlin Campground are becoming increasingly popular. Some (mostly very fit) people use this section of the park for off-trail walking, and some locations are known for horse riding and fishing.
- **Thredbo Valley Track (TVT)**  
Current funding is allocated to upgrading the track to make it more weather-proof - with the intention to maintenance requirements. The TVT is closed during winter.
- **Other Iconic Trail Projects**  
Other iconic trail projects have been/are being delivered in Kosciuszko National Park (e.g. TVT, Snowies Iconic Walk). Strategic planning for trail offerings in the park have not included this concept.
- **Overall Position**  
NPWS would need to assess such a proposal based on its alignment with the values of Kosciuszko National Park and the Plan of Management. Internal NPWS processes would be required to seek agreement/approval of a concept/proposal through the National Park's stakeholders (e.g., includes the NPWS Advisory Council/Board).

Following review of preliminary reports (at Stage 3 and 4), NPWS reiterated the following:

- NPWS are unable to support the 'Iconic Backcountry Ride' (Option B). Primary reasons for this include:
  - Environmental and cultural heritage concerns relating to the building of many kilometres of new track and possible need for increased camping opportunities
  - Long term track maintenance liability and cost on top of the new shared use and walking tracks that NPWS are currently constructing in Kosciuszko National Park
  - NPWS anticipate a large number of stakeholder concerns regarding this option – this option has not been 'tested' with any of our major stakeholders. In addition, NPWS are not aware of any evidence there is a desire for additional MTB experiences 'on-park' in the region
- Any section proposed within the National Park requires further consultation with NPWS before any approval or 'in principle' support is given to proceed with further scoping and planning (e.g. environmental/cultural heritage assessments etc.)
- NPWS preference would be to see Option C (Water-based transport link) progress as the preferred option

### Local Clubs/User Group Perspectives

Targeted interviews were held with Jindabyne Cycling Club and Jindabyne Trail Stewardship.

#### Jindabyne Cycling Club

Key information provided related to:

- **Support for Concept**  
The Cycling Club is supportive of the concept for an 'Around the Lake Trail Experience', but understands it may be a long term project (noting infrastructure requirements, land tenure, significant capital and maintenance costs etc.)
- **Lake Jindabyne Gravel Ride Loop**  
A long distance loop option exists and it utilised by Cycling Club members utilising Eucumbene Road, Nimmo Road and Island Bend Fire Trail. This is an 80km ride between Kalkite and Creel Bay which takes members approximately half a day to ride. The route is suitable for mountain bikes and/or gravel bikes, and is ideal for e-mountain bikes. It is not currently a formalised route, and users require skills to navigate, primarily along management trails.
- **Proposed Interim Option**  
Proposal for formalisation/promotion of the 'Lake Jindabyne Gravel Ride Loop' in the short term, with consideration of developing the single-track loop in the longer term.

#### Jindabyne Trail Stewardship (JTS)

JTS' position is summarised below:

- **Viability of Concept**  
JTS anticipate that the costs of developing a trail around the northern extent of Lake Jindabyne would outweigh the benefits.
- **Capital Requirements**  
JTS expect that the costs of developing the trail would prohibit the viability. Particularly the need for a crossing over the Eucumbene River. A route that avoids expensive new infrastructure would be preferable.
- **Target Market**  
JTS anticipate that the trail would attract a small number of users/narrow target market due to the significant length and challenge associated with the route. The target market would, however, seek this type of experience.
- **Maintenance Requirements**  
It is important that there is a robust plan for resourcing of ongoing maintenance requirements of such an extensive trail. Maintenance would include clearing trees and debris after storm events, as well as drainage and surface repair work.
- **Community Stewardship/Support**  
JTS could not ensure maintenance support without a permanent source of funds to allow for contractors or direct employees. Due to factors such as: remote/isolated location which is difficult to access; limited volunteer resources; JTS' priorities/other areas of focus.

- **Changed Regional Context**  
While the 'Around the Lake' Trail has been anticipated for decades, it is important to consider that the trail offerings and context has changed over this time (e.g. the region now has the iconic Thredbo Valley Track).
- **Proposed Alternate Route**  
JTS propose promotion of a cycling 'route' around the northern extent of the Lake, utilising existing roads/management trails/ Gungarlin campsite - rather than building new trail. Catering for the gravel riding, e-bike and bike packer markets. Markers could be used along the route, similar to Bicentennial Trail and Hume and Hovell Track. Benefits include:
  - Could link with the Southern Network at Creel Bay and Kalkite. (Suggestion to explore trail options from Kalkite to Nimmo Road along the Eucumbene River, rather than along Eucumbene Road)
  - Could incorporate existing Council and NPWS gravel roads and management trails through Nimmo, Gungarlin campground and Island Bend
  - Reduced construction costs and minimal maintenance effort and cost, whilst still allowing for a 'Round the Lake' Trail Experience to be promoted
- **Water-based Transport Option**  
Supportive of this option to provide for shorter route/s. However, understand the need for this to be commercially viable.



## Community Perspectives

### Community Online Survey

The online community survey conducted in early 2021 for the Snowy Monaro Regional Trails Master Plan included a question relating specifically to levels of support for options of the Lake Jindabyne 'Around the Lake' Trail Experience.

*Council have recently made a significant investment into planning for the extension of the Lake Jindabyne Shared Trail. Grant funding has recently been approved for the construction of the Southern Network (shorter route option) connecting Jindabyne through to Kalkite on the East and the Thredbo Valley Track and Creel Bay on the West.*

*The feasibility is being explored for the provision of a 'Round the Lake' experience. This may incorporate a water taxi between Kalkite and Creel Bay, and/or (over the long-term) a Northern Trail around the northern extend of the lake.*

*Please indicate your level of support for each of the following options being explored for the Lake Jindabyne Shared Trail:*

*A) Southern Network: Creel Bay to Kalkite (funding received): Connects with Thredbo Valley Track, Gaden Trout Hatchery, Hatchery Bay, Jindabyne Boat Ramp, Jindabyne, Tyrolean and East Jindabyne.*

*B) 'Round the Lake' Trail incorporating Southern Network + Northern Trail around all of Lake Jindabyne.*

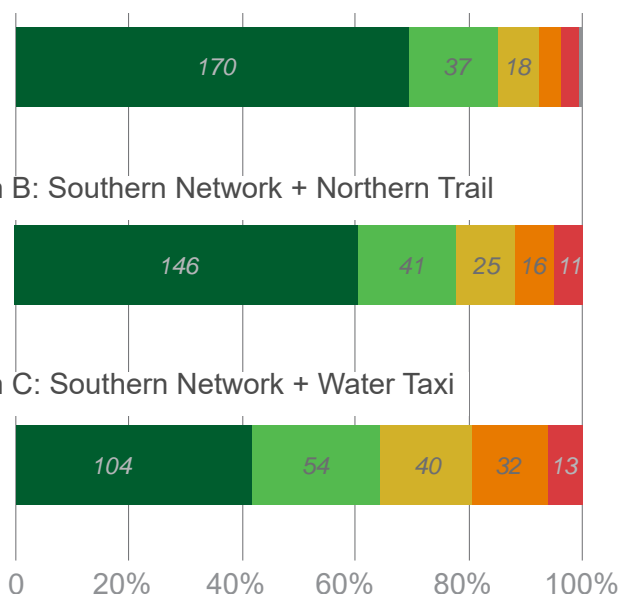
*C) 'Round the Lake' Trail incorporating Southern Network + Water Taxi between Kalkite and Creel Bay.*

### Levels of Support

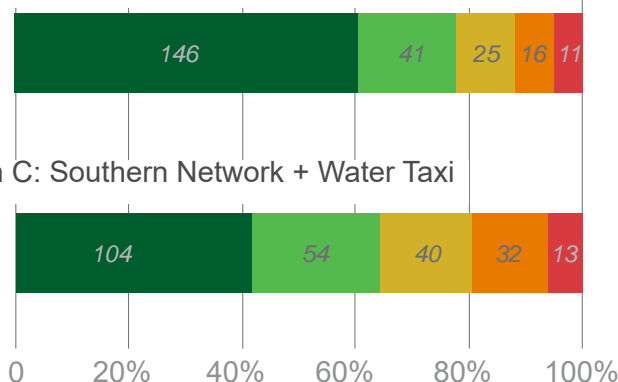
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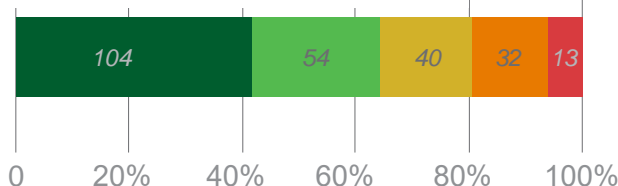
### Option A: Southern Network



### Option B: Southern Network + Northern Trail



### Option C: Southern Network + Water Taxi



### Community Member Comments

A review of comments provided by community members through the online survey in relation to the options for the 'Around the Lake' Trail Experience provide meaningful insights into community perceptions, levels of support and concerns associated with the concept.

Comments have been categorised, with a broad selection of verbatim comments included under the headings below.

#### Supportive

*We have unique topography and we should use it. People come here for mountain sports and life.*

*My understanding is that this loop would be approximately 100km. I know a lot of people, myself included that would do this ride in a day. There would be room for a marathon MTB race around the lake.*

*Definitely a ride we would do. Will give Jindabyne year round attraction. Will become one of the bigger rides that people will want to do.*

*Electric powered bikes are fast becoming the norm, so longer trails necessary.*

*Activation of lakeside activities is key to the growth of tourism experiences. I'm surprised that this relatively inexpensive option has taken so long to be developed.*

*This is a serious destination ride. Nowhere else in the country would you be able to do a single track ride of this length, it would be a major tourism boost.*

*Been waiting for "round the Lake" for many years. Population growth alone will make it necessary.*

*I like the idea of the water taxi and support it as an interim measure, but greatly prefer a continuous trail around the lake. Think of the opportunities for businesses to support this? Picnic basket drop off, etc.*

## Desire Shared use

*I support the idea of the "Round the Lake" Trail only if there is a genuine commitment to making it multi-purpose if it is wide enough - or duplicated where need be - so that it can be safely shared between walkers and cyclists.*

*I am an ultra trail runner. Having more safe, off road options for long distance runs is exactly what we need.*

*A trail around the lake would be excellent for both walkers and riders, but the narrow, shared trail means walkers take their life in their hands dodging speeding bikes.*

*Anything that facilitates shared trails for walkers, hikers, bikers etc is a positive step forward.*

## Distribution Across the Region

*Council must not ignore other parts of their region. Many small villages should be prioritised for trail development*

*Would like to see more trails in Cooma, not just in Jindy.*

*Support and funding should be spread fairly around our region, particularly the Rail Trail which would directly support all towns and areas from Queanbeyan to Bombala.*

*The proposed trail for Jindabyne looks more like a project to attract tourists not for the benefit of the council residents.*

*There seems to be a lot of money spent in one area of a very large region. More of the region should benefit from visitors and locals using local infrastructure.*

*We need something for visitors to Cooma as well! We have no bike tracks except for Mt Gladstone which is not for recreational riders.*

## Feasibility Concerns - Environmental Impact

*The first section that is funded goes a most of the way to meeting the trail needs. The northern, more remote section of the lake could be a good but I understand there would be need for greater environmental considerations with a large portion in national park.*

*Concerns about environmental impact of northern trail.*

## Feasibility Concerns - Development/Maintenance

*"Round the lake" - I first heard in the 60's & 70's... Now with landholdings fragmented it is getting harder to do... Will council have to manage this trail in National Park?*

*Concerned that we are building too many trails and won't be able to maintain them all in the longer term.*

*Council will struggle to maintain the full 100km loop unless there is a sponsorship program which covers costs of staff to manage day to day. This amount of infrastructure would mean that Council would not be able to afford other trail projects unless there is a significant rate rise.*

*Too expensive, and the section of north trail between Creel Bay, and Kalkite is far too remote. The cost of creating a bridge over the Snowy River near Creel bay would be astronomical. Use of water taxis could be unsafe during windy weather so would not be entirely dependable.*

*Connection north from Creel bay is not viable. Bridge over Snowy River at Creel Bay and another over the Eucumbene would be far too expensive. And water taxi not practical.*

*Council will have to maintain high maintenance standards of the northern trail to "compete" with the TVT.*

*I don't think the cost of this project as a whole around the lake is justifiable at the moment. The water taxi idea is good, but who pays for the water taxi? I doubt that is viable for an operator... But it is a better option than complete around the lake with northern bridges. Unless you have an endless supply of money, it would be best invested in other opportunities for now.*

*Understand the full loop might be too expensive. As an interim measure, consider extending Creel Bay trail a couple of km to the pumping station. This would allow cycling on trail and gravel roads down the whole Thredbo Valley and the Snowy River Valley from island bend. It would also allow a longer around the lake loop using the island bend / nimmo fire trail (approx 90km loop).*

*Money may be better invested in local options closer to town that will serve a greater number of people, e.g.. a MTB park in Jindabyne.*

## Feasibility Concerns - User Experience and Market

*I love any expenditure on trail networks however I do have concerns about this. There are very few people who will have the fitness/organisation to complete these rides. In order to make this successful you will need to have a plan in place to make it achievable for families or less experienced riders. Yes an "epic" trail would bring people here from all over the world and get great coverage. However it's not for the every day person or family.*

*I don't think a water taxi would be warranted and don't think the Round the Lake trail would be very well utilised as it would entail many hours of riding. In saying that, I have ridden around the lake (80km on existing trails) & loved it - but it is a mission.*

*Around the lake is a very long way for the average rider. A water taxi, if publicly run, would be a taxpayer expense.*

*A "round the lake" trail would be great, however it would be 50km+ and I question how many people would use this trail apart from the ultra fit with a whole day to spare.*

*The lake trail project should finish at Kalkite. Any further would only service a small proportion of visitors and riders.*

*A full loop of the lake is a brilliant idea for riders who are into longer endurance rides. In my experience the majority of the market at the moment though want gravity trails, which this isn't. Spending money on maintaining trails which are such incredible council assets would be a better use of funding rather than a water taxi.*

*Trail riding allows freedom and spontaneity. Reliance on a water taxi would take this away, add expense to the experience and could create bottle necks.*

## Other

*Round the Lake maybe in the longer term?*

*I think all are great options as long as they don't encroach on current landholders and their access to the lake... They also might impact on the smaller communities bringing larger numbers of people and potentially even buses down roads that are not equipped for larger volumes of traffic.*



### Community Workshop

A community workshop was held in March 2021 in Jindabyne as part of the Snowy Monaro Regional Trails Strategy. While this workshop sought community input on the broad range of trail opportunities across the region, it also specifically included consultation on the Lake Jindabyne 'Around the Lake' Ride.

Community members highlighted the key constraints/concerns and opportunities that they saw as relevant to the feasibility study. These are outlined below.

### Constraints/Concerns:

- Capacity of Council, NPWS and/or volunteers to manage and maintain a trail around the lake. Expected to be very resource intensive.
- Extremely high cost to develop crossing of the Eucumbene and Snowy River
- Emergency services/access points
- Potential requirement for increased rates and/or park fees to cover development and/or maintenance costs of the trail
- Land tenure (i.e. some sections are private land)
- Insurance/liability requirements if land owners allow access
- Very large river crossings
- Difficult logistics due to terrain and limited access points

- Limited access and egress points, no 'escape/bail out' options along the way
- Potentially a 'white elephant' (i.e. significant investment without the usage to justify)
- Snowy Hydro Assets (i.e. currently need to 'sneak past the pumps')
- Need for overnight accommodation point. Likely to be a very high cost and may have little benefit/usage
- Requirement for mid-way charging points for e-bikes
- User conflict
- Need to be realistic about what type of users will be attracted to such a long and rugged trail
- None of the land is managed by Council. First step is to have support from land owners (NPWS, Snowy Hydro and private)
- Many people would do the full loop once - unlikely to attract return usage
- The extreme adventure market prefer to find their own routes
- Water taxi should not be a public service. Would need to be commercially viable

### Opportunities:

- Developing a trail which can achieve IMBA Epic Trail status
- Provide for long-distance trail riding/running events
- Economic growth for Kalkite
- Provide an iconic trail which would compete with experiences in Tasmania
- Multi-day ride which increases the economic yield per visitor
- Provide for long distance mountain bike riders, trail runners, horse riders and walkers.
- Opportunities for commercial tour operators
- Support year-round tourism
- Diversify the region's tourism product offering
- Promote use of existing management trails for gravel bikes (i.e. Eucumbene Road, Nimmo Road, Island Bend Fire Trail).
- Showcase a unique environment
- Cater for the rapidly growing market of e-bike users



06

# Trail Planning and Development





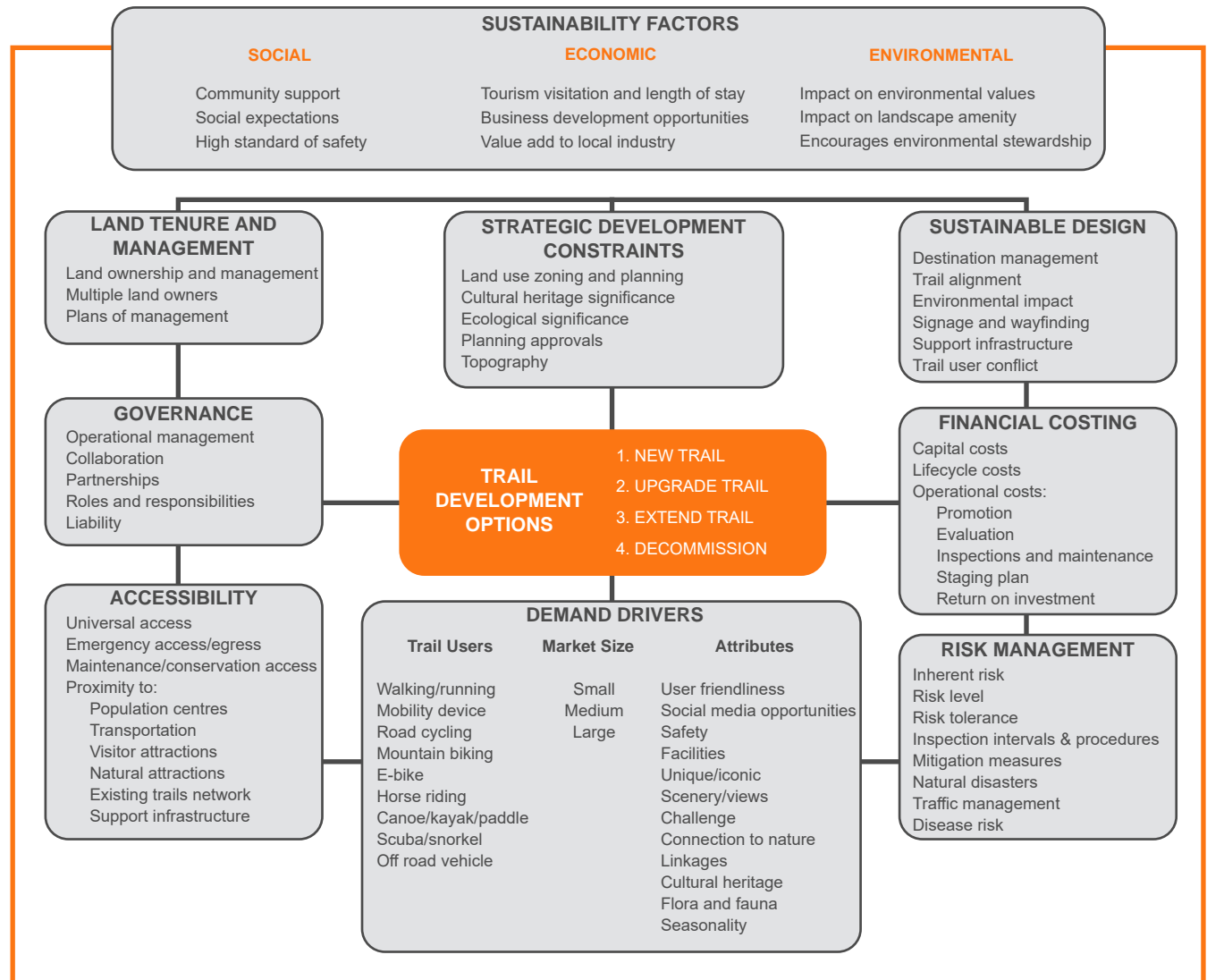
# 06 Trail Planning and Development

## Trail Planning and Assessment Model

The Trail Planning and Assessment Model (T-PAM) has been developed by Tredwell Management to guide trail development plans through ensuring that all relevant components are considered.

The figure to the right outlines the principles of this model.

### TRAIL PLANNING AND ASSESSMENT MODEL



## 06 Trail Planning and Development

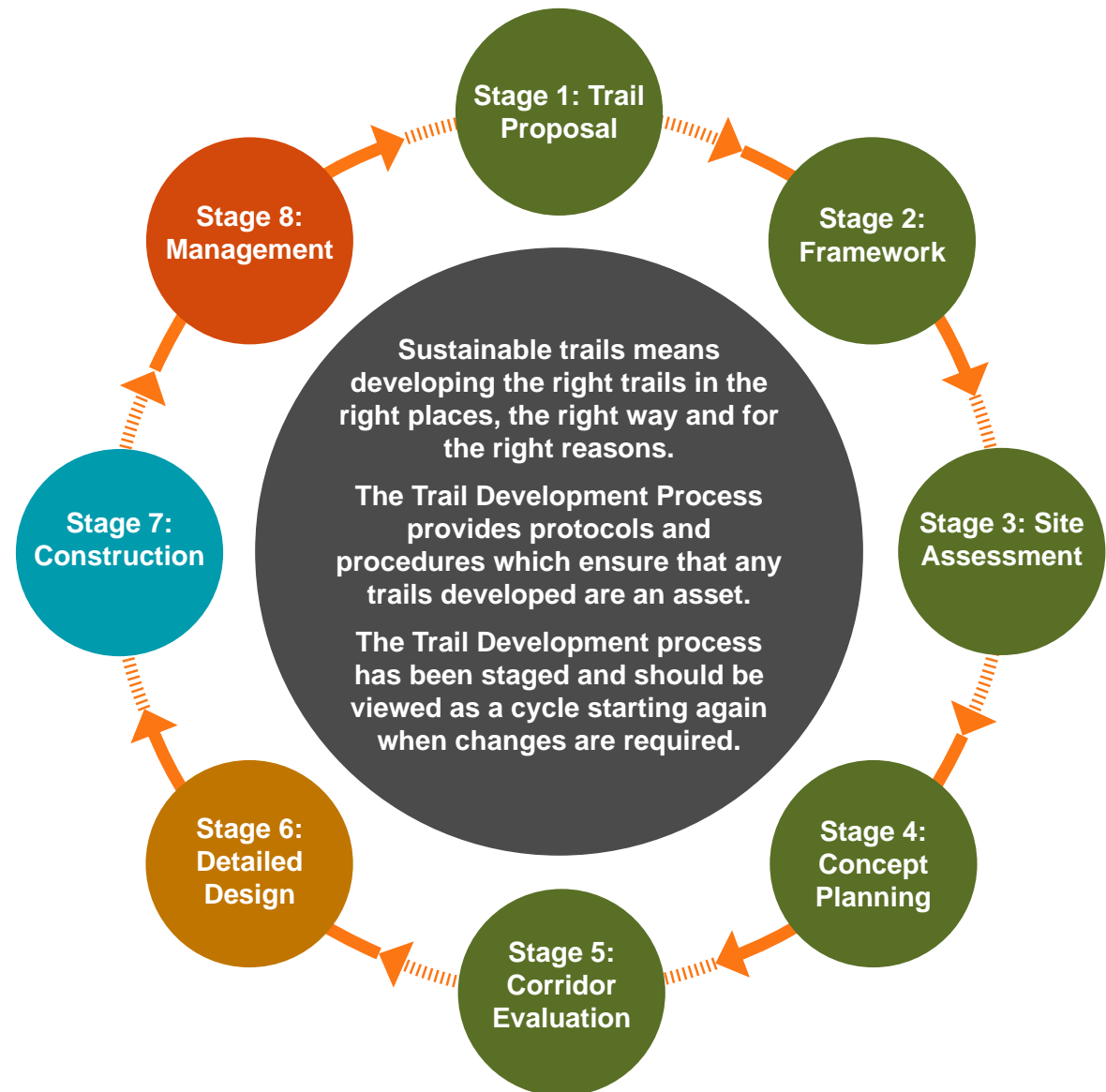
### 8 Stage Trail Development Process

The 8 step trail planning process is widely considered best practice for all types of recreational trails. It is referenced in many contemporary guidelines and strategies across Australia.

Trails are like any other asset or facility development and as such, are subject to a formal planning and approval process. A robust trail development process moves trail development away from a purely design and construction approach to a more considered and planned approach.

Working within a standardised methodology is especially important in high conservation areas. Building rigour into the development process will ensure that project proposals are transformed into professionally built assets.

The pursuit of the delivery of a trail around Lake Jindabyne 'would require following this process from Stage 1 to 8. A key component of Stage 1 would be securing formal agreement from land managers, specifically including National Parks and Wildlife Service (Kosciuszko National Park) and Snowy Hydro (land surrounding Lake Jindabyne).





## 06 Trail Planning and Development

### Mountain Bike Trail Guidelines

The eight stage trail development process and the expected outcomes associated with each stage are outlined in the table below. Trail Development Process recommends engaging expert knowledge at various stages.

Stage		Outcome		
1	Trail Proposal	The proposed area is either supported in principle for trail development, or is not supported due to environmental, social or cultural constraints. The purpose of a proposal could be to identify potential suitable areas for consideration.	Desktop	
2	Framework	A project outline, developed by project steering group (stakeholders), including: project objectives, project management model, stakeholder roles, target market, requirements, standards, execution, and ongoing trail management model.		
3	Site Assessment	Undertake a broad scale study of the area and identify constraints, soil types, vegetation etc.		
4	Concept Planning	Identify opportunities and conceptual trail plan including infrastructure requirements produced. Broad trail corridors are physically flagged in the field.		
5	Corridor Evaluation	Detailed assessment of trail corridors for use in determining the final trail alignment.	Field	
6	Detailed Design	Detailed trail design produced and physically flagged in the field, including: trail classifications, technical trail features, construction types and specifications.		
7	Construction	Trail is constructed in line with the detailed design.		
8	Management	Management plan implemented detailing maintenance and monitoring requirements		

The *Australian Mountain Bike Trail Guidelines* (2019) were developed by Mountain Bike Australia in response to a growing need to establish and implement an Australian specific trail development process that guides mountain bike trail planning from proposal to implementation.

These guidelines support the development of mountain bike trails that are developed to align with landholder expectations, to meet the needs of riders, to minimise environmental impacts and to provide opportunities for the public to connect with the environment.

The vision of the *Australian Mountain Bike Trail Guidelines* is to provide information and resources to assist in the sustainable development and management of high quality mountain bike trails for the right users, in the right areas for the right reasons backed by strong partnerships and community ownership.

The Guidelines provide important information for consideration in the feasibility assessment of the Lake Jindabyne 'Around the Lake' Trail Experience.

## 06 Trail Planning and Development

### Sustainable Trails

Sustainable trails align with user needs, provide social and economic benefits, minimise environmental impact and minimise maintenance requirements. As highlighted in the *Australian Mountain Bike Management Guidelines* (2019):

*It is important to develop, the right trail, in the right area, the right way and for the right reasons.*

It is acknowledged that the meaning of the word 'sustainable' may vary depending on the context and perspectives taken.

The following table outlines the meaning of 'sustainable trails' from perspectives relating to the trail users, social, economic, environment, management resources and land use.

Perspective	Meaning of Sustainable
Trail users	Trail user sustainability is about designing and constructing trails for the intended target market and the appropriate demand. Trail development should not devalue landscapes or places and should positively impact individuals and communities. Trail development should not negatively impact the cultural heritage of any community or group.
Social	Social sustainability should be a primary goal of any trail network; however, this can be complex and often difficult to address. Each trail user seeks a specific experience from a trail network, and while this seems simple to achieve, varying requirements and expectations of users may create tension within and between user groups who each believe the trail network should be delivering a different experience. Engaging user groups during the planning phase, and before any major changes are made, will assist to identify the social expectations for a trail. Failure to address social sustainability issues often results in overcrowded trails, trails with little use, trail users who feel 'pushed out' by other users and the creation of unauthorised trails.
Economic	Economic sustainability of a trail or trail network involves the assessment of inputs (e.g. trail construction, trail maintenance, user management) against positive outputs (e.g. bike purchases, travel and accommodation, local business growth, improved community health and wellbeing) and negative outputs (e.g. damage to the environment, impacts on amenity, unauthorised trail development). Identifying all inputs and outputs during the planning phase of a development will help to determine the economic sustainability of a trail or trail network. Failure to address economic sustainability will result in greater ongoing costs to manage trail users and maintain existing and unauthorised trails.
Environment	Trail development must be planned, designed and constructed to high environmental standards. Trails should be appropriate to the landscape, contribute to the sense of place and add value to the area. Trails should not destabilise soils or slopes. Vegetation should not be cleared or damaged beyond the bounds of the required trail footprint. Trails should be used to manage impacts of recreation on wildlife and habitats in a positive way. Trails should be designed and constructed in way that minimises the potential spread of pathogens, diseases and weeds.
Management resources	Trail development must be consistent with the sustainable provision of resources to manage the trail and associated infrastructure. Best-practice trail design and construction should minimise maintenance requirements and ongoing costs. It is important that management roles and responsibilities are clearly articulated and agreed upon.
Land use	In some areas, trails may coexist with other land uses such as recreation, land management or commercial enterprises. Trails need to be planned in a way that does not adversely affect the existing land use and ensures that the land use does not negatively impact other trail users.

Source: *Australian Mountain Bike Management Guidelines* (2019)



## 06 Trail Planning and Development

### Types of Mountain Bike Trails

Trail types have evolved over the last 30 years and will continue to evolve with bicycle technology, rider skills and the adventurous nature of the activity. Trail types define the style of trail and its typical attributes, with different types suiting different styles of riding and types of mountain bike design. Mountain bike trails can be categorised into the following types, as endorsed by AusCycling and Mountain Bike Australia:

- **Cross Country (XC):** Primarily single-track orientated with a combination of climbing and descending, and natural trail features of varying technicality. Cross Country trails appeal to the majority market and can cater for timed competitive events. Typically, bikes are lightweight with shorter travel dual suspension or have no rear suspension.
- **All Mountain (AM):** Similar to Cross Country and primarily singletrack orientated, with greater emphasis on technical descents, with non-technical climbs. All Mountain trails can cater for timed competitive events. Bikes are typically light-medium weight with medium-travel dual suspension.
- **Flow:** Flow trails typically contain features like banked turns, rolling terrain, various types of jumps, and consistent and predictable surfaces. Flow trails do not contain abrupt corners or unforeseen obstacles. Bikes are typically light-medium weight with medium-travel dual suspension.
- **Gravity / Enduro:** Similar to All Mountain with greater emphasis on steep, fast, technical descents. Gravity / Enduro trails can cater for timed competitive events. Gravity / Enduro trails appeal to more experienced riders who enjoy technical descents but are still happy to ride back to the top of the trail. Bikes are typically medium to long-travel dual suspension and are built for strength.
- **Downhill (DH):** Purely descent only trails with emphasis on speed and technical challenge and focus on skill development. These trails can cater for timed Downhill competitive racing. Downhill trails typically appeal to the more experienced market, however green (easy) downhill trails are emerging to cater for all experience levels. Downhill trails usually require uplift to the trailhead via chairlift or vehicle shuttling. Bikes are designed for descending and are typically long-travel dual suspension and built for strength over weight.
- **Freeride:** Typically, descent focused trails with emphasis solely on technical challenge and skill development. Trails feature both built and natural terrain technical features with a focus on drops and jumps. Appeals to the more experienced market and caters for competitions judging manoeuvres and skills only. Bikes are typically medium to long-travel dual suspension and are built for strength.
- **Park:** Built feature environment with emphasis on manoeuvres, skill development and progression. Appeals to wide market including youth and can cater for competitions judging aerial manoeuvres. Can include Jump and Pump Tracks and Skills Parks. Typically, dirt surfaced but can include hardened surfaces. Bikes are typically built for strength, with short travel suspension.
- **Touring:** Typically, long distance riding on reasonably uniform surface conditions and lower grades. Touring trails are dual direction linear trails or long-distance circuits with a focus on reaching a destination. Touring trails can include rail trails, access/fire roads and single track. While there is a limited market for long distance mountain biking, touring trails can be ridden in sections making them accessible to all. If carrying panniers bikes are usually robust with limited suspension, however, for short sections or day trips most mountain bikes are suitable.

Cross-country and All Mountain trail experiences have the least infrastructure and environmental management requirements and are particularly suited to fostering public appreciation and enjoyment of nature and cultural heritage. For this reason, these types of trails are likely to be the most suitable trail type for the Lake Jindabyne Northern Section if options A (foreshore trail) or B (backcountry ride) are pursued.

## 06 Trail Planning and Development

### Trail Hierarchy/Significance

Establishing the scope and scale of a trail network is essential to new development and ongoing management of trail systems. It ensures that trail systems of the right type, size, scale and extent are established in the right locations.





The following hierarchy for mountain bike facilities has been endorsed by Mountain Bike Australia:

- **National Significance:** A mountain bike facility designed for a large population centre and/or a tourism resource that caters for at least a week of unique riding opportunities  
Criteria:
  - >80km length
  - >50% single track
  - <20km from major highways
  - >90km away from another national scale trail centre
  - Within 1km of a national or state road
  - Mixture of trail classifications: green, blue and black diamond required as minimum
- **Regional Significance:** A mountain bike facility for a small population centre or large community and/or a tourism resource that caters for short breaks or weekend trips
- **Local Significance:** A mountain bike facility for a small community and/or a tourism resource that caters for day trips

### Trail Difficulty Rating System

The International Trail Marking System is used universally on ski fields and has been adapted by the International Mountain Bicycling Association (IMBA) for mountain bike trails.

The *Australian Mountain Bike Management Guidelines* (2019) adopted the IMBA system with some additions and further interpretations, as outlined below.

Class		Description
Very Easy		Wide trail, no obstacles. Suitable for beginners.
Easy		Wide trail, some obstacles. Suitable for beginners with off-road bikes.
Easy with intermediate Sections		Single trail, some obstacles. Suitable for mountain bike riders.
Intermediate		Single trail, obstacles. May include steep sections. Suitable for skilled mountain bike riders.
Intermediate with Difficult Sections		Challenging & variable, some steep climbs/descents, loose surfaces, & unavoidable obstacles. Suitable for competent mountain bike riders.
Difficult		Dangerous & unavoidable obstacles, some sections will be easier to walk. Navigation & personal survival skills are highly desirable. Suitable for experienced mountain bike riders.
Extreme		Dangerous, severe trails & unavoidable obstacles, extreme levels of risk, some sections will be easier to walk. Navigation & personal survival skills are highly desirable. Suitable for experienced mountain bike riders.



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## 06 Trail Planning and Development

### Shared Use Trails

Shared-use trails caters for one or more users which is likely to include pedestrians (i.e. walkers/runners), cyclists and/or horse riders. It is important that trail developments also consider the need for safe emergency and maintenance access which may require vehicle access and/or crews walking in from vehicle access points.

Shared use trails are supported by IMBA. IMBA advises that responsible mountain biking is compatible with most other types of trail users, where managed appropriately. Benefits of shared use trails include their potential to:

- Take advantage of the available space/natural area
- Reduce maintenance costs compared with providing a single use trail for each activity
- More effectively service destinations/points of interest or transport corridors, for example through many users travelling in the same direction
- Help to build relationships and cooperation between different user groups, for example through positive encounters on the trail and mutual interest in maintaining a shared resource
- Be more attractive to funding bodies than single use trails or facilities

However, shared use trails can limit the provision of difficult Technical Trail Features or necessitate alternative routes.

If not promoted and communicated effectively, shared use trails can provide a less predictable experience than single use trails as the risk of conflict or accidents with other trail users is increased.

When designing shared use trails which include mountain bike riders, Mountain Bike Australia advises that the following should be considered:

- Optimum trail speed is achieved through the flow of the trail
- Waymarking keeps users on the trail
- Inclusion of singletrack as this slows users without affecting the experience. The narrow and frequently rough nature of singletrack demands constant focus and a slow to moderate speed, and its tight and twisty nature is exhilarating for riders without requiring high speeds
- The use of slow points and chicanes to control speed
- Turns/corners placed appropriately to ensure sightlines are maintained & speed is controlled
- Passing opportunities are included in design
- Clear sightlines are included in the design
- Safe intersections are designed by slowing users at these points. This can be achieved by using slow points, chicanes, signage, and planning intersections at high points where some speed has dissipated

The *Austrroads Guide to Road Design – Part 6A: Pedestrian and Cyclist Paths* provides guidance on alignment, width and other geometric path and facility requirements. The Guide makes note of the characteristics that contribute to a path network and serve the needs of both pedestrians and cyclists. These include paths that are safe, connected, legible, comfortable, convenient, universal, and pleasant.

The *Austrroads Guide to Traffic Engineering Practice – Part 14: Bicycles* incorporates the agreed national guidelines for provision of road and path facilities for cyclists. The document provides an overview of planning for cyclists in relation to the different levels of government and includes discussions on the role of cycling in transport and integrated land use planning. It details the technical requirements for designing roads and paths for safe and efficient cycling.

While these guidelines are targeted at roadside pedestrian and cyclists paths, rather than through natural areas, they provide valuable information relating to consideration for shared use trails and paths in all environments.

## 06 Trail Planning and Development

### The Importance of Singletrack

As recognised in the *Sustainable Mountain Biking Strategy for NSW Parks* (2011), the practice of directing riders to management trail networks has failed to remain relevant to the needs and expectations of mountain bike riders. Singletrack is desirable because it allows more intimate experiences of the setting, a better connection with nature and relatively high levels of technical challenge at relatively low speeds, which reduces actual risk by increasing the perceived challenge.

NPWS outlines that 'single use trails are appropriate for advanced cross-country, all-mountain, downhill and free riding trails, skills parks and dirt jumps as these activities are generally incompatible with other non-mountain bike trail users due to the nature of the trail, and the speed and actions of the riders'.

Due to the vast, rugged and remote nature of the area to the north of Lake Jindabyne, the most appropriate target market is likely to be skilled, experienced and adventurous mountain bike riders - who are generally seeking technically challenging singletrack trails.

There is unlikely to be latent demand for shared use trails in the Jindabyne region. The Lake Jindabyne Shared Trail (Southern Section) and the iconic Thredbo Valley Track both cater for walkers and cyclists and have existing management challenges associated with trail user conflict. There is also a wide variety of iconic, long-distance, multi-day walking tracks provided in Kosciuszko National Park (e.g. Australian Alps Walking Track, and Snowies Iconic Walk).

### IMBA Epic Rides

The International Mountain Bicycling Association (IMBA), has a Special Designations Program which recognises outstanding, destination-worthy mountain bike trail systems as Ride Centers and iconic, adventurous, backcountry trails as EPICS.

*These are the trails worth travelling to, the best places to introduce someone to the sport we all love, and are the facilities that builders and advocates should look to for inspiration.*

*The IMBA EPICS designation denotes a true backcountry riding experience. They are what many mountain bikers live for and make travel plans around: immersive rides that are technically and physically challenging, beautiful to behold and worthy of celebration. EPICS are demanding, majority singletrack trail experiences in a natural setting and at least 20 miles (32km) in length.*

#### Criteria of an IMBA EPIC

- ✓ True backcountry riding
- ✓ Remote, natural setting
- ✓ Technically and physically challenging
- ✓ More than 80 percent singletrack
- ✓ At least 20 miles (>32 km) in length

IMBA reviews nominations for EPIC rides on an annual basis.

Currently, the only trail in Australia which has achieved endorsement as an IMBA EPIC is the Australian Alpine Epic Trail in Mt Buller, Victoria. As outlined in the *Kosciuszko National Park Cycling Strategy* (2019), the Thredbo Valley Track likely has the potential to achieve IMBA EPIC status, which would attract international attention.

Achievement of EPIC trail status is being targeted across Australia and the world. For example, the trail currently being developed in South Australia's Remarkable Southern Flinders Ranges with the key objective of achieving the exclusive designation as an IMBA EPIC ride.

#### Listed IMBA EPIC Rides (AUS / NZ)

- ✓ Australian Alpine Epic Trail, Mt Buller, VIC
- ✓ Heaphy Track, New Zealand
- ✓ The Old Ghost Road, New Zealand

### Trail Management

As outlined in the *Trail Development Series* (2019), all trails must have an agreed management model, detailing how the trails will be developed, managed and maintained to ensure long-term sustainability. It is also necessary to detail where resources will come from to carry out the ongoing management and maintenance of the trails and any associated facilities and infrastructure. The management model should clearly define agreed roles and responsibilities of those involved in managing the trail.

#### Roles

- **Trail Owner**  
The trail owner is the entity that owns the physical structure of the trails and is usually the owner or manager of the land the trails are on. The trail owner carries the liability for the health and safety of all trail users.
- **Trail Operator**  
The trail operator is the entity that maintains the trails to the agreed standards of the owner.

Owners and operators are often the same entity. However, in some cases, they can be different organisations. For example, the National Parks and Wildlife Service would be the trail owner on lands they manage but may have arrangements with one of more other organisations for the day-to-day maintenance of the trails as the trail operators.

#### Responsibilities

Key responsibilities in provision of a successful recreational trail include:

- **Planning and Coordination**
  - Trail network planning
  - Collaboration with stakeholders
  - Community and stakeholder consultation
  - Policy development
- **Advocacy, Funding and Partnerships**
  - Advocating on behalf of the community and trail user groups
  - Allocation of internal resources
  - Accessing external funding
  - Partnering with other Councils, State and Federal Government
  - Building capacity of trail user groups
  - Strengthening relationships
- **Trail Development**
  - Trail planning and design
  - Environmental and heritage assessment
  - Trail construction
- **Trail Management and Maintenance**
  - Trail inspections
  - Trail maintenance
  - Hazard control measures
  - Vegetation management
  - Volunteer attraction and management
  - Community liaison
  - Trail user compliance
  - Management of funds
  - Compliance with legislation and industry standards
  - Legal responsibility
- **Information Provision and Activation**
  - Information collation
  - Map creation
  - Brochure design and updates
  - Website design and updates
  - Social media
  - Approval of promotional material
  - Brochure distribution
  - Contributions to external online platforms
  - Facilitation of events and programs



07

# Option Analysis



## Options Analysis

The following pages provide an overview and assessment of the key attributes of each option being considered for the development of a Lake Jindabyne 'Around the Lake' Trail Experience.

The five options assessed are:

- Option A: Foreshore Shared Trail
- Option B: Iconic Backcountry Ride
- Option C: Water-based Transport Link
- Option D: Gravel Ride Route
- Option E: Status Quo

### Key Considerations

A map provides an overview of each option and details are explored, with details of key considerations such as distance, time, land tenure, background documents, topography, market segments, access, management, estimated cost, stakeholder and community perceptions and potential impacts/risks.

### SWOT Analysis

The SWOT Analysis summarises the key Strengths, Weaknesses, Opportunities and Threats for each option.

### Multi Criteria Analysis

Multi-criteria analysis is a process which provides an objective review of options against a set of criteria based on project objectives. This is provided to support the identification of a preferred way forward, with associated rationale.



## Option A: Foreshore Shared Trail



### Description

A shared trail (walkers and bike riders) along the lake's edge, with construction of new bridges across the Eucumbene and Snowy Rivers, providing access to the remote, northern extent of the Lake Jindabyne foreshore.

### Distance

Approximately 32km between Kalkite and Creel Bay via northern section. This would join with the Southern Section to form a trail of approximately 100km circumnavigating Lake Jindabyne.

### Suggested Time (Kalkite - Creel Bay)

Bike Riders: One day / 6-10 hours  
E-Bike Riders: Half day / 3-6 hours  
Walkers: 3 days / 2 nights

### Suggested Classification

Mountain Bike Trail Grading System:  
Easy (Green) - Intermediate (Blue)  
Australian Walking Track Classification System:  
Class 4 Bushwalking experience recommended  
(Due to: long distance; remote area; limited facilities).

### Suggested Hierarchy

Regional-level

### Seasonality

Potentially suitable for use year-round, however, most appealing for use October - March.

### Land Tenure

Private land between Kalkite and proposed Eucumbene River crossing.  
Land between Eucumbene River crossing & Creel Bay is part of Kosciuszko National Park (NPWS).  
No land along the proposed alignment is under controlled by Snowy Monaro Regional Council.  
Public right of way to 20m above water level on lake foreshore.

### Key Background Documents

*Lake Jindabyne Shared Trail Business Case (2018)* proposed this alignment as Stage 2 of the Lake Jindabyne Shared Trail Project.

### Topography/Nature of Area

Relatively flat / undulating - generally located between the Lake's edge (elevation: 980m) and the 1,000m contour.

Very remote and isolated.

### Key Drawcards

Circumnavigation of iconic Lake Jindabyne.  
Connectivity to Jindabyne and villages.

### Key Market Segment

'Leisure' cyclist market. However, this market generally has limited skills and require very accessible trails with amenities and services such as bike hire, cafes, and toilets.

### Similar Product Offerings

Comparable experience to the Lake Jindabyne Shared Trail (Southern Section), however more remote/isolated.

Many competing products for the bushwalking market with a range of high quality and high profile bushwalks located in Kosciuszko National Park (e.g. Snowies Iconic Walk, Australian Alps Walking Track).

### Public Access Points

Trailheads established for the 'Southern Section' at Creel Bay & Kalkite with supporting facilities.  
Northern Section accessible to 2WD vehicle via public road network to Kalkite & Creel Bay. (NPWS vehicle fee applies to access Creel Bay).  
Botherum Trail provides 4WD access to Lake Jindabyne (near Kalkite Creek), however is rugged/remote, requiring 4WD skills/experience.



### Emergency Access

No 2WD access other than to trailheads at Creel Bay and Kalkite.

Remote area 4WD access along Botherum Trail.

Large sections of trail without vehicle track access.

Potential for development of emergency access points via boat across Lake Jindabyne - would require access/egress infrastructure.

### Use of Existing Infrastructure

Existing trailheads at Kalkite & Creel Bay.

No bridges over the Eucumbene or Snowy Rivers at required points.

No tracks or support infrastructure along route.

### New Infrastructure Required

Major bridges required (>65m span) for crossings over Eucumbene River and Snowy River, as well as numerous minor crossings (i.e. Kalkite Creek).

32km trail alignment with signage

Support infrastructure along route (i.e. 2 x hiker campsites/accommodation nodes, toilets, rest stops, e-bike charging station/s).

### Management

Trail Management Plan required to clearly articulate cross-tenure roles, responsibilities and required resources for both capital project and operational trail management.

### Implications of Snowy Mountains SAP

*SAP Draft Master Plan (2021)* does not identify this trail as a strategic opportunity.

Proposed trail alignment alongside the southern banks of the Snowy River may be similar for alignment proposed for the Snowy Valley Walk (Guthega - Lake Jindabyne).

### Estimated Capital Investment Required

The *Lake Jindabyne Shared Trail Business Case (2018)* estimated that delivery of Stage 2: 'Northern Network' (Kalkite to Creel Bay) would cost approximately \$4.24M. Based on the unanticipated costs associated with delivery of Stage 1 (Southern Network), it is estimated that the project would cost significantly more than originally anticipated, particularly including allowances for approval processes, variations, development of trail support infrastructure and waterway crossings. Updated approximate cost estimate: \$10M.

### Key Stakeholder Positions

NPWS would need to assess such a proposal based on its alignment with the park's values, including approval by the Regional Advisory Committee and the NPWS Advisory Council. In-principle support has not been provided. NPWS has identified that it has competing priorities and is focusing on other trail developments (i.e. Thredbo Valley Track and Snowies Iconic Walk). NPWS would need to assess such a proposal based on its alignment with the park's values, including approval by the NPWS Advisory Council/Board). NPWS is unlikely to be a project driver due to competing priorities/other trail developments (i.e. Thredbo Valley Track and Snowies Iconic Walk).

Snowy Hydro would consider a proposal detailing this concept but would not pursue as it is not in Snowy Hydro's scope of services. Need to consider security implications for sensitive Snowy Hydro assets.

### Trail User Group Positions

Jindabyne Trails Stewardship (JTS) and Jindabyne Cycling Club have expressed concerns that the trail user market is not large enough to justify expenditure. JTS could not ensure maintenance support without a permanent source of funds to allow for contractors or direct employees.

### Community Perceptions

77% of community survey respondents were supportive of the 'Southern Network + Northern Section'. Many community members concerned about Council's ability to sustainably maintain the trail to the standard required - noting remote area.

### Potential Impacts

#### On Environment and Cultural Heritage

Vegetation clearance required to develop 32km trail alignment, bridges, accommodation nodes and support infrastructure. Need for corridor evaluation process to identify impacts and mitigation measures.

#### On Snowy Hydro Operations

Provision of recreational access to new sections of Kosciuszko National Park - may impact security of sensitive Snowy Hydro Assets.

Activation of new sections of Lake Jindabyne, Eucumbene River and Snowy River which are used for Snowy Hydro Operations.

#### On NPWS

Responsible for trail and user safety on NPWS land.

Bridge over Eucumbene River establishes new access point into Kosciuszko National Park.

Activation of new sections of Kosciuszko National Park for recreational use and accommodation nodes - may require amendment to Plan of Management.

Potential budgetary implications for capital and operational expenditure requirements of trail.

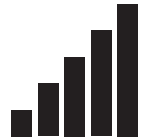
#### On SMRC

Landowner negotiations required to provide public thoroughfare on private land.

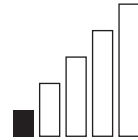
Need to ensure that Council is not responsible for trail beyond capacity to deliver. Taking responsibility of such a significant trail could compromise Council's capacity for other operational requirements, such as management of the region's broader trail network.

## 07 Option Analysis

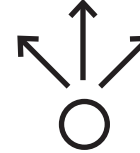
### SWOT Analysis



Strengths



Weaknesses



Opportunities



Threats

- **Around the Lake**  
Provides a connected 'Around the Lake' Trail Experience which integrates with the Southern Section.
- **Scenic Views**  
Provides views of Lake Jindabyne across the entire experience, as well as iconic river crossings.
- **Weekend Ride Offering**  
Completion of the 32km trail experience (Kalkite to Creel Bay) may be achievable within one day for bike riders with high levels of fitness or utilising an E-bike. 100km experience (Around the Lake) may be achievable for some riders.
- **Capital Costs**  
Very significant costs (estimated >\$5M) especially associated with crossings over major rivers and width standards for shared-use trails. Almost no use of existing infrastructure.
- **Operational Costs**  
Very isolated area with inflated costs for trail maintenance.
- **Access/Egress**  
No existing emergency or public access points along the route, except for Botherum Trail (4WD Management Trail in Kosciuszko National Park). Remote and isolated location creates challenges for access for trail maintenance.
- **Distance/Terrain - Walkers**  
Completion of the trail experience would require overnight accommodation options.
- **Land Owner Support**  
Landowners (private, NPWS, Snowy Hydro) have not provided in-principle support. Proposal would require formal assessment and approval processes.
- **Iconic Year-Round Tourism Offering**  
Provision of a year-round 'Around the Lake' trail experience which is an iconic achievement for trail users.
- **Connected Loop**  
Provide off-road connectivity between Kalkite and Creel Bay via the northern extent of Lake Jindabyne.
- **Business Opportunities**  
Encourage opportunities for commercial operators to facilitate trail usage through provision of shuttles, tours, accommodation, bike hire, food/drink etc.
- **Integration**  
Integrate the trail with existing campsites at Gungarlin River and Island Bend Campground, as well as at Creel Bay.
- **Trail Network**  
Develop a high quality and cohesive trail network in the Jindabyne region, complementing the Lake Jindabyne shared Trail (Southern Section), the Thredbo Valley Track and numerous trails within Kosciuszko National Park.
- **Organisational Capacity**  
No organisation has indicated that pursuing the development of this trail is a high priority.
- **Competing Priorities in SAP**  
A range of other major projects and developments are occurring in Jindabyne and surrounding areas, particularly with the Snowy Mountains SAP. The draft SAP Master Plan has not included the 'Around the Lake' Trail Experience citing concerns for viability.
- **User Market**  
Unlikely to appeal to general leisure market due to isolation, limited support facilities along the route, and limited access/egress points. Unlikely to be competitive with other bushwalking offerings in the region
- **Ongoing Operational Costs**  
Operation and maintenance funding streams must be identified prior to trail development to ensure a high quality experience is provided.

## Option B: Iconic Backcountry Ride



### Description

A dedicated mountain bike trail incorporating the Lake Jindabyne foreshore near Kalkite and Creel Bay, the existing vehicle bridge over the Snowy River and a new bridge over the Eucumbene River, and sections of high country and the Snowy Plains.

### Distance

Approximately 66km between Kalkite and Creel Bay via northern section. This would join with the Southern Section to form approximately 134km loop.

### Suggested Time (Kalkite - Creel Bay)

Bike Riders: 2 days  
E-Bike Riders: 1-2 days  
Walkers: 5 days / 4 nights

### Suggested Classification

Mountain Bike Trail Grading System:  
Difficult (Black Diamond) - Extreme (Double Black Diamond)  
Australian Walking Track Classification System:  
Class 4 Bushwalking experience recommended.

### Suggested Hierarchy

National-level.

### Seasonality

Most suitable for use and appealing October - March.

### Land Tenure

Private land between Kalkite and proposed Eucumbene River crossing.  
Land between Eucumbene River crossing & Creel Bay is part of Kosciuszko National Park (NPWS).  
No land along the proposed alignment is under controlled by Snowy Monaro Regional Council.  
Public right of way to 20m above water level on lake foreshore.

### Key Background Documents

*Revised Costing and Map for Jindabyne Lake and Backcountry Experience* (2019) proposed this alignment as an alternative route for Stage 2 of the Lake Jindabyne Shared Trail Project.

### Topography/Nature of Area

Rugged and mountainous topography, particularly in Kosciuszko National Park around Kalkite Mountain. Elevation varies from 980m at lake edge to >1300m near Kalkite Mountain and on south of Snowy River. Very remote and isolated.

### Key Drawcards

Circumnavigation of iconic Lake Jindabyne; Connectivity to Jindabyne and villages; Challenging trail (due to terrain and distance); Varied landscapes: Wilderness backcountry; Snowy Plains; lake, rivers.

### Key Market Segment

'Independent' mountain bike rider market. I.e. Skilled outdoor enthusiasts who are technically proficient, have a good level of fitness and are capable of planning their own rides. The adventurous aspect is more important than the technical challenge and they seek more remote trails.

### Similar Product Offerings

Potentially similar offering to the Thredbo Valley Track, however significantly longer and more remote. Many competing products for the bushwalking market with a range of high quality and high profile bushwalks located in Kosciuszko National Park (e.g. Snowies Iconic Walk, Australian Alps Walking Track)

### Public Access Points

Trailheads established for the 'Southern Section' at Creel Bay & Kalkite with supporting facilities. Northern Section accessible to 2WD vehicle via public road network to Kalkite & Creel Bay.



## 07 Option Analysis

(NPWS vehicle fee applies to access Creel Bay).  
Island Bend Fire Trail and Botherum Trail provide 4WD access to points of the trail.

### Emergency Access

No 2WD access other than to trailheads at Creel Bay and Kalkite, and to bridge over the Snowy River (on Island Bend Fire Trail)

Remote area 4WD access along Botherum Trail.

Large sections of trail without vehicle track access.

### Use of Existing Infrastructure

Existing trailheads at Kalkite & Creel Bay.

Existing vehicle bridge over the Snowy River at required point.

No other tracks or support infrastructure along route.

### New Infrastructure Required

Major bridge required (>65m span) for crossing over Eucumbene River, as well as numerous minor crossings (i.e. Kalkite Creek).

66km trail alignment with signage.

Support infrastructure required along route (i.e. 4 x hiker campsites/accommodation nodes, toilets, rest stops, multiple e-bike charging stations).

### Management

Trail Management Plan required to clearly articulate cross-tenure roles, responsibilities and required resources for both capital project and operational trail management.

### Implications of Snowy Mountains SAP

*SAP Draft Master Plan (2021)* does not identify this trail as a strategic opportunity.

Proposed trail alignment alongside the southern banks of the Snowy River may be similar for alignment proposed for the Snowy Valley Walk (Guthega - Lake Jindabyne).

### Estimated Capital Investment Required

The *Revised Costing & Map for Jindabyne Lake and Backcountry Experience (2019)* estimated that delivery (Kalkite to Creel Bay) would cost approximately \$6.5M-\$7.9M. This included allowance of approximately \$2.8M for bridges and \$3.3M for trail surface/alignment, as well as allowances for project management, cost escalation and contingency. Support facilities, such as campsites were not included. Updated approximate cost estimate: \$10M.

### Key Stakeholder Positions

NPWS would need to assess such a proposal based on its alignment with the park's values, including approval by the Regional Advisory Committee and the NPWS Advisory Council. In-principle support has not been provided. It has been flagged that NPWS would likely be unsupportive as this concept raises significant environmental and cultural heritage concerns, and camping capacity in the northern section is limited. NPWS has identified that it has competing priorities and is focusing on other trail developments (i.e. Thredbo Valley Track and Snowies Iconic Walk).

Snowy Hydro would consider a proposal detailing this concept but would not pursue as it is not in Snowy Hydro's scope of services. Need to consider security implications for sensitive Snowy Hydro assets.

### Trail User Group Positions

Jindabyne Trails Stewardship (JTS) and Jindabyne Cycling Club have expressed concerns that the trail user market is not large enough to justify expenditure. JTS could not ensure maintenance support without a permanent source of funds to allow for contractors or direct employees.

### Community Perceptions

77% of community survey respondents were 'definitely supportive' or 'somewhat supportive' of the

development of 'the Lake Jindabyne Trail: Southern Network + Northern Section'.

Many community members concerned about Council's ability to sustainably maintain the trail to the standard required - noting remote area.

### Potential Impacts

#### On Environment and Cultural Heritage

Vegetation clearance required to develop 66km trail alignment, bridges, accommodation nodes and support infrastructure. Need for corridor evaluation process to identify impacts and mitigation measures.

#### On Snowy Hydro Operations

Provision of recreational access to new sections of Kosciuszko National Park - may impact security of sensitive Snowy Hydro Assets.

Activation of new sections of Lake Jindabyne, Eucumbene and Snowy Rivers.

#### On NPWS

Responsible for trail and user safety on NPWS land.

Bridge over Eucumbene River establishes new access point into Kosciuszko National Park.

Activation of new sections of Kosciuszko National Park for recreational use and accommodation nodes - may require amendment to Plan of Management.

Potential budgetary implications for capital and operational expenditure requirements of trail.

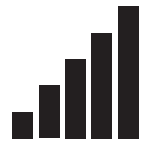
#### On SMRC

Landowner negotiations required to provide public thoroughfare on private land.

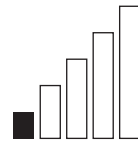
Need to ensure that Council is not responsible for trail beyond capacity to deliver. Taking responsibility of such a significant trail could compromise Council's capacity for other operational requirements, such as management of the region's broader recreational trail network.

## 07 Option Analysis

### SWOT Analysis



Strengths



Weaknesses



Opportunities



Threats

- **Around the Lake**  
Provides an iconic and distinct 'around the lake' experience. Different to the 60km foreshore trail provided in the Southern Section
- **Varied Landscapes**  
Includes views and experiences of wilderness backcountry; Snowy Plains; lake and iconic rivers
- **Iconic Challenging Experience**  
Challenging trail - potential 'Hero Experience' for the region
- **Weekend Ride Offering**  
Achievable to ride the trail (potentially on e-bike) during a dedicated weekend visit
- **Existing Infrastructure**  
Utilises existing vehicle bridge over the Snowy River. May be potential to link to existing campgrounds at Gungarlin River and Island Bend
- **Waterway Crossings**  
Minimises cost of major waterway crossing sites by traversing the high country at a higher elevation
- **Sensitive Infrastructure**  
Avoids traversing close to some identified sensitive Snowy Hydro infrastructure
- **Capital Costs**  
Very significant costs (estimated >\$8M) especially associated with crossings over major rivers
- **Operational Costs**  
Very isolated area with inflated costs for trail maintenance
- **Access/Egress**  
No existing emergency or public access points along the route, except for Botherum Trail and Island Bend Fire Trail (4WD Management Trails in Kosciuszko National Park). Remote and isolated location creates challenges for access for trail maintenance
- **Distance/Terrain - Walkers**  
Completion of the trail experience would require approximately four overnight accommodation nodes
- **Land Owner Support**  
Landowners (private, NPWS, Snowy Hydro) have not provided in-principle support. Proposal would require formal assessment and approval processes
- **Iconic Summer Tourism Offering**  
Provision of a summer 'Around the Lake' trail experience which is an iconic achievement for trail users.
- **Connected Loop**  
Provide off-road connectivity between Kalkite and Creel Bay via the northern extent of Lake Jindabyne.
- **Business Opportunities**  
Encourage opportunities for commercial operators to facilitate trail usage through shuttles to key points, tours, accommodation provision, bike hire, food/drink provision etc.
- **Integration**  
Integrate the trail with existing campsites at Gungarlin River and Island Bend Campground, as well as at Creel Bay.
- **Trail Network**  
Develop a high quality and cohesive trail network in the Jindabyne region, complementing the Lake Jindabyne shared Trail (Southern Section), the Thredbo Valley Track and numerous trails within Kosciuszko National Park.
- **Organisational Capacity**  
No organisation has indicated that pursuing the development of this trail is a high priority
- **Competing Priorities in SAP**  
A range of other major projects and developments are occurring in Jindabyne and surrounding areas, particularly with the Snowy Mountains SAP. The draft SAP Master Plan has not included the 'Around the Lake' Trail Experience citing concerns for viability
- **User Market**  
Likely to appeal to a small market of 'Independent', adventurous and very capable mountain bike riders. Unlikely to be competitive with other bushwalking offerings in the region
- **Landowner Approval**  
Land not controlled by Council. Would require negotiations and approval from numerous landowners (including NPWS, Snowy Hydro and Private)
- **Ongoing Operational Costs**  
Operation and maintenance funding streams must be identified prior to trail development to ensure a high quality experience is provided

## Option C: Water-Based Transport Link



### Description

A water-based transport service linking key destinations of the Lake Jindabyne Shared Trail (e.g. Kalkite and Creel Bay) across the lake.

### Distance

Approximately 5-6km between Kalkite and Creel Bay across Lake Jindabyne. This would join with the 60km Southern Section at each end.

### Suggested Time (Kalkite - Creel Bay)

Approximately 10-30 minutes. Dependent on vessel. Full circuit (Southern Section + Water-based Transport Link) likely achievable in one full day for bike/e-bike riders.

### Suggested Hierarchy

Regional-level.

### Seasonality

Potentially suitable for use year-round, however, most appealing October - March.

### Land Tenure

Lake Jindabyne is managed in partnership between Snowy Hydro and the NSW Roads and Maritime Services. The lake forms part of the Snowy Hydro Scheme - any development must appropriately consider the operational requirements of the lake.

### Nature of the Lake

Large variations in water levels at times during the year within the Minimum Operating Level being at the 896m level and the Full Supply Level at 911m level (the maximum design level for the lake is 920m).

Water levels are generally highest in November and become lower during the summer and autumn months with water being pumped to the Murray region.

Water levels can fluctuate quickly due to rainfall within the catchment and pumping requirements.

### Key Background Documents

*Go Jindabyne Mobility and Connectivity Study (2019) including Appendix C: Lake Jindabyne Service Investigation.*

*Lake Jindabyne Southern Foreshore Management Plan (2005) outlines operational requirements of the lake.*

### Key Drawcards

Circumnavigation of iconic Lake Jindabyne; Varied trail experience varying in landscapes and mode of transport. Connection of the western and eastern extents of the Lake Jindabyne Shared Trail (i.e. Creel Bay and Kalkite); Full circuit achievable within one day for skilled cyclists and/or e-bike riders; May create opportunity for numerous trail experience options (i.e. one way options to various points); Potential for connectivity to other locations on Lake Jindabyne (i.e. Jindabyne, Western Lake Jindabyne, Tyrolean, East Jindabyne).

### Key Market Segment

'Leisure' cyclist market, Nature tourism; Family market.

### Similar Product Offerings

No similar experience has been identified in the region.

### Public Access Points

Trailheads established for the 'Southern Section' at Creel Bay & Kalkite with supporting facilities. Lake Jindabyne is accessible to the public for recreation including boating.

### Emergency Access

Within close proximity to trailheads with suitable emergency access.



### Use of Existing Infrastructure

Existing trailheads at Kalkite & Creel Bay.  
Boat Ramps existing at Creel Bay/Waste Point; Kalkite; East Jindabyne; Claypits (north of Jindabyne); Widows Inlet (north of Jindabyne).  
No existing pontoon/platform infrastructure - requirement for this is dependent on vessel design.

### New Infrastructure Required

Infrastructure (e.g. pontoon/platform) required to accommodate access/egress for water-based transport service.

### Management

Based on case studies included in *Lake Jindabyne Service Investigation* (2019), commercial/private funding and operation likely to be most appropriate. Management Plan required to clearly articulate roles, responsibilities and required resources for both capital project and operational management. Acknowledgment that demand for water-based transport from Creel Bay and Kalkite will be reliant on Council's promotion and maintenance of a high quality trail experience on the Lake Jindabyne Shared Trail (Southern Section).

### Implications of Snowy Mountains SAP

*SAP Draft Master Plan* (2021) identified the key objective to: *Investigate water-based transport tourism modes to connect points of interest around Lake Jindabyne.*  
The opportunity of having a pontoon and water taxi or ferry service to the Jindabyne town centre from Western Lake Jindabyne is also specifically identified.

### Estimated Capital Investment Required

No studies have identified the required investment for the development of access/egress points and/or the water-based vehicle. It is estimated that some level of public investment would be required to facilitate the necessary infrastructure for this option to occur as a private venture. Further technical and financial investigations are required to determine the appropriate vessel and service design, and associated costs.

### Key Stakeholder Positions

NPWS would need to assess such a proposal based on its alignment with the park's values, including approval by the Regional Advisory Committee and the NPWS Advisory Council.

Snowy Hydro would consider a proposal detailing this concept but would not pursue as it is not in Snowy Hydro's scope of services. Need to consider that the lake forms part of the Snowy Hydro Scheme - any development must appropriately consider the operational requirements of the lake.

### Trail User Group Positions

Jindabyne Trails Stewardship (JTS) and Jindabyne Cycling Club have expressed support for this concept if commercially viable.

### Community Perceptions

65% of community survey respondents were 'definitely supportive' or 'somewhat supportive' of the development of 'the Lake Jindabyne Trail: Southern Network + Water Taxi'.

Many community members concerned about the viability of this on Lake Jindabyne and do not support publicly subsidized costs for development of this option.

### Potential Impacts

#### On Environment and Cultural Heritage

Impacts associated with development of support infrastructure (e.g. pontoon/platform).

#### On Snowy Hydro Operations

Increased activation of Lake Jindabyne  
Snowy Hydro must maintain ability to utilise lake (including to fluctuate water levels on demand) for the lake's primary purpose - part of the Snowy Hydro Scheme.

#### On NPWS

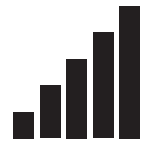
Water-based transport infrastructure at Creel Bay establishes new access point into Kosciuszko National Park.

#### On SMRC

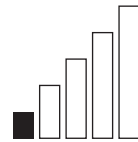
Need to ensure that Council is not responsible for infrastructure to support water-based transport beyond capacity to deliver. Taking responsibility of such a significant infrastructure would likely compromise Council's capacity to manage and maintain the region's broader recreational trail network.

## 07 Option Analysis

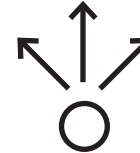
### SWOT Analysis



Strengths



Weaknesses



Opportunities



Threats

- **Around the Lake**  
Provides an iconic and connected 'Around the Lake' Trail Experience integrating with Southern Section
- **Distinct Experience**  
Provides an experience which is complementary yet distinct from the Lake Jindabyne Shared Trail
- **Weekend Ride Offering**  
Completion of trail loop may be achievable within one day for skilled/fit bike/e-bike riders
- **Various Experience Options**  
Potential for water-based transport links to various locations along the lake, providing a wide range of experience options of varying distances and level of challenge
- **Trail User Safety**  
Ensures that trail users are within proximity to towns/villages/facilities, rather than in remote/isolated areas
- **Private Investment and Operation**  
May attract private sector investment and operation, subject to commercial viability
- **Snowy Mountains SAP**  
General alignment with concepts identified in draft SAP Masterplan
- **Capital Costs**  
Significant costs anticipated for the construction of support infrastructure, such as access/egress pontoons/platforms which are engineered to accommodate fluctuations in lake water levels. Functional requirements and costs have not been investigated
- **Unknown Commercial Viability**  
Capital and operational costs, and functional requirements have not been investigated. Required to be commercially viable to attract private investment
- **Community Support**  
Least supported option, as identified through community survey responses. Many respondents cited concern for viability of this option
- **User Cost**  
Incurs a cost to trail users
- **Potential Bottleneck**  
Potential 'bottlenecks' at access points during peak periods
- **Forward Planning Required**  
Requires trail users to plan ahead to ensure connectivity with scheduled transport service
- **Iconic Year-Round Tourism Offering**  
Provision of a year-round 'Around the Lake' trail experience which is an iconic achievement
- **Connected Loop**  
Provide connectivity for trail users between Kalkite and Creel Bay
- **Complementary Experience**  
Provision of a new, complementary tourism experience in a well established tourism region
- **Business Opportunities**  
Encourages opportunities for commercial operators with tours, accommodation provision, bike hire, food/drink provision etc.
- **Trail Network**  
Develop a high quality and cohesive trail network in the Jindabyne region, complementing the Lake Jindabyne shared Trail (Southern Section), the Thredbo Valley Track and numerous trails within Kosciuszko National Park
- **Connectivity to Other Locations**  
Opportunity to provide connectivity to various points across the lake with stops at locations such as Jindabyne, and Western Lake Jindabyne
- **Unknown Commercial Viability**  
Capital and operational costs, and functional requirements have not been investigated. Required to be commercially viable to attract private investment
- **Unlikely Public Investment**  
Based on case studies, public funding and operation is not the common model
- **Demand Reliant on Shared Trail**  
Demand for the water-based transport option from Kalkite and Creel Bay will be reliant on Council's promotion and maintenance of a high quality trail experience on the Lake Jindabyne Shared Trail (Southern Section)
- **Ongoing Operational Costs**  
Minimum service standards must be identified prior to development to ensure a high quality experience is provided

## Option D: Gravel Ride Route



### Description

A marked route for cyclists along roads and management trails between Kalkite and Creel Bay, utilising existing Gungahlin Campground and vehicle bridges over the Eucumbene and Snowy Rivers. Potentially utilising: Kalkite Road; Eucumbene Road; Nimmo Road; Harley's Trail; Hill Trail; Island Bend Firetrail; Management trail along southern bank of Snowy River; and Creel Bay Road.

### Distance

Approximately 80km between Kalkite and Creel Bay via northern section. This would join with the Southern Section to form approximately 148km loop.

### Suggested Time (Kalkite - Creel Bay)

Bike Riders: Two days / 6-10 hours  
 E-Bike Riders: 1-2 days  
 Walking: N/A (not suitable)

### Suggested Classification

Suggested for experienced road and gravel cyclists with a high level of fitness and outdoor skills. Riders to be self sufficient unless supported by a tour operator.

### Suggested Hierarchy

Regional-level

### Seasonality

Potentially suitable for use year-round, however, most appealing October - March

### Land Tenure

Council roads on the eastern side of the Eucumbene River. NPWS management trails through Nimmo Nature Reserve and Kosciuszko National Park

### Key Background Documents

N/A - No prior planning/investigations undertaken



## 07 Option Analysis

### Topography/Nature of Area

Very remote and isolated. Water crossings subject to varying water flow levels.

### Key Drawcards

Circumnavigation of iconic Lake Jindabyne; Isolation in nature; Challenge/Sense of achievement; Varied landscapes; Iconic rivers.

### Key Market Segment

'Independent' cyclist/gravel rider market. I.e. Skilled outdoor enthusiasts who are technically proficient, have a good level of fitness and are capable of planning their own rides. The adventurous aspect is more important than the technical challenge and they seek more remote trails.

### Similar Product Offerings

Potentially similar offering to riding on other roads and management trails in Kosciuszko National Park and the broader region. E-bike tours are currently provided in the region, such as the 'Cascade Hut Guided E-Bike Tour'.

### Public Access Points

Roads and some management trails are publicly accessible. Some management trails are restricted to authorised access only. (NPWS vehicle fee applies to access Creel Bay).

### Emergency Access

No 2WD access other than to trailheads at Creel Bay and Kalkite, and to bridge over the Snowy River (on Island Bend Fire Trail). Remote area 4WD access.

### Use of Existing Infrastructure

Utilises existing roads and management trails, existing vehicle bridges over the Snowy River and Eucumbene River, and Gungarlin Campsite.

### New Infrastructure Required

Trailhead signage, management signage and waymarking signage required. Potential requirement for toilets and e-bike charging stations along route.

### Management

Trail Management Plan required to clearly articulate cross-tenure roles, responsibilities and required resources, with acknowledgment of multi-purpose use of management trails, with primary purpose being for management vehicles.

### Implications of Snowy Mountains SAP

*SAP Draft Master Plan* (2021) does not identify this trail as a strategic opportunity.

### Estimated Capital Investment Required

Costs associated with signage and potentially alterations to fencing/gates along route.

Estimated cost: Low (<\$100,000).

### Key Stakeholder Positions

NPWS would need to assess such a proposal based on its alignment with the park's values, including approval by the Regional Advisory Committee and the NPWS Advisory Council. Bike riding on management trails is currently promoted in Kosciuszko National Park.

Snowy Hydro would consider a proposal detailing this concept but would not pursue as it is not in Snowy Hydro's scope of services. Need to consider security implications for sensitive Snowy Hydro assets. Utilising the management trail along the southern bank of the Snowy River is likely to be problematic.

### Trail User Group Positions

Jindabyne Trails Stewardship (JTS) and Jindabyne Cycling Club have expressed support for formalisation of this existing route.

### Community Perceptions

This option was not included as an option in the community survey. Respondents and community workshop attendees did raise this route as an option for consideration, as well as an alternate route which traverses along eastern bank of Eucumbene River between Kalkite and Nimmo Road Bridge (i.e. private land).

### Potential Impacts

#### On Environment and Cultural Heritage

No clearing required. Impacts expected to be negligible.

#### On Snowy Hydro Operations

Provision of recreational access to new sections of Kosciuszko National Park - may impact security of sensitive Snowy Hydro Assets.

#### On NPWS

Responsible for trail and user safety on NPWS land.

Promotion of new access point into Kosciuszko National Park (i.e. Island Bend Firetrail) may have implications for NPWS.

Requirement to ensure that signage is maintained along route on SMRC land.

Promotion of management trails may have implications for NPWS.

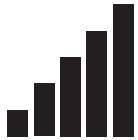
#### On SMRC

Responsible for trail and user safety on SMRC roads.

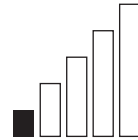
Requirement to ensure that signage is maintained along route on SMRC land.

## 07 Option Analysis

### SWOT Analysis



Strengths



Weaknesses



Opportunities



Threats

- **Around the Lake**  
Provides an option to circumnavigate iconic Lake Jindabyne.
- **Varied Landscapes**  
Includes varied views and terrain.
- **Challenging**  
Provides a challenging experience, allowing people who have completed the loop to have a sense of achievement.
- **Weekend Ride Offering**  
Achievable to ride the trail (potentially on e-bike) during a dedicated weekend visit.
- **Existing Infrastructure**  
Utilises existing vehicle bridges over the Snowy River and the Eucumbene River, as well as Gungarlin Campsite. Potential to link to Island Bend campground.
- **Capital and Operational Costs**  
Requires minimal capital and operation costs, except for provision of e-bike charging stations.
- **Market Size and Repeat Use**  
Small and specific market segment of adventurous, self-sufficient riders with a high level of fitness. Likely an experience that riders will do once, without repeat use.
- **Similar Product Offerings**  
Similar offering to riding other roads & management trails in the region.
- **Requirement for Charging Stations**  
To accommodate e-bike riders, charging stations will be required at suitable intervals along route.
- **Snowy Hydro Infrastructure**  
Potential to impact sensitive Snowy Hydro infrastructure.
- **Remote/Isolated Area**  
Requirement to ensure that potential riders are aware of the remote area and limited facilities.
- **Safety on Roads/Vehicle Tracks**  
Potential safety issues associated with promotion of riding route on roads and vehicle tracks.
- **Key Stakeholder Support**  
Key stakeholders (NPWS, Snowy Hydro) have not provided in-principle support. Proposal would require formal assessment and approval processes.
- **Emerging Market**  
Opportunity to capitalise on the emerging and rapidly growing market of e-bike riders and bike-packers.
- **Business Opportunities**  
Potential for commercial opportunities to facilitate riders, through shuttles, tours, accommodation provision, bike hire, food/drink provision etc.
- **Integration**  
Integrate the trail with existing campsites at Gungarlin River and Island Bend Campground, as well as accommodation at Creel Bay.
- **Organisational Capacity**  
No organisation has indicated that pursuing the development of this trail is a high priority.
- **Usage**  
Potentially very low usage which does not justify the efforts associated with maintaining promotional materials, signage and support facilities along this route.
- **Hazardous Terrain**  
Potentially very hazardous terrain if wayfinding and user safety information is not maintained to a high standard.
- **Landowner Approval**  
Land not controlled by Council. Would require negotiations and approval from numerous landowners (including NPWS, Snowy Hydro and Private).
- **Ongoing Operational Costs**  
Operation and maintenance funding streams must be identified prior to formalisation of route.

## Option E: Status Quo



### Description

Maintaining the Lake Jindabyne Shared Trail (Southern Section) which terminates at Kalkite in the east and Creel Bay in the West, and provides a key strategic link to the Thredbo Valley Track at the Gaden Trout Hatchery.  
Anticipated completion: July 2024.

### Distance

60km between Kalkite and Creel Bay.

### Suggested Time

Bike Riders: One day / 6-10 hours  
E-Bike Riders: Half day / 3-6 hours  
Walkers: 4 days / 3 nights

### Suggested Classification

Mountain Bike Trail Grading System:  
Easy (Green) - Intermediate (Blue)  
Australian Walking Track Classification System:  
Class 3 No Bushwalking experience required (likely with sections which are Class 2).

### Suggested Hierarchy

State-level.

### Seasonality

Suitable for use year-round.

### Land Tenure

SMRC is land owner for sections of trail corridor.  
NPWS is land owner between Gaden Trout Hatchery and Creel Bay (Kosciuszko National Park).  
Snowy Hydro is land owner of sections of trail corridor.  
Private land along foreshore is being acquired by SMRC for trail corridor.  
Council is taking care and control of entire trail corridor as part of trail licensing agreement with NPWS and Snowy Hydro.

### Key Background Documents

*Lake Jindabyne Shared Trail Business Case (2018)*  
*Revised Project Scope Lake Jindabyne Shared Trail Project (June 2019)*  
*Lake Jindabyne Trail Detailed Design - Trail Construction Plans (August 2020)*

### Key Drawcards

Connectivity of towns/villages on Lake Jindabyne.  
Connectivity for Thredbo Valley Track to Jindabyne.

### Key Market Segment

'Leisure' cyclist market, Family market.

### Similar Product Offerings

No similar experiences identified in the region.

### Public Access Points

Trailheads at Creel Bay & Kalkite. Various access points, including at Jindabyne, Tyrolean, East Jindabyne, Hatchery Bay and Gaden Trout Hatchery.

### Emergency Access

Numerous locations accessible in emergency.

### Management

Trail managed by SMRC. Trail licensing agreement for trail section on NPWS estate.

### Implications of Snowy Mountains SAP

Completion of Southern Section identified as priority in *SAP Draft Master Plan (2021)*.

### Estimated Capital Investment Required

\$11.8 million funding awarded by the Regional Growth-Environment and Tourism fund, funded through Restart NSW.

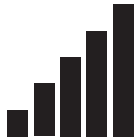
### Community Perceptions

85% of community survey respondents were 'definitely supportive' or 'somewhat supportive' of the development of 'the Lake Jindabyne Trail: Southern Network'.

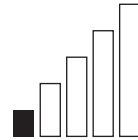


## 07 Option Analysis

### SWOT Analysis



Strengths



Weaknesses



Opportunities



Threats

- **Weekend Ride Offering**  
Achievable to ride the trail (potentially on e-bike) during a dedicated weekend visit.
- **Connection of towns/villages**  
Provides off-connectivity between towns and villages located on Lake Jindabyne, as well as to Creel Bay (Kosciuszko National Park) and the Thredbo Valley Track.
- **Viability**  
Achievable to deliver within SMRC's organisational capacity, utilising external funding source.
- **Resources toward Existing Trails**  
Allows for finite Council resources to be distributed to other areas of need across Council's broader regional trail network, rather than to focus on new trail development.
- **SAP Draft Masterplan**  
Completion of Southern Section identified as priority in *SAP Draft Master Plan* (2021).
- **No 'Around the Lake' Experience**  
Does not provide an 'around the lake' experience.
- **Trail Terminus at Kalkite**  
Kalkite (eastern terminus of the trail) is a residential village that does not currently have visitor facilities/attractions which make it an appealing trail destination.
- **Trail User Safety - Dam Wall**  
Significant issues associated with safety and quality of user experience at section of trail which crosses the Jindabyne Dam wall.
- **Summer Tourism Offering**  
Provision of a summer trail experience accessible from Jindabyne.
- **Business Opportunities**  
Encourage opportunities for commercial operators to facilitate trail usage through shuttles to key points, tours, accommodation provision, bike hire, food/drink provision etc.
- **Trail Network**  
Contribute to a high quality and cohesive trail network in the Jindabyne region, complementing the Thredbo Valley Track and numerous trails within Kosciuszko National Park.
- **Monitor Usage and Experiences**  
Monitor usage of the Southern Section, utilising information gathered to inform future investment decisions.
- **Trail User Conflict**  
Potential for conflict between trail user types (i.e. walkers, cyclists) - dependent on final design/trail corridor widths.
- **Ongoing Operational Costs**  
Potentially high operational and maintenance costs impacting SMRC's budgets.

## Multi Criteria Option Analysis

Multi-criteria option analysis is a process which provides an objective review of options against a set of key criteria. This process supports the identification of a preferred way forward, and outlines the rationale behind this.

### Key Criteria

The following key criteria has been developed to support the analysis of the various options to deliver the Lake Jindabyne 'Around the Lake' Trail Experience. This criteria is based upon the requirements of best practice trail planning and development, and has been tailored to address the specific context of Lake Jindabyne.

1. **Connect Kalkite and Creel Bay**  
Provision of a connected trail experience around Lake Jindabyne.
2. **Iconic visitor drawcard**  
Contribution to the region as a compelling tourism destination.
3. **Community and user group support**  
Likelihood of the development to be supported by the community and trail user groups.
4. **Broad user market**  
Attraction of a broad range of users and large market segment.
5. **Maintenance of high quality experience**  
Ability to maintain service levels which ensure high quality trail experience with well maintained infrastructure.
6. **Flexible experience options**  
Ability for trail users to tailor the experience to suit time, ability, fitness and personal appeal.
7. **Trail user safety**  
Ability to effectively manage risks to personal safety.
8. **Environment and cultural heritage**  
Likelihood of delivery with mitigation of impacts to environmental and cultural heritage values.
9. **Integration with facilities**  
Integration with existing facilities/destinations, townships and contribution to the broader trail network.
10. **Snowy Mountains SAP Draft Master Plan**  
Alignment with initiatives identified in the *Snowy Mountains SAP Draft Master Plan* (2021)
11. **Land owner support and collaboration**  
Likelihood to gain support, approval and collaboration from landowners.
12. **Snowy Hydro assets and operations**  
Likelihood of delivery with mitigation of impacts to Snowy Hydro assets and/or operations.
13. **SMRC organisational capacity**  
Likelihood of SMRC having capacity to effectively deliver and manage as lead agency.
14. **Private sector investment**  
Likelihood of attracting private sector investment.

### Classification System

The following table outlines the analysis of each of the four options being considered based on the criteria identified above. For each of the site criteria an assessment was made as to what extent the criteria was met. The classification scores and colours used in this process are outlined in the table below.

3	Criteria met
2	Criteria partially met
1	Criteria not met

### Estimated Public Capital Expenditure

The estimated public capital expenditure has been outlined for each of the options. The classification of costs are outlined in the table below.

Major Project	>\$1,000,000
High	\$500,000 - \$1,000,000
Medium	\$100,000 - \$500,000
Low	<\$100,000

## 07 Option Analysis

Multi Criteria Option Analysis Table

Criteria	Option A Foreshore Shared Trail	Option B Iconic Backcountry Ride	Option C Water-based Transport Link*	Option D Gravel Ride Route	Option E Status Quo
1. Connect Kalkite and Creel Bay	3	3	3	2	1
2. Iconic visitor drawcard	2	3	2	1	1
3. Community and user group support	2	2	2	2	2
4. Broad user market	2	2	3	1	2
5. Maintenance of high quality experience	1	1	2	1	3
6. Flexible experience options	1	1	3	2	2
7. Trail user safety	2	2	3	1	3
8. Environment and cultural heritage	2	2	3	3	3
9. Integration with facilities	1	2	3	2	2
10. Snowy Mountains SAP Draft Master Plan	1	1	2	1	3
11. Land owner support and collaboration	1	1	1	2	3
12. Snowy Hydro assets and operations	1	2	2	2	3
13. SMRC organisational capacity	1	1	2	2	3
14. Private sector investment	1	2	3	1	1
<b>TOTAL SCORE</b>	<b>21</b>	<b>25</b>	<b>34</b>	<b>23</b>	<b>32</b>
Estimated Public Capital Expenditure	Major Project	Major Project	Medium-High	Low	Major Project^

\* Privately funded and operated, may include public subsidy

^ \$11.8M Funding allocated. Southern Section anticipated completion: 2024.



08

# Recommendation



## Recommended Option

### Option C: Water-based Transport Link

It is recommended that the NSW Government, in partnership with SMRC, and in consultation with key stakeholders, undertake further investigations into the viability of establishing a water based transport service on Lake Jindabyne, which would service recreational trail users as well as other members of the public. While this option has been determined as the most suitable option to deliver a Lake Jindabyne 'Around the Lake' trail experience, further investigations are required into the technical and financial viability.

It is expected that the operation of the water based transport service would be most viable as a commercial venture, with the potential need for public financial support during the initial phases of development. As demonstrated in the review of water taxi case studies (refer Appendix A), the majority of successful services in comparable contexts are privately operated.

As well as recreational benefits, the development of water based transport on Lake Jindabyne will also bring benefits to the region associated with improved connectivity and mobility (e.g. taking pressure off roads such as Kalkite Road and Kosciuszko Road), and complementing the region's tourism offerings with experiences such as scenic cruises, private charters and lake tours. It is anticipated that the water based transport would complement many of the developments which are planned for the region as part of the Snowy Mountains State Activation Precinct.

## Concept

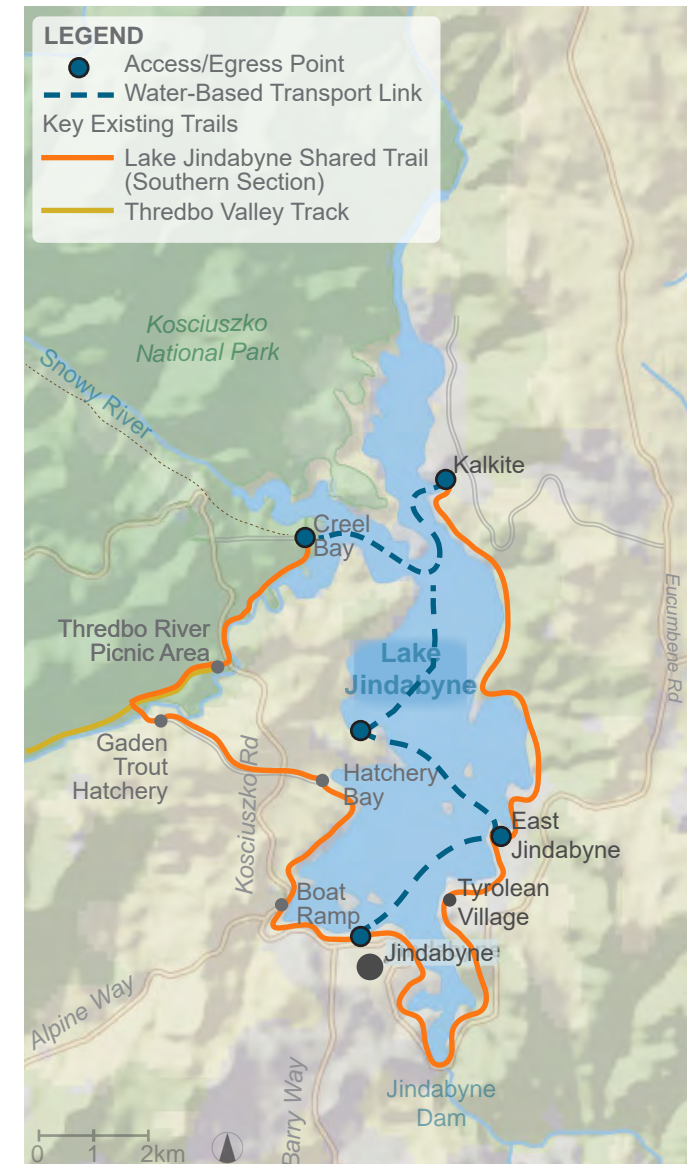
The concept for water-based transport on Lake Jindabyne to complete the Lake Jindabyne Shared Trail is shown on the following map.

From a recreational perspective, the concept should be designed to transport trail users and their bikes between Jindabyne and the terminus points of the Lake Jindabyne Shared Trail at Creel Bay and Kalkite. The service may also have interim stops, such as at East Jindabyne and Western Lake Jindabyne. The most appropriate vessel and service options will depend upon the specific operator and stakeholder requirements.

The service is likely to be most effective if operated by a private operator on a user pays basis. Government can support this endeavour through undertaking feasibility studies, pilot projects, preparation of commercial prospectus/ request for proposals, determining minimum standards, planning and establishing support facilities, subsidising operations, and procuring vessels.

It is envisaged that the service would operate on a schedule during peak seasons (i.e. summer tourism season), and be available on-demand during other periods.

The level of infrastructure required to facilitate this concept will be heavily dependent on the type of vessel selected. Access/egress points may require boat ramps, pontoons or platforms, and will require support facilities such as car parking, ticketing areas, amenities and signage.



## Next Steps

It is recommended that:

1. SMRC formally propose the concept of a water-based transport link across Lake Jindabyne to key stakeholders (i.e. Snowy Hydro, NPWS, NSW State Government) to seek in-principle support and understand key stakeholder requirements of such a service.
2. SMRC advocate for the inclusion of water-based transport on Lake Jindabyne as a component of the Snowy Mountains SAP Masterplan, specifically to connect Kalkite, Creel Bay and Jindabyne.
3. SMRC, in partnership with the NSW Government, commission a technical and financial feasibility study for the concept of water-based transport on Lake Jindabyne (specifically linking Kalkite, Creel Bay and Jindabyne).

## Vessel and Service Options

A wide range of vessel and service options should be considered, including the use of new and emerging technologies, and provision of iconic and unique tourism experiences.

Consideration should be given to the following:

### Vessel requirements

- Ability to operate on Lake Jindabyne with water level fluctuations associated with Snowy Hydro operations
- Capability to transport bikes as cargo
- Potential for other tourism services, such as sunset cruises
- Access/egress/docking requirements
- Fuel and/or electric charge sources
- Storage requirements

### Service level requirements

- Service routes and schedules
- Frequency of service
- Seasonality
- Safety requirements
- Quality assurance

### Capital investment

- Access/egress infrastructure requirements, such as platform, pontoon, docking station, boat ramp or terminal to accommodate appropriate vessel type
- Support facilities such as ticketing area, car parking, toilets/amenities

### Operational costs of service

- Labour/staffing requirements
- Vessel maintenance requirements
- Fuel
- Insurances
- Licence fees
- Marketing and promotion

### Business model/revenue

- Service fee structure
- Subsidy options
- Packaged tourism offerings

### Demand/patronage estimation

- Patron capacity
- Appropriate service fees
- Seasonality impacts
- Complementary products (e.g. Lake Jindabyne Shared Trail)
- Target markets
- Market trends

### Broader context

- Final Snowy Mountains SAP Masterplan (currently being prepared)
- Roles and requirements of government agencies (e.g. SMRC, NSW Government, NPWS)
- Snowy Hydro operational requirements
- Kosciuszko National Park Plan of Management



### Overview of Other Options

The five options for delivery of a Lake Jindabyne 'Around the Lake' Trail Experience have been assessed concurrently with development of the Snowy Monaro Regional Trails Masterplan. It is important to appreciate that Council is responsible for a widespread network of recreational trails across the geographically vast and diverse local government area. Many of Council's existing trails require attention to elevate the region's status as a trail destination, and there are numerous proposals for new trail developments which are being strategically considered. Council's organisational capacity to take on new trail development projects is finite and this has been a key consideration in the feasibility assessment.

Further details and strategic context relating to Council's current and potential future regional trail network are provided in the *Snowy Monaro Regional Trails Masterplan* (2022).

An overview of the findings for each of the other options assessed is provided below.

#### Option A: Foreshore Trail

Option A: Foreshore Trail has been determined to be the least feasible option, achieving a score of 21 through the multi-criteria analysis. It is anticipated that this trail would not attract a user market which is significant enough to justify such major capital and operational public investment. Development would require access along private property, may compromise the security of sensitive Snowy Hydro assets, and have impacts on areas with high environmental and cultural heritage value (particularly in Kosciuszko National Park). Significant support infrastructure and emergency access routes would need to be developed to deliver a sought-after and safe trail experience.

#### Option B: Iconic Backcountry Ride

Option B: Iconic Backcountry Ride achieved a score of 25 through the multi-criteria analysis. While this trail could be an iconic visitor drawcard to the region, it is anticipated that it would not attract a user market which is significant enough to justify such major capital and operational public investment. Major works would be required to deliver the level of support infrastructure needed to provide a sought-after and safe trail experience. Operational costs for this route are likely to be inflated due to access constraints into the remote and rugged area. There may be value in revisiting this option in the future (e.g. 2030+) to assess feasibility with consideration of changes in technology, trends and regional context.

#### Option D: Gravel Ride Route

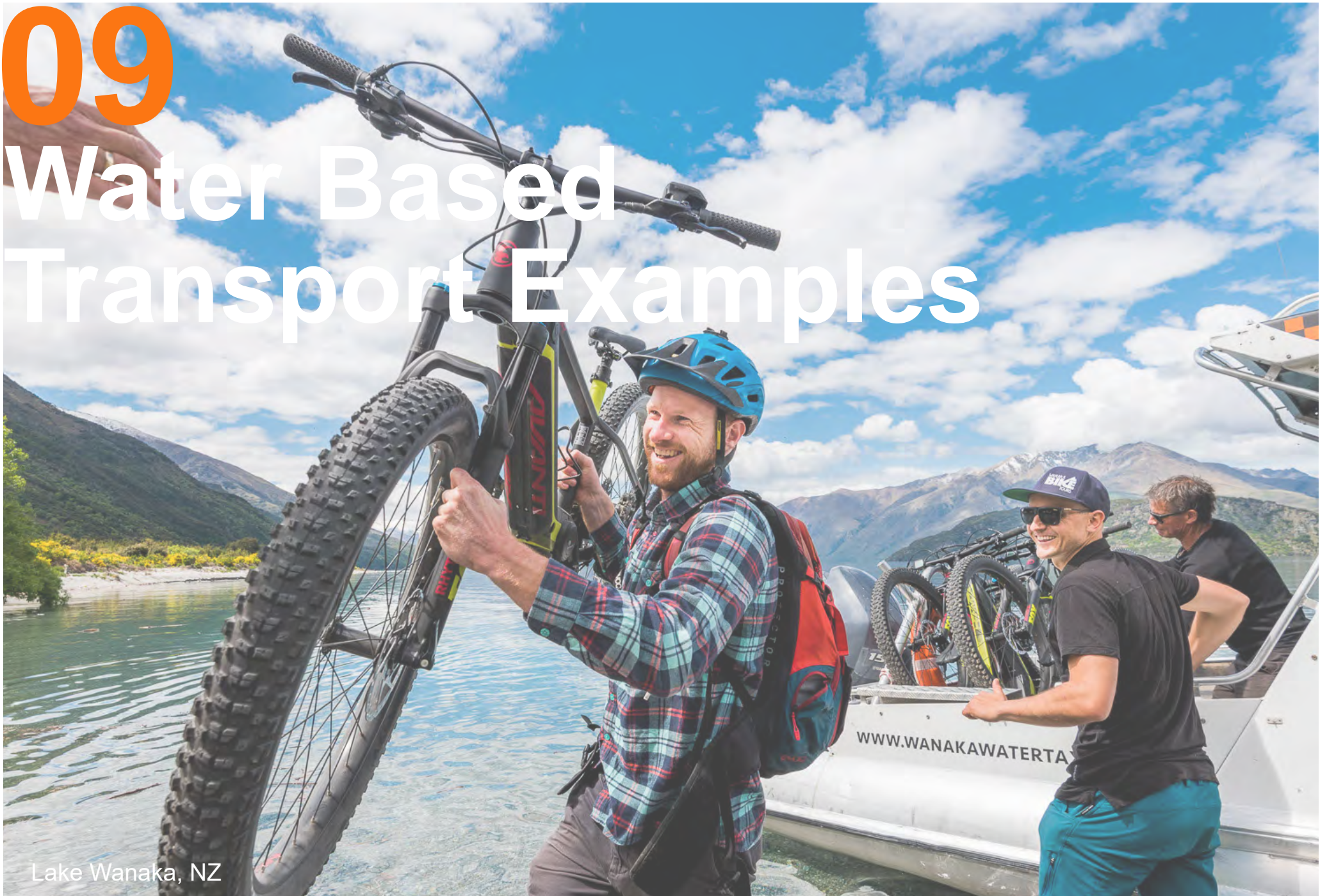
Option D: Gravel Ride Route achieved a score of 23 through the multi-criteria analysis. While this option does not require significant investment or infrastructure and is supported by key community stakeholders, it is not anticipated to attract a large market and would be a compromised 'Around the Lake' experience which does not effectively meet the objective of connecting the trailheads at Kalkite and Creel Bay. While this option may have merit as a formalised cycling/gravel riding route in its own right, it is not a sufficient option to complement the Lake Jindabyne Shared Trail (Southern Section).

#### Option E: Status Quo

Option E: Status Quo achieved a score of 32 through the multi-criteria analysis. Significant public investment has been allocated toward the development of the Lake Jindabyne Shared Trail (Southern Section) to connect Jindabyne with the Thredbo Valley Track, Creel Bay and Kalkite. The trail experience is significantly compromised without offering a loop experience, however, the development of facilities at Kalkite and Creel Bay could assist in supporting these to become enhanced trail destination points. Choosing Option E: Status Quo would also allow for monitoring of trail use once the Southern Section is complete to inform how public funds could best be used to further enhance the trail experience.

09

# Water Based Transport Examples



Lake Wanaka, NZ



## 09 Water Based Transport Examples

A wide range of destinations utilise water-based transport to provide access for transport and tourism purposes. Many of these transportation vessels and services cater for the needs of recreational trail users, including cyclists and their bikes.

There is no 'one size fits all' approach to the design and specification of water based transport vessels and services. Examples are provided to support the identification of the Lake Jindabyne Service's desired characteristics and options available.

The following range of examples of different water-based transport options are highlighted over the following pages:

- Lake Wānaka Water Taxi, NZ
- Bay2Bay Water Taxi, Taupō, NZ
- Picton Water Taxi, Queen Charlotte Sound, NZ
- Abel Tasman Sea Shuttle, Abel Tasman National Park, NZ
- Lake St Clair Ferry Service, Cradle Mountain-Lake St Clair National Park, Tasmania
- Freycinet Aqua Taxi, Coles Bay, Tasmania
- Lakes Explorer, Lakes Entrance, Victoria
- Aquaduck, Gold Coast and Sunshine Coast, Queensland
- Perth Waterbike Adventures, Western Australia
- Hovertravel, Isle of Wight, United Kingdom

### Lake Wānaka Water Taxi, NZ

Wanaka Water Taxi, near Queenstown in New Zealand, provides access to many locations around Lake Wānaka. This promotes and facilitates a range of flexible riding and hiking options such as the West Wānaka Track and the Millennium Track.





## 09 Water Based Transport Examples

### Bay2Bay Water Taxi, Taupō, NZ

The Bay2Bay Water Taxi provides flexibility to users of the Great Lake Trails, with pick up and drop off points around Lake Taupō.

The vessels are also available for other services such as scenic cruises, and private charters.



### Picton Water Taxi, Queen Charlotte Sound, NZ

Picton Water Taxis offers on-demand water-based transport to locations across the Queen Charlotte Sound, providing access for walkers, bike riders and trail maintenance crews to the Queen Charlotte Track. Private charters and tours are also offered.



### Abel Tasman Sea Shuttle, Abel Tasman National Park, NZ

Abel Tasman Sea Shuttles is a transport and adventure tourism operator providing scenic cruises and water taxis with a fleet of customised vessels. The service provides access to locations along the iconic Coast Track. .





## 09 Water Based Transport Examples

### Lake St Clair Ferry Service, Cradle Mountain-Lake St Clair National Park, TAS

Lake St Clair Lodge operates the highest altitude ferry service in Australia. It takes guests on scenic cruises and also provides hikers with access to the Overland Track. The service is scheduled for peak seasons, and on-demand at other times.



### Freycinet Aqua Taxi, Coles Bay, TAS

Freycinet Adventures operates a range of tourism services, including the Aqua Taxi in Freycinet National Park which has numerous pick up and drop off points. The scheduled daily departures are a popular way to experience walking tracks, including access to the iconic Wineglass Bay.



### Lakes Explorer, Lakes Entrance, VIC

Lakes Explorer provides water-taxi, tours and private charter services across the Gippsland Lakes and River systems. The service provides access to remote areas on a commercial four-passenger ferry.





## 09 Water Based Transport Examples

### Aquaduck, Gold Coast and Sunshine Coast, QLD

Aquaduck has fleet of amphibious vehicles which provide land, sea and river-based tours in the Gold Coast and Sunshine Coast. The vehicles can access and exit the water at various points, usually at boat ramps, without the requirement for significant docking infrastructure.



### Perth Waterbike Adventures, WA

Perth Waterbike Adventures offers water-biking on the Swan River in Perth. It is promoted as 'suitable for people of all ages and fitness levels'. Minimum user height is 140cm, and baby seats are available. Other technologies exist (e.g. ShuttleBike) which allow use of personal bikes.



### Hovertravel, Isle of Wight, United Kingdom

Hovertravel is a passenger ferry service between Portsmouth and the Isle of Wight, in England. It is an iconic and fast mode of transport, with fares varying with seasons, and packages available. Up to four bicycles can be carried free of charge to the iconic cycling destination.





# Appendix A

## Lake Jindabyne Service Investigation

## C. LAKE JINDABYNE SERVICE INVESTIGATION

# MEMORANDUM

## Transport Planning

TO: Rukshan de Silva, NSW Department of Planning and Environment

CC: Christina de Freitas (GTA), Laura Harding (Hill Thalys)

FROM: Nick Buchanan

DATE: 17 June 2019

OUR REF: N169610

PAGE 1 OF 18

RE: GO JINDABYNE MOBILITY AND CONNECTIVITY STUDY – LAKE JINDABYNE SERVICES

## Introduction

The NSW Government is developing a Masterplan for Jindabyne (**called** 'Go Jindabyne') to revitalise the gateway town to the Snowy Mountains and make it Australia's premier alpine destination and a place to visit all year round. The Masterplan will set out a clear vision for the hub of the Snowy Mountains and consider all aspects of Jindabyne, including tourism, jobs, services, accommodation, housing, roads, local products and all factors that contribute to the distinct local character of the town.

The Go Jindabyne Mobility and Connectivity Study will provide an understanding of the current demand on the existing road and other transport networks operating in Jindabyne and surrounding, assess the potential impacts of forecast growth on these networks, and provide recommendations on appropriate upgrades and/or new infrastructure required to facilitate the growth and function of Jindabyne, ultimately informing the Go Jindabyne Masterplan.

## Scope of this Memo

Following a meeting between NSW Department of Planning and Environment, GTA and Hill Thalys on 22 May 2019, the NSW Department of Planning and Environment requested that GTA investigate the future provision of a water-based tourist service on Lake Jindabyne.

## Approach

In order to provide further information on the potential viability of a water-based tourist service on Lake Jindabyne, GTA undertook the following tasks:

- Identification of similar water-based tourist services in Australia or overseas
- Desktop review and benchmarking of similar tourist services as case studies
- Summary of key findings and implications for Lake Jindabyne associated with a similar tourist service.

Costs associated with a tourist service including the fleet, infrastructure, operations or maintenance, as well as demand estimation and patronage as well types of vehicles allowed on Lake Jindabyne are outside this commission and have not been considered.



## Case Studies

The following section presents an overview of eight case studies that are broadly comparable to Lake Jindabyne, from both Australia and overseas. A summary of key findings is presented after the overview of each case study. All sources and references are provided at the end of this memo.

### (1) Lake Argyle - Western Australia

Lake Argyle is Western Australia's largest and Australia's second largest freshwater man-made reservoir by volume. The reservoir is part of the Ord River Irrigation Scheme and is located near the East Kimberley town of Kununurra. The lake flooded large parts of the Shire of Wyndham-East Kimberley on the Kimberley Plateau about 80 kilometres inland from the Joseph Bonaparte Gulf, close to the border with the Northern Territory.

Located 70 km from Kununurra via the Victoria Highway and Lake Argyle Road, Lake Argyle village and the Argyle Downs Homestead Museum are 1,100 km from Broome, 3,300 km from Perth and 800 km from Darwin.

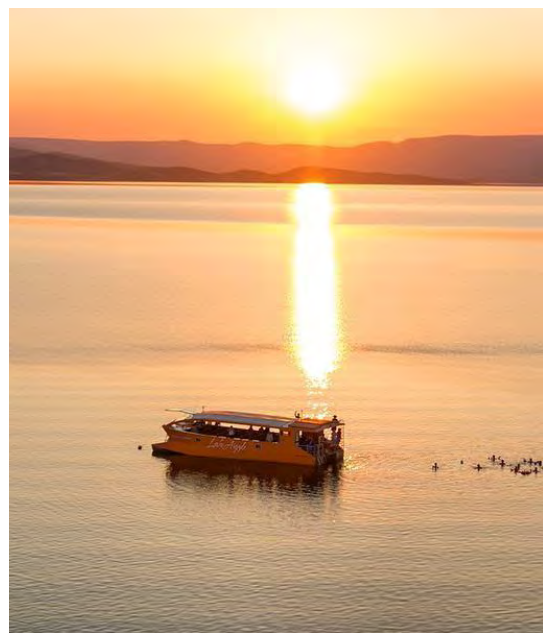
There are the following tourist services operating on Argyle Lake:

- Argyle Cruises offer morning, sunset and full afternoon cruises on the lake.
- Triple J Tours offer cruises on the Ord River from the lake to Kununurra or back.

Lake Argyle Satellite Map



Lake Argyle Cruises



## (2) Lake Como - Italy

Lake Como is a lake of glacial origin in Lombardy, roughly 1.5 hours north of Milan in the north of Italy. It has an area of 146 square kilometres, making it the third-largest lake in Italy. At over 400 metres deep, it is one of the deepest lakes in Europe, and the bottom of the lake is more than 200 metres below sea level.

The Lake Como ferry service is a highly developed public transport system linking the many small towns around the Lake, with three main public services:

- Motorboat services along the western branch and northern end of the Lake, with additional shuttles to the mid-lake area
- Fast services that follow broadly the same route, but use faster vessels (hydrofoils), stop less frequently, higher cost compared to motorboat
- Ferries that run only between the popular mid-lake tourist villages. Some of these boats carry vehicles as well as passengers

In addition to the services above, tourists can use the services of several private taxi boats and boat tours.

The lake also offers car ferry, which only runs between four ports: Bellagio, Varenna, Cadennabia and Menaggio. Direct service has journey time between 10 and 15 minutes and runs at least every hour, between:

- Bellagio and Varenna, Cadennabia or Menaggio
- Menaggio and Varenna

Lake Como satellite map

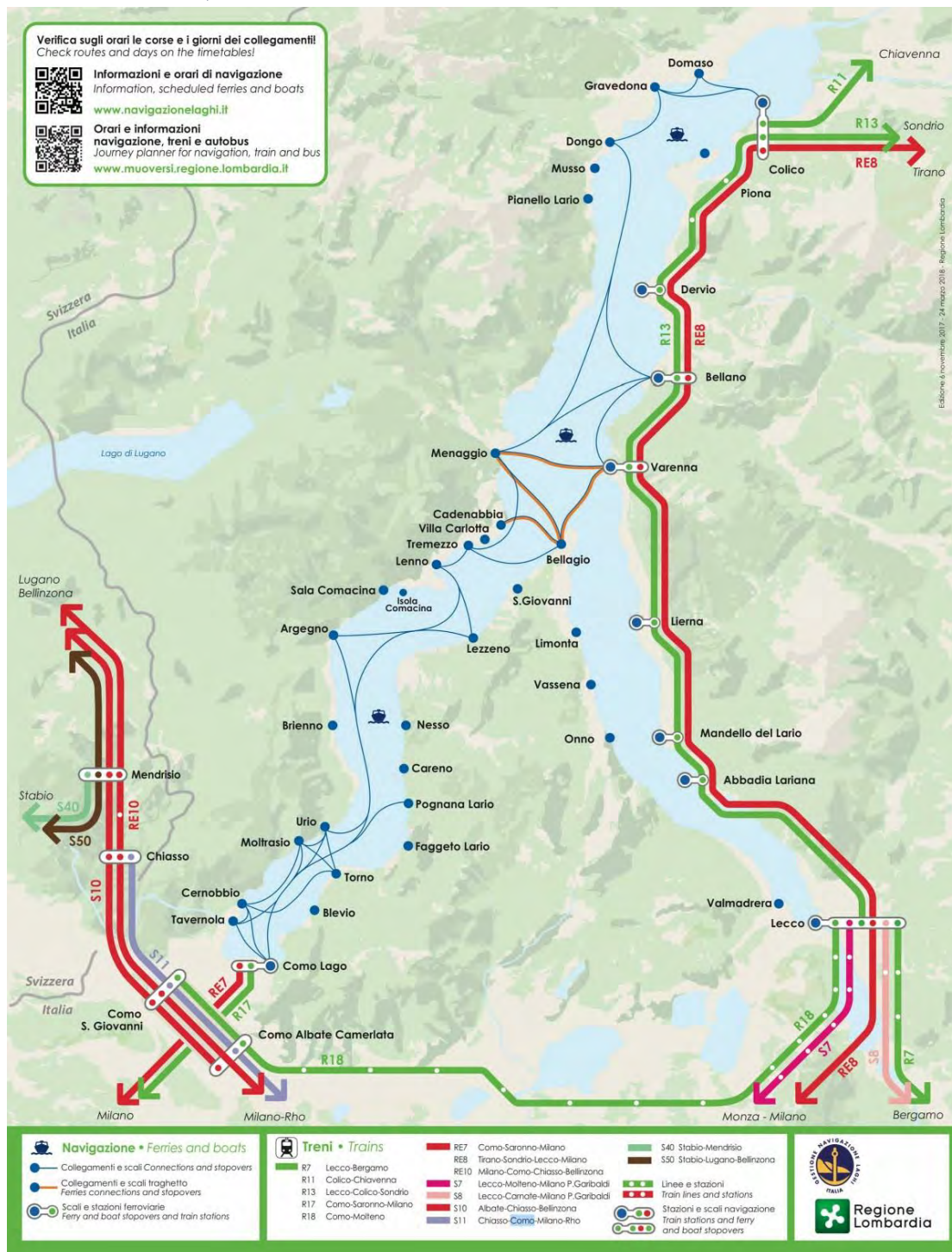


Lake Como view





## Lake Como ferries map





### (3) Lake Bled - Slovenia

Lake Bled is a lake in the Julian Alps of north-western Slovenia. The area is a tourist destination with many natural attractions. The lake is 35 km from Ljubljana International Airport and 55 km from the capital city of Ljubljana.

The lake is 2,120 m long and 1,380 m wide, with a maximum depth of 30 m, and it has a small island – Bled Island - which contains tourist attractions, with **Porvost's House (historical landmark)** and the Pilgrimage Church of the Assumption of Maria among the most relevant. The lake is surrounded by mountains and forests. Medieval Bled Castle, a tourist attraction and museum is located on the lake's north shore.

Traditional transport to Bled Island is a wooden boat known as a pletna. Similar in shape to Italian gondolas, a pletna seats 20 passengers. Modern boats are still made by hand and are recognisable by their colourful awnings. Pletna oarsman propel and navigate boats across the lake using two oars.

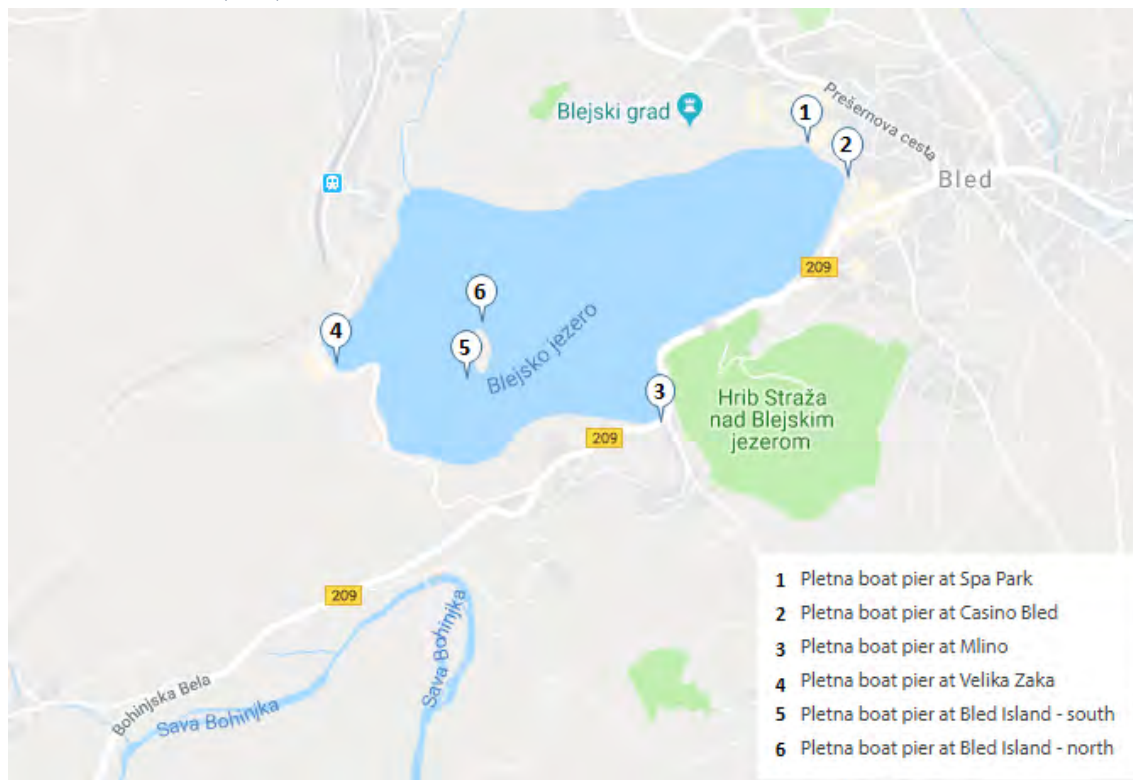
Lake Bled satellite map



Lake Bled and Bled Island view



Lake Bled cruise stop map



#### (4) Lake Wakatipu - New Zealand

Lake Wakatipu is an inland lake in the South Island of New Zealand, with the tourist town of Queenstown located on the north-east part of the lake.

With a length of 80 kilometres, it is New Zealand's longest lake, and, at 291 km<sup>2</sup>, its third largest. The lake is also deep, its floor is below sea level, and has a maximum depth of 380 metres.

Queenstown is located on the shore of Lake Wakatipu among alpine ranges, and is renowned as the adventure capital of New Zealand. There is skiing from winter to spring, and activities such as bungy jumping, sky diving, canyon swinging, jet boating, horse trekking and river rafting all year round.

There are several cruises available in the lake summarised in the following categories:

- Catamaran cruises
- Day cruises
- Lunch cruises
- Water tours.

Lake Wakatipu satellite map



Lake Wakatipu Catamaran Cruise





## (5) Lake Wanaka - New Zealand

Lake Wanaka is located in the Otago region of New Zealand, at an altitude of 278 metres. Covering an area of 192 km<sup>2</sup>, it is New Zealand's fourth largest lake, estimated to be more than 300 metres deep.

Wanaka, a resort town on New Zealand's South Island, is set on the southern end of its namesake lake with views of snow-capped mountains. It's the gateway to the Southern Alps' Mount Aspiring National Park, a wilderness of glaciers, beech forests and alpine lakes. Treble Cone and Cardrona ski resorts are near the park.

There are some water-based transport services for tourists and locals including boat cruises, water taxis, jet boating and sailing.

Lake Wanaka satellite map



Lake Wanaka Cruise



## (6) Lake St Clair – Tasmania

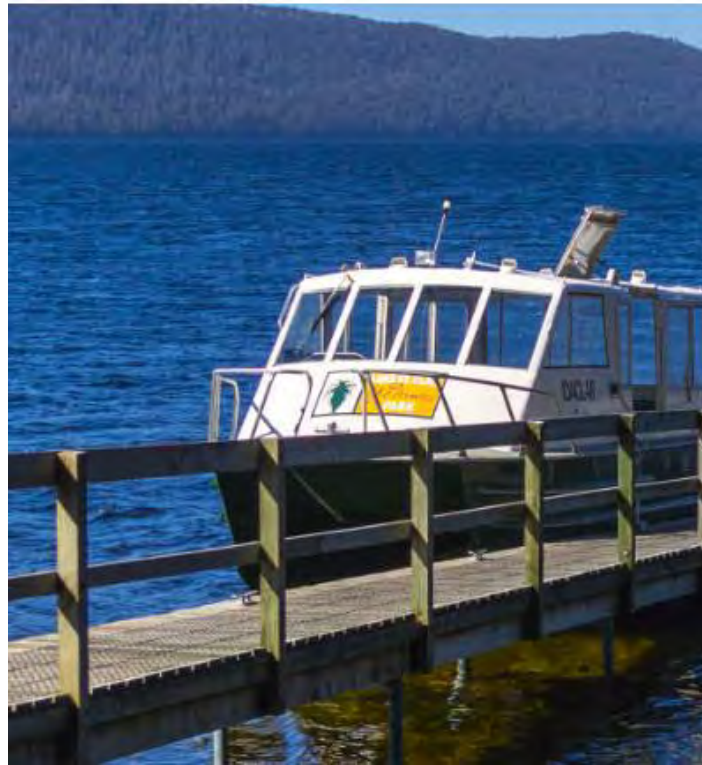
Lake St Clair is a natural freshwater lake located in the Central Highlands area of Tasmania. The lake forms the southern end of the Cradle Mountain-Lake St Clair National Park. It has an area of approximately 45 square kilometres, and a maximum depth of 160 metres, making it Australia's deepest lake.

Eco Geo Internationals runs the cruise service currently with a vessel called IDA Clair in a 28 km 30-minute voyage on the lake.

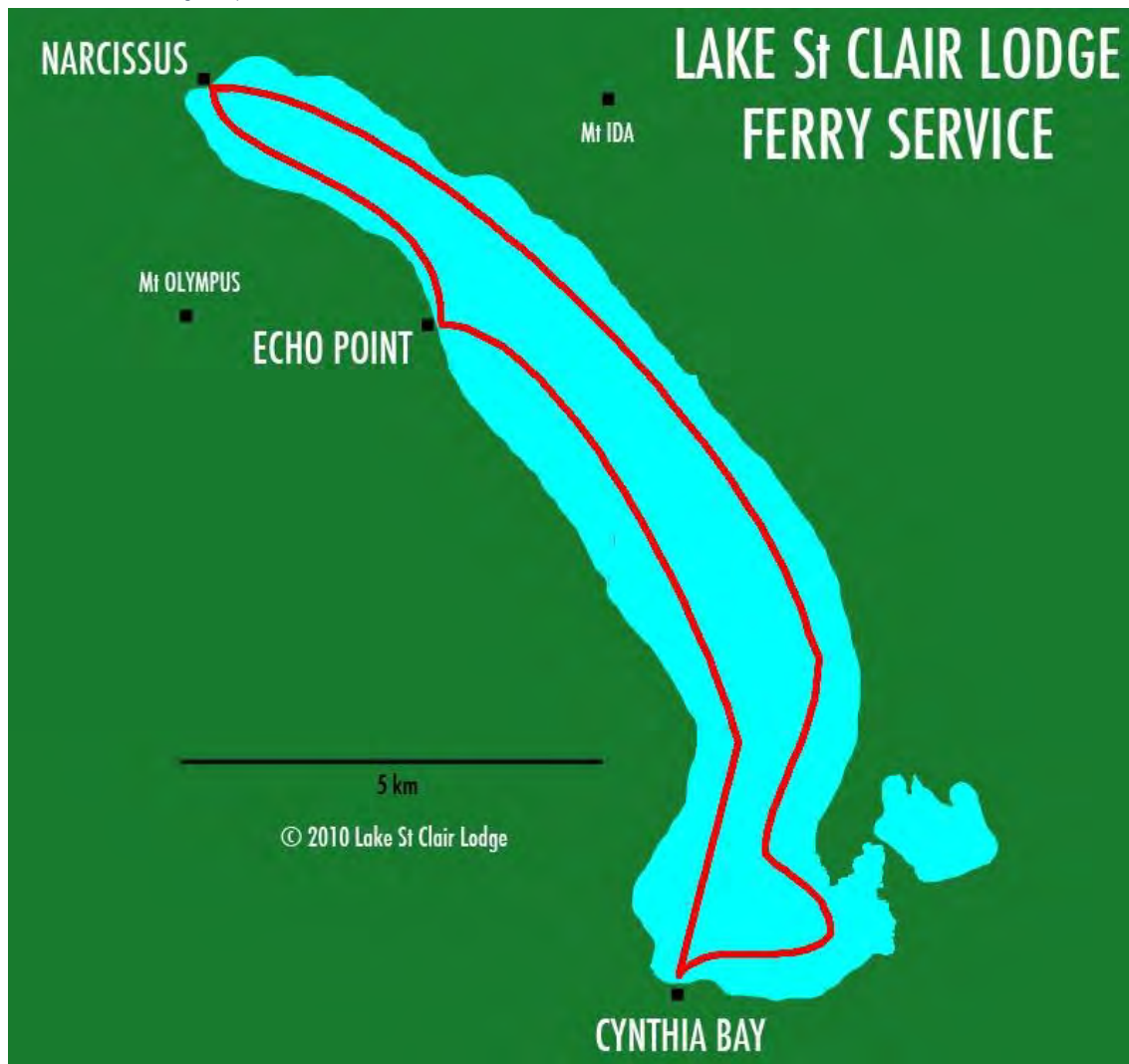
Lake St Clair satellite map



Lake St Clair ferry



Lake St Clair ferry map



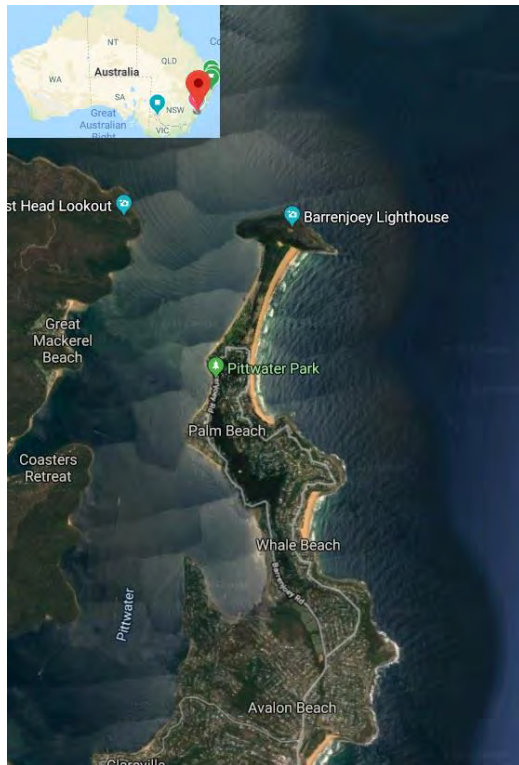


## (7) Pittwater - Palm Beach-Wagstaffe – Sydney, NSW

Palm Beach is a suburb located 45 kilometres north of Sydney, Pittwater is located south-west of Palm Beach, and Wagstaffe is to the north of Palm Beach.

There are several cruises connecting Palm Beach to adjacent stops available by Fantasea Cruising including Tourist and public transport services.

Pittwater satellite map



Pittwater tourist service



## (8) Lake Tahoe - USA

Lake Tahoe is located in the Sierra Nevada mountain range in the Western United States. Lying at 1,897 m, it straddles the state line between California and Nevada, west of Carson City. Lake Tahoe is the largest alpine lake in North America at 150.7 km<sup>2</sup>. Its depth is 501m and is the second deepest lake in the United States.

Lake Tahoe is a major tourist attraction in both Nevada and California. It is home to winter sports, summer outdoor recreation, and its scenery is enjoyed throughout the year. Snow and ski resorts are a significant part of the area's economy and reputation.

Lake Tahoe hosts a number of boating events, including sailboat racing, guided cruises, and more. At least ten different types of water-based services are offered.

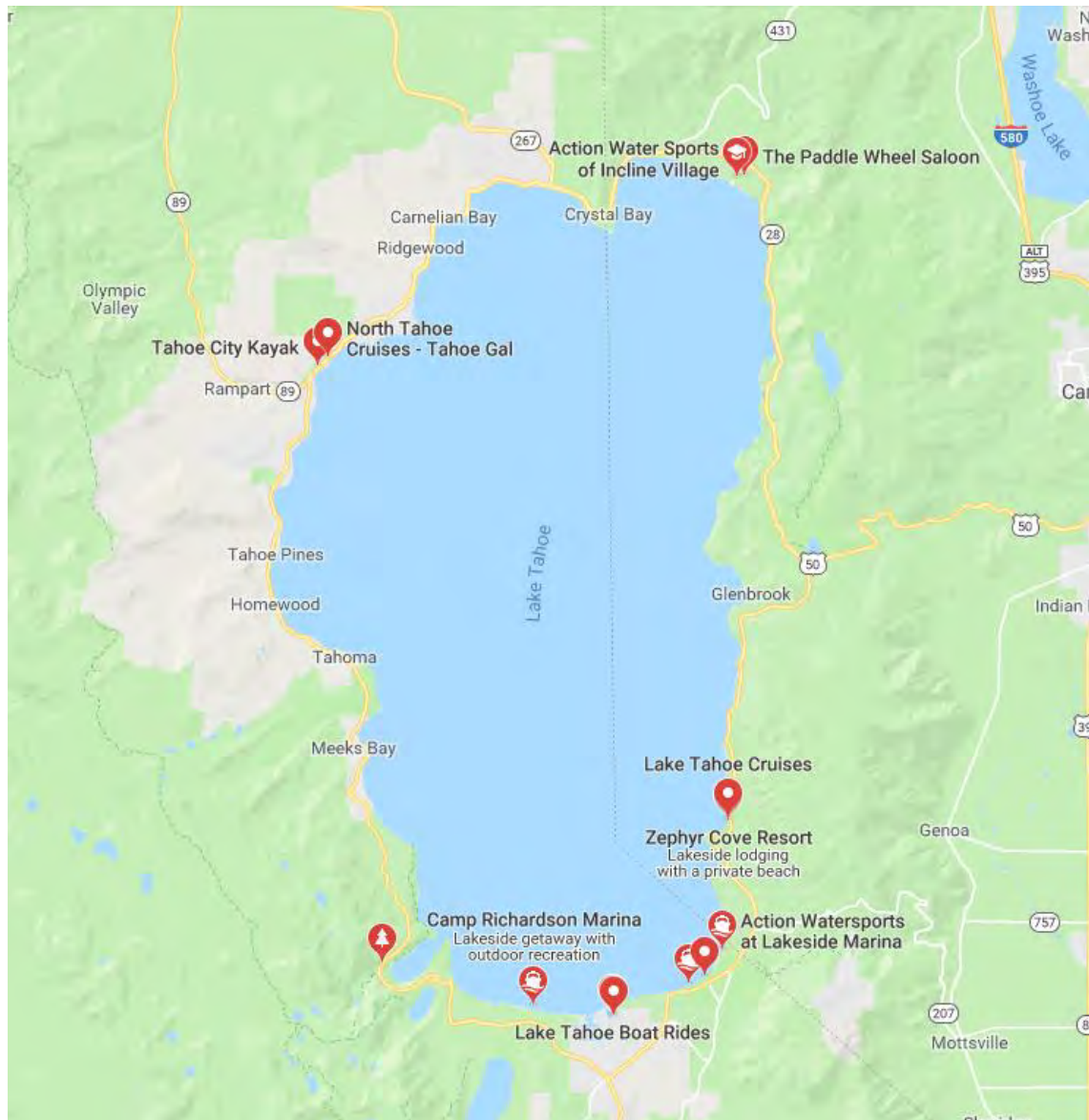
Lake Tahoe satellite map



Lake Tahoe view



Lake Tahoe map





## Case Study Overview

The following table presents an overview of relevant information for each of the case studies.

Table 1: Case studies overview (part 1)

Location	Season	Type of service	Distance/time	Number of stops	User fee	Operating hours	Frequency	Funding
Lake Argyle - Western Australia <ul style="list-style-type: none"> <li>• Morning Cruise</li> <li>• Jaliwang</li> <li>• Sunset Cruise</li> </ul>	Not available	Tourist	2 ¼ to 12 hours	0 to 2	AUD\$70 - \$1090	Mornings – Sunsets – whole day	Once a day	Private
Lake Como – Italy <ul style="list-style-type: none"> <li>• Motorships</li> <li>• Hydrofoils</li> <li>• Ferries</li> </ul>	All seasons	Tourist	50km	Up to 17	€8.30 to €69.90 depending on the service	7:30 to 19:45	Up to 50 services per day	Public
Lake Como – Italy <ul style="list-style-type: none"> <li>• Boat tours</li> <li>• Taxi boats</li> </ul>	All seasons	Tourist	45min to 3 hours	4-17	€10 to €500 depending on the service	11 am to 17 pm	Multiple times a day	Private
Lake Bled - Slovenia	All seasons	Tourist	5 hours	6	€15	Not available	Not available	Private
Lake Wakatipu - New Zealand <ul style="list-style-type: none"> <li>• Queenstown ferries</li> <li>• Water taxis</li> </ul>	All seasons	Tourist and public transport	30 min	5+	NZD 9	7:45 am to 11 pm	Once an hour	Private
Wanaka- New Zealand	All seasons	Tourist and local	1 to 3 hours	0 to 3	AUD \$49- 239	8:00 am to 8:00 pm	Daily	Private
Lake St Clair – Tasmania	Summer only On-demand in winter	Tourist	28km	3 stops- Cynthia Bay, Echo Point, Narcissus	Adult One-way \$50 Child One-way \$25	9:00 to 10:30 12:30 to 14:00 15:00 to 16:30	Summer: 3 times (a day 7 days a week) Winter: on demand	Private (Eco-Gen International Company)
Pittwater Edges-Palm Beach – Sydney NSW	All seasons	Tourist and public transport	10km to 30km	slightly different routes serve 7 different destinations]	Adult: AUD \$16-23 return Concession and children: \$8.2-11.8 Multi-Trip ferry ticket: 10: \$74-106	Monday to Friday- 6:30 to 6:15pm Saturday 7:30 to 6:15 Sunday and public holidays 8:00 to 6:15 pm	Every 90 min year-round	Private (Fantasea Company)
Lake Tahoe – USA	All seasons	Tourist	1-5 hours	Not available	AUD 95 to 660	8 am to 6 pm	Multiple times a day	Private

## Case studies overview (part 2)

Location	The user group (Passenger/Car)	Uses around lake edge	Lake size in comparison with Lake Jindabyne (30km <sup>2</sup> )	Boat capacity (passengers)	Passenger number on peak season and off season
Lake Argyle - Western Australia <ul style="list-style-type: none"> <li>Morning Cruise</li> <li>Jaliwang</li> <li>Sunset Cruise</li> </ul>	Passenger	<ul style="list-style-type: none"> <li>Walking trails around the lake edge</li> </ul>	1000km <sup>2</sup> (Approx. 33 times larger)	5 to 40	Not available
Lake Como – Italy <ul style="list-style-type: none"> <li>Motorships</li> <li>Hydrofoils</li> <li>Ferries</li> </ul>	Passenger / car	<ul style="list-style-type: none"> <li>Dense, populated semi-urban area</li> <li>Road along the lake</li> <li>Some ferries offer car transport (limited ports)</li> <li>Tourist attractions around the lake</li> </ul>	146km <sup>2</sup> (Approx. 4.8 times larger)	5 to 200	Not available
Lake Como – Italy <ul style="list-style-type: none"> <li>Boat tours</li> <li>Taxi boats</li> </ul>	Passenger			8 to 20	Not available
Lake Bled - Slovenia	Passenger	<ul style="list-style-type: none"> <li>Bled Island in the middle of the lake</li> <li>Walking trails around the lake</li> <li>Mala Osojnica is a natural attraction close to the lake</li> </ul>	1.5km <sup>2</sup> (Approx. 20 times smaller)	8	Not available
Lake Wakatipu - New Zealand <ul style="list-style-type: none"> <li>Queenstown ferries</li> <li>Water taxis</li> </ul>	Passenger	<ul style="list-style-type: none"> <li>Queenstown at one end of the lake</li> <li>Tourist destination at the opposite end of the lake from Queenstown</li> </ul>	291km <sup>2</sup> (Approx. 9.7 times larger)	1 to 20	Not available
Lake Wanaka - New Zealand <ul style="list-style-type: none"> <li>Cruise</li> <li>Water taxis</li> </ul>	Passenger	<ul style="list-style-type: none"> <li>Wanaka Town at one end of the lake</li> <li>Natural tourism attractions around the lake</li> </ul>	192 km <sup>2</sup> (Approx. 6.4 times larger)	1 to 10	Not available
Lake St Clair – Tasmania	Passenger	<ul style="list-style-type: none"> <li>Cradle Mountain is a tourist destination</li> <li>The road around the lake at the east and south side</li> <li>Walking trails along south-east of the lake links Cynthia Bay to Narcissus</li> </ul>	45km <sup>2</sup> (Approx. 1.5 times larger)	20	On-demand in winter
Pittwater Edges-Palm Beach – Sydney NSW	Passenger	<ul style="list-style-type: none"> <li>Tourism attractions</li> <li>Scotland Island in the middle of the lake</li> <li>A road along the east side of Pittwater edges</li> </ul>	Not applicable	200	Not available
Lake Tahoe – USA	Passenger	<ul style="list-style-type: none"> <li>A road around the lake</li> <li>Tourism attractions</li> <li>Several towns around the lake There are two state parks on the south and east side of the lake</li> </ul>	496km <sup>2</sup> (Approx. 5 times larger)	10 to 300	Not available

## Key Findings

Table 2 shows key findings extracted from the case studies and summarises relevant aspects which provide an indication of best practice for further studies of water-based transport services on Lake Jindabyne.

Table 2: Key findings related to Lake Jindabyne

Case Study	Key findings	Relevance to Go Jindabyne/ Lake Jindabyne
Lake Argyle – Western Australia	<ul style="list-style-type: none"> <li>• Similar human-made reservoir lake</li> <li>• Short duration cruises</li> <li>• All operators are private</li> <li>• Different duration and cost options make it more attractive for different customer groups</li> </ul>	<ul style="list-style-type: none"> <li>• Short duration cruises could be applicable for Jindabyne</li> <li>• Private operators run the services</li> <li>• Similar in terms of uses around the lake edges</li> </ul>
Lake Como - Italy	<ul style="list-style-type: none"> <li>• All season operations</li> <li>• Public and private operators</li> <li>• Well-known tourism attractions</li> <li>• Different duration and cost options make it more affordable for different groups</li> <li>• Services operate multiple times a day</li> </ul>	<ul style="list-style-type: none"> <li>• Public and private operators both operating.</li> <li>• Generally higher population density around the lake makes public transport services viable - development pattern along the shore is quite different</li> <li>• Multiple destinations offer greater choices</li> </ul>
Lake Bled - Slovenia	<ul style="list-style-type: none"> <li>• All season operations</li> <li>• Private operation</li> <li>• Several locations for stops</li> <li>• Affordable prices</li> </ul>	<ul style="list-style-type: none"> <li>• Size of the lake and an island in the middle of the lake has similarities to Lake Jindabyne, but the island in Jindabyne is smaller and not have the attraction</li> <li>• Private operators run the services</li> <li>• Similar to Lake Jindabyne in terms of size</li> </ul>
Lake Wakatipu – New Zealand	<ul style="list-style-type: none"> <li>• Both tourist and public transport</li> <li>• All season operations</li> <li>• Frequent services</li> <li>• Long operation time from early morning to late night</li> <li>• Taxi boat services</li> </ul>	<ul style="list-style-type: none"> <li>• Public and private operators</li> <li>• Queenstown is a large tourist town, one focal point for services on the lake</li> </ul>
Wanaka	<ul style="list-style-type: none"> <li>• Daily operation</li> <li>• Variety of different types of cruises</li> <li>• Taxi boat services</li> </ul>	<ul style="list-style-type: none"> <li>• Private operators</li> <li>• Taxi services a good example connecting Jindabyne to East Jindabyne</li> </ul>
Lake St Clair - Tasmania	<ul style="list-style-type: none"> <li>• Seasonal cruise services - only in the summer season</li> <li>• Private operation</li> <li>• On-demand on winter</li> </ul>	<ul style="list-style-type: none"> <li>• Good example for Lake Jindabyne in terms of seasonal services and on-demand services in winter</li> <li>• Timetable for operation can be used as a benchmark</li> <li>• Similar size to Lake Jindabyne</li> </ul>
Pittwater Edges - Sydney	<ul style="list-style-type: none"> <li>• Different operating patterns and several attractions for stops</li> <li>• Both tourism and public transport services</li> </ul>	<ul style="list-style-type: none"> <li>• Using water-based services for both public transport and tourist services could be beneficial for Jindabyne, but would require infrastructure and further analysis regarding economic feasibility</li> </ul>
Lake Tahoe - USA	<ul style="list-style-type: none"> <li>• Wide range of water-based services privately operations</li> </ul>	<ul style="list-style-type: none"> <li>• Wide variety of short duration cruises and boats</li> <li>• Private operators run the services</li> </ul>



Case Study	Key findings	Relevance to Go Jindabyne/ Lake Jindabyne
	<ul style="list-style-type: none"> <li>• All seasons</li> <li>• Multiple times a day</li> <li>• Different private operators serve tourists</li> </ul>	<ul style="list-style-type: none"> <li>• Water-based events</li> </ul>

## Summary

From the case studies presented, there are similarities for inland lakes such as Lake Jindabyne, including being rural/remote in nature, with water-based tourist services.

Key findings include the following:

- Most lakes have private operators
- Many services are tourist based with a range of different destinations and durations
- Using water-based services for both public transport and tourist services could be beneficial for Jindabyne
- Most services operate year-round, however a precedent for Lake Jindabyne would be Lake St Clair in Tasmania which has scheduled summer services and operates winter services on demand.

Further investigation would need to be undertaken regarding costs associated with a tourist service including the fleet, infrastructure, operations or maintenance, as well as demand estimation and patronage.

## References

(All information accessed between 25/05/2019 to 17/06/2019)

Location	Reference links
Lake Argyle	<a href="https://www.australiasnorthwest.com/business/tour/lake-argyle-cruises">https://www.australiasnorthwest.com/business/tour/lake-argyle-cruises</a>
Lake Como	<a href="https://lakecomotravel.com/boat-tours-ferry-lake-como/#motorships">https://lakecomotravel.com/boat-tours-ferry-lake-como/#motorships</a> <a href="https://www.expedia.com.au/things-to-do/en/lake-bled-and-bled-castle-tour-from-ljubljana.a551220.activity-details?semcid=AU.MULTILOBLX.GOOGLE.AT-c-EN.LX&amp;semdtl=a11368339769.b156197305578.r1.q1dsa-497511626357.i173171726393.d1345243418743.e1c.j19071853.k1.f11t1.n1.l1g.h1b.m1&amp;qclid=Cj0KCQjwitPnBRCQARIsAA5n84l_E1LDMycEe5PQqhM4-q0D53KPI2l-7mDM1AKpJ1HxxR0GK02aEWAAhPQEALw_wcB">https://www.expedia.com.au/things-to-do/en/lake-bled-and-bled-castle-tour-from-ljubljana.a551220.activity-details?semcid=AU.MULTILOBLX.GOOGLE.AT-c-EN.LX&amp;semdtl=a11368339769.b156197305578.r1.q1dsa-497511626357.i173171726393.d1345243418743.e1c.j19071853.k1.f11t1.n1.l1g.h1b.m1&amp;qclid=Cj0KCQjwitPnBRCQARIsAA5n84l_E1LDMycEe5PQqhM4-q0D53KPI2l-7mDM1AKpJ1HxxR0GK02aEWAAhPQEALw_wcB</a> <a href="https://www.getyourguide.com/lake-como-l63/best-of-lake-como-charming-boat-cruise-from-varenna-t216276/?partner=true">https://www.getyourguide.com/lake-como-l63/best-of-lake-como-charming-boat-cruise-from-varenna-t216276/?partner=true</a> <a href="https://www.google.com/maps/place/46%C2%B000'36.3%22N+9%C2%B017'02.7%22E/@46.0233663,9.2161019,12z/data=!4m5!3m4!1s0x0:0x018m2!3d46.0100932!4d9.2840833">https://www.google.com/maps/place/46%C2%B000'36.3%22N+9%C2%B017'02.7%22E/@46.0233663,9.2161019,12z/data=!4m5!3m4!1s0x0:0x018m2!3d46.0100932!4d9.2840833</a> <a href="https://www.palazzodelvicere.com/lake-como-ferry-maps-and-timetables/">https://www.palazzodelvicere.com/lake-como-ferry-maps-and-timetables/</a>
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