



Around the Mountains Cycle Trail
Mavora Lakes to Centre Hill

South Mavora Lake
Source: Southland NZ.com

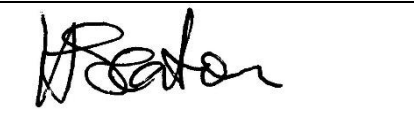
Feasibility Report
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Executive Summary

This report, prepared by Destination Planning Ltd and Active Systems Ltd for the Around the Mountains (ATM) Cycle Trail Trust, presents a technical feasibility assessment for a new 39km off-road Grade 2 cycle trail section between Mavora Lakes and Centre Hill in Northern Southland. The current trail route is on a gravel road and is considered sub-standard for user experience and contributes to lower usage statistics for the ATM. It is also a significant safety risk. The purpose of this upgrade is to enhance the trail's safety, appeal, visitor experience, and economic contribution by developing a high-quality off-road alternative.

Several key reasons justify this investment. The ATM, despite significant investment, remains incomplete and therefore constrained from realising the original vision and long-term return on investment. The existing Mavora Lakes and Centre Hill Road section is widely criticised by users and operators for its coarse, loose gravel and dust in summer. An off-road, compacted, smooth fine gravel surface would significantly improve the physical riding experience to a Great Ride standard. The current on-road section presents a high risk of serious injury or fatality due to vehicle-cyclist incidents, particularly during holiday seasons with increased traffic.

The proposed new trail will introduce riders to vastly different, diverse, and stunning environments to elevate ATM's profile as a must-do Great Ride. Highlights include:

- South Mavora Lake, part of a World Heritage Area and home to Lord of the Rings film locations
- Eight km of unique riding through mature beech forest with views along the Mararoa River and across to Bald Hill. This type of native forest cycle trail is in short supply regionally.
- Elevated riding along the lower slopes of Bald Hill, providing impressive panoramic views north to the Livingston Mountains, up the upper Ōreti valley, south to the Takitimu Mountains, and across the quintessentially Southland rural scene.
- Traversing through QEII Covenanted blocks showcasing restoration of red tussock and grey scrubland habitats and along the edge of Burwood Bush Scientific Reserve.
- Opportunities for rich storytelling and interpretation, including Ngāi Tahu history, ecological zones, and restoration efforts by PAMU and QEII Trust.

Wider Network Strategy: This upgrade supports the strategic vision for a comprehensive regional network of trails eventually joining Queenstown and Fiordland. The upgraded Mavora walkway to Kiwi Burn provides a new part of that link.

Proposed Route and Technical Feasibility

The preferred route is approximately 38.4km long, involving 270m of climbing and 470m of descending when riding from north to south. It primarily involves upgrading the existing Mavora Lakes Walkway and creating new sections across PAMU (Landcorp) land and Public Conservation Land (PCL). The route is designed to comply with the Grade 2 (Easy) NZCT standard with small sections on Grade 3, ensuring accessibility for confident beginner riders and maximising user range.

Key features and requirements for the preferred route include:

- Widening the existing 600mm wide Mavora Walkway track and realigning 1.8km of steep trail to meet the Grade 2 and 3 gradient specifications.
- Replacing the Kiwi Burn swing bridge with a new 32m truss bridge.
- Bridging other waterways (e.g., Cerberus Creek) and smaller side streams, with 94m of total bridges and boardwalks required for the Mavora section.
- Minimising fencing requirements on PAMU land by utilising already fenced-off QEII covenanted areas and adjacent PCL. This significantly reduces cost and improves the riding experience by not being laned in.

Having reviewed a range of initial route options and assessed these onsite and in discussions with landowners and other key stakeholders, the preferred route delivers 32km out of 39km of outstanding riding. The market for cycle trails in NZ is incredibly competitive, with 23 Great Rides competing for users. Building high quality trail that provides for a great user experience will enable the ATM to not only survive but thrive. For this reason, we have recommended the very best trail option that will deliver on the visitor experience required to drive increased users and economic prosperity for the communities it serves.

Building an exceptional trail doesn't necessarily cost more than something 'rough and ready', but it may take additional resources during detailed design and more time to secure the most desirable land access.

Challenges and Considerations

Land Access on Public Conservation Land (PCL): A significant portion of the preferred route (16.4km) traverses PCL. Under the current Conservation General Policy and the 2016 Murihiku Southland Conservation Management Strategy (CMS), new bike trails are generally restricted on PCL unless specifically allowed. Approval will require a formal application to the Southland Conservation Board and Kaitiaki Roopū Ki Murihiku, demonstrating minimal impacts, and considering alternative routes. The use of e-bikes on PCL will also have to be addressed.

The rest of the land is PAMU Farms who have been in-principle supportive and engaged on finding workable alignment options that avoid interfering with their farming operations. Between PAMU and QEII Trust which has covenants on some retired PAMU blocks, there is good support to progress to detailed design and commencing negotiation of easements.

Ecological and Archaeological Values: While no archaeological sites are noted in the project area, the trail negotiates around wetland and crosses areas with native habitats, and potentially threatened plants and animals. A detailed trail-specific ecological assessment, including a lizard assessment by a herpetologist, will be required to support consent applications and manage potential impacts under a Wildlife Act Authority. Ōraka Aparima Rūnaka hold Mana Whenua status over the area being considered and have been engaged and shown proposed route options. Their formal support would be sought as the detailed ecological impact information is gathered, and they are part of the Kaitiaki Roopū Ki Murihiku working with DOC.

Natural Hazards: Sections of the trail, particularly near the Mararoa River and side streams, are subject to natural hazards like flooding and inundation. The design of earthworks and structures must consider these risks and justify their location in relation to hazard zones in any consent application.

Regulatory Approvals: Consent is required for earthworks within riparian margins and generally for trail formation due to scale.

Budget and Timelines

The estimated total cost to deliver the proposed trail to a high standard is \$7.15 million. This budget includes planning, design, physical works, and supervision. The annual operational and maintenance budget is estimated at \$102,000, covering vegetation control, surface repair, inspections, and tree fall clearance.

The project is anticipated to take approximately 5 years from initial concept to delivery. This includes 1.5-2 years for securing legal land access (particularly with DOC), 6-12 months for consenting and approvals, and 1.5-2 years for tendering and construction.

Economic Impact

In addition to the \$7.15M planning, design and construction spend and associated jobs, the upgraded trail experience is projected to significantly boost economic activity.

Current Use: The ATM currently sees approximately 7,600 cycling trips annually (2024/25), with about 50% (3,800 trips) estimated to occur in the Mavora area.

Projected Growth (Do-Nothing Scenario): Without the upgrade, ATM numbers are projected to grow by 5% per annum, reaching 4,850 users in the Mavora section by Year 5.

Additional Growth (With Upgrade): Upgrading the Mavora-Centre Hill section is estimated to boost ATM numbers by an additional 10% per annum (high scenario) on top of the do-nothing growth, leading to a total of 7,643 users by Year 5. This represents an additional 2,793 users of the new trail compared to the do-nothing scenario.

Increased Spend: Using an average spend of \$260 per night (increasing 3% p.a. with inflation), the additional users are projected to generate a direct additional spend of \$3.27M per annum by Year 5 (assuming an average 4-night stay).

Job Creation: This direct spend is estimated to support between 21 and 28 Full-Time Equivalent (FTE) jobs by Year 5.

Accommodation Potential: Whilst accommodation feasibility was not within scope for this report, if the trail upgrade is followed by new accommodation in the Mavora area (potentially two years after trail opening), it could further boost user growth by an additional 30% (35% total growth). That could support incremental direct spend of \$8.8 million per annum by Year 5.

In conclusion, this new off-road section is anticipated to significantly enhance the ATM's appeal, offer unique scenic experiences, address critical safety concerns, and deliver substantial economic benefits to the region. While technical and regulatory challenges exist, they are considered manageable with expert input and strong stakeholder engagement.

1.0 Project Background

1.1 Purpose and scope of report

Destination Planning Ltd and Active Systems Ltd has been engaged by the Around the Mountains Cycle Trail Trust (the Trust) to prepare a technical feasibility report for a new 39km¹ section of cycle trail between Mavora Lakes and Centre Hill in Northern Southland.

The Trust supplied two route options at a high-level concept stage to work from.

The Around the Mountains Trail (ATM) runs from Walter Peak to Kingston, a total distance of 186km. The section from Walter Peak to Centre Hill is 79km² on a gravel road. While low-volume gravel roads have been used on many NZCT cycle trails, user experience since inception favours fully separated off-road trails. This is borne out by the most recently available usage statistics showing ATM receives around 7,600 cyclist trips annually. This sits at the low end of NZCT Great Ride usage.

The purpose of this report is to identify the preferred route for an outstanding new off-road trail together with options if the preferred route cannot be secured. The preferred route will showcase the most desirable riding aspects to encourage greater usage and enhanced visitor experience. It is anticipated that over coming years the entire trail may be built off-road and realise the original vision for the trail.

2.0 Stakeholder Engagement

In undertaking this project, we have engaged with the following organisations and individuals to brief them, understand their perspectives and gain input.

- The Department of Conservation and PAMU Farms (Landcorp) are the landowners for the proposed routes.
- Ōraka Aparima Rūnaka hold mana whenua status over the study area.
- Southland District Council owns the trail assets and brand and is responsible for its maintenance and the public roads it interfaces with. SDC is also the regulating authority under the District Plan.
- QEII Trust has covenants over several retired blocks of land on the PAMU farms.
- Fish and Game Southland have a strong interest in the recreational fishing resource, especially the Upper Ōreti River.
- Environment Southland is responsible for consents around waterways and were engaged regarding sourcing existing ecological information.
- Te Araroa Trust promotes and facilitates maintenance of the Te Araroa trail running past Mavora Lakes and overlapping some of the proposed route.

¹ The proposed trail is 38.6km and has been rounded for simplicity

² <https://www.aroundthemountains.co.nz/>

- Ministry of Innovation and Employment (MBIE) manages the NZ Cycle Trails government funding programme and the data counting programme.
- NZ Cycle Trails Inc. is the peak body for the Great Rides network, responsible for standards, promotion and it advises MBIE on the funding programme.
- Forest & Bird Southland were engaged to enable early project awareness and input with respect to ensuring an ecologically sustainable trail.
- Fiordland Trails Trust and Queenstown Trails Trust were engaged regarding market trends and their aspirations around a connected regional trail network.

A range of local operators were engaged by email with several follow up discussions in person and by phone. This included cycle tour, bike hire, shuttle, hospitality and accommodation business partners of Around The Mountains Trail Trust.

2.1 Operator Feedback

There was unanimous support for the concept of upgrading and taking this section of trail off-road. Safety was seen as the key issue followed by the sub-optimal visitor experience needing improvement. The only variation was one operator who felt that whilst they do support the need for the Mavora-Centre Hill Shelter trail upgrade, the risk presented by the two fords on Mt Nicholas Road should be given top priority for investment. This was out of scope for this report but our understanding is that the Around The Mountains Trust and SDC are in the process of improving risk management. They have installed a new shelter at Gorge Burn and have plans for a bridge at Station Creek.

3.0 Rationale for Trail Upgrade

There are several reasons that help justify the case to invest in upgrading this section of trail. Economic impact is created through the trail upgrade leading to increased length of stay and visitor spend associated with the trail. This could generate an annual incremental spend estimated between \$2.45M and \$3.27M by year five. If the upgraded trail incentivises development of new accommodation in the Mavora area, that would significantly further boost growth in visitors and their spend towards \$8.8M per annum. This is covered in detail in Sections 10-12 of this report.

The following additional benefits are covered in this section:

- Around The Mountains Completion: Complete or at least partially complete the original Around The Mountains trail proposal.
- Riding Surface: Enhance the physical riding experience.
- Safety and Health Benefits: Enhance the safety of riders and other road users.
- Scenic Experience: Include more scenic attractions and variation of scenery in the overall ATM experience.
- Wider Network Strategy: Contribute to the wider regional trail network vision across Otago and Southland.

3.1 Around The Mountains Completion

Significant (~\$12M) investment has already been made on ATM but this is incomplete and has not yet delivered a trail of true Great Ride standard and experience. When access to the Upper Ōreti Valley was denied in 2016, the alternative was never delivered to complete the route. Non-action now, represents giving up on delivering a complete trail experience and attracting the originally intended long term return on investment. It also hinders the overall proposition of the Great Rides brand delivering on expectations. In its current state, the trail's growth in use and associated benefits is likely to be slow and never fully achieved.

This section of trail needs to be upgraded before someone will invest in accommodation at Mavora. There were serious investors considering lodge development in 2016, and PAMU was considering making land available. However, when the trail was essentially left incomplete, that investor interest dried up. The land that was being considered has since been placed under QEII Covenant which precludes building accommodation. However, PAMU have still expressed interest in working with interested accommodation developers on other nearby sections of land, most likely on a long-term lease basis.

3.2 Riding Surface

The current trail user experience on this public road section is sub-standard to the point that the majority of trail hire and tour operators bypass it. This usually entails shuttle pick-up from the Vonn shelter just north of Mavora, if riding anticlockwise; or from the Centre Hill shelter if riding clockwise. Shuttling is necessary in any case due to the distances without accommodation. The exception is for those bikepacking and camping at Mavora Lakes campground.

From these shuttle pick-ups, they usually spend a night or more in Te Anau or Mossburn before starting the next off-road trail section. Those in Te Anau usually add on a day ride on the Lake2Lake trail or optional activities before re-joining Around The Mountains.

The majority of multi-day riders do the trail in an anticlockwise direction. Prior to this Mavora Lakes Road section, the road from Walter Peak Station along lake Wakatipu and up the Vonn Valley is also on gravel road but it has far less traffic and the gravel is generally not as coarse so there is relatively smooth rideable surface within the road width. The exception is when the road is graded, around two times per annum, and mostly outside peak season.



Stunning expanse of Vonn Valley with finer grade gravel, smooth surface, very few vehicles and mostly good sight lines

This acceptable surface, combined with the stunning lake and vast sub-alpine valley views, largely make up for the negative aspect of riding on a gravel road. This means that while an upgrade of the trail to get it off road all the way from Walter Peak would have benefits, it is not as much of a priority as the Mavora-Centre Hill Shelter section.

Within the user surveys for the Around The Mountains trail, this section is by far the primary subject of complaint or suggested improvement. The source of the road gravel results in high levels of dust from vehicles in summer and the coarse grade and rounded shape results in deep mounded rows of loose gravel, especially towards the edges.



Mavora Lakes Road looking north, near Kiwi Burn access

Therefore, as a cyclist shifts to the edge to avoid vehicles, they risk losing control. With respect to walkers, there are few walkers on the first section of Around The Mountains with higher numbers near the towns along the trail. However, as the Te Araroa route comes through Mavora Lakes from Glenorchy, Te Araroa walkers do tend to overlap onto the Mavora Lakes Road section of Around The Mountains trail. This is because the official trail along the river terrace edge of the true left of the Mararoa River is impractical to navigate in places. Walking on this road is equally as substandard as cycling although it is easier for walkers to shift off the road to the margin for approaching traffic.



Coarse, rounded, loose mounds of gravel await cyclists shifting to the road margin.

Aside from the unpleasant dust and traffic anxiety, the surface riding experience on the open road is poles apart from a Great Ride standard grade 2/3 gravel trail with a compacted smooth fine gravel surface, interesting corners and undulations.

3.3 Scenic Experience

The scenery on this existing section of road, while still being quintessential rural Southland, is relatively mundane compared with the previous section of trail and compared with what is on offer by diverting off the road. Apart from taking a 2km detour off to Mavora Lakes and back, this section doesn't currently provide scenic experience that is distinguished from the rest of the Around The Mountains trail.

The proposed new trail delivers four key new scenic surroundings or vistas that will help make Around The Mountains a must-do Great Ride.

1. Mavora Lakes (currently a detour off the trail), part of a World Heritage Area and with three official Lord Of The Rings locations.
2. Snowden Beech Forest on the Mavora Walkway
3. Regenerating scrubland single track on Bald Hill with stunning views up the Upper Ōreti Valley.
4. Elevated riding alongside Burwood Bush Scientific Reserve looking down on the semi-braided Ōreti Valley

The riding experience is detailed further under the technical assessment section of this report. Following are the official Lord Of The Rings film locations that can be found on or near the route.

Mararoa River swingbridge at South Mavora Lake: Silverlode and Anduin rivers – “The Fellowship leave Lothlórien.” This will formally become part of the ATM route, crossing this bridge.

North Mavora Lake: Nen Hithoel - The Fellowship moor at the side of the lake at the end of their journey down the Anduin. The hobbits hide from the Uruk-hai.

This is where most of the camping sites and facilities are. It is a short ride up the South lake from the formal new route.

Mavora Lakes: Fangorn Forest edge - Aragorn, Legolas and Gimli follow Merry and Pippin's trail from the mound of burnt orc bodies left by Eomer's Riders of Rohan. This is near the Mavora Lakes Road and can be taken in by a slight detour from the Lakes turn-off, or as part of a loop ride from Mavora Lakes down the new Te Araroa section to Kiwi Burn Bridge and back on the road.

The upgraded trail will also add to the recreational opportunities for the visitors already coming to Mavora Lakes area. A stated objective in DOC's Murihiku Southland Conservation Management Strategy is to encourage more short recreational experiences in the area including cycling. The project will also deliver an upgrade to the Te Araroa walking experience and increase resilience by replacing the narrow Kiwi Burn swing bridge.

In addition to improving the experience on the overall ATM trail, the upgraded section becomes a new one-day activity for visitors staying in Mossburn and Te Anau. They could shuttle to the start at Mavora and ride back to Centre Hill Shelter for pickup or on to Mossburn. They could also do that in reverse direction.

Apart from the obvious scenic experiences, the new trail offers several opportunities for rich storytelling and interpretation, which can be imparted by guides, apps and interpretation panels. This can cover Ngai Tahu stories, the different ecological zones passed through, the rivers and mountains in view and in particular, the restoration activities of QEII Trust and PAMU.

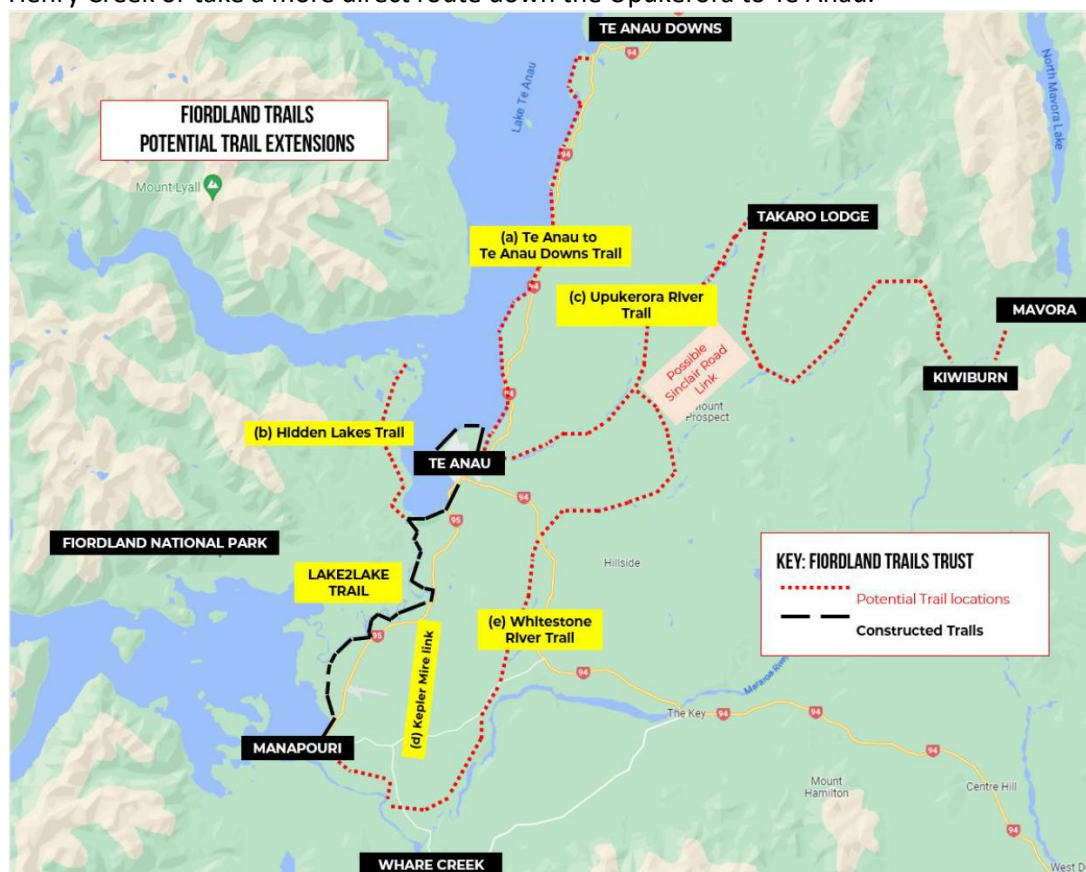
3.4 Wider Network Strategy

Upgrading this trail section supports the strategic visions for both Murihiku Southland Region and Queenstown Trails Trust. The Murihiku Southland Cycle Tourism Opportunities Assessment (2023) included the following vision:

Murihiku Southland is recognised as a must-visit cycling destination with a comprehensive regional network of trails and mountain bike parks that connect our communities and visitors, broaden the economy, showcase the most diverse range of landscapes in Aotearoa New Zealand, and support ecological restoration and a net zero carbon future.

Key recommendations in relation to ATM were upgrading the Mavora to Centre Hill Section off-road and re-visit the case for accommodation in the Vonn/Mavora area to break up the 103km distance from Walter Peak to Mossburn.

Queenstown Trails Trust's Long-Term Strategy includes concept maps linking Queenstown, Around The Mountains and Te Anau. This also aligns with trail network plans that have been developed by Fiordland Trails Trust and Te Anau Cycling Inc. There are a few optional routes being discussed but they generally centre on connecting from Mavora to Te Anau via Kiwi Burn, upper Whitestone and Upukerora River Valleys. The route could join the lakeside trail near Henry Creek or take a more direct route down the Upukerora to Te Anau.



Source: Angus & Associates, Fiordland Trails Trust

From there, riders can do the Lake2Lake trail to Manapouri then new trail along the Waiau and back up the Whitestone River to re-join Around The Mountains. This adds two to three days and results in a second night at any new accommodation at Mavora which would strengthen its business case considerably.

3.5 Safety and Health Benefits

One of the primary arguments for upgrading the Mavora to Centre Hill Shelter section of the Around The Mountains Trail is the current risk of injury or death from a vehicle on cyclist incident. Year-round there are farm vehicles (utes, trucks, horse floats and tractors) using the road with and 80kmph speed limit, as well as some stock movements. During the summer holiday season, Mavora Lakes attracts much higher numbers of cars, caravans and campervans. We heard numerous anecdotes of drivers coming around a corner to find up to four cyclists riding abreast across the road. This is likely because they have become accustomed to the isolation, lack of traffic and good sightlines through the Vonn Valley, providing a false sense of safety.

Often this type of trail issue can become overblown from one or two actual incidents, so we entered this study keen to explore the real risk. Whilst there hasn't been any scientific monitoring of the safety issue, even with the relatively small selection of stakeholders we talked to, almost all of them had personal experience of dangerous vehicle on bike encounters. We were left with no doubt there is a high chance of serious injury or fatality each year with the current on-road route. This is a serious concern for the PAMU farm managers and is one of the factors that sees them interested in accommodating an off-road trail on PAMU property.

NZ Transport Agency Waka Kotahi uses the "Value of a Statistical Life" (VoSL) in its cost-benefit assessments for transport projects and road safety initiatives. According to their Monetised Benefits and Costs Manual, the current value for a fatality (Value of Preventing a Fatality - VPF, which is based on the VoSL), is \$12.5 million per fatality. This figure was significantly increased in 2023 from a previous value of approximately \$4.9 million. Note that this is a statistical value used for economic appraisal and does not represent the value of any individual life. It is meant to reflect society's willingness to pay for a reduction in the risk of a fatality. This suggests the benefit of avoiding a fatality by getting trail users off the road will be one of the primary benefits of this project and is likely to outweigh short term direct economic impact from increased visitor spend.

3.5.1 Health Benefits

NZTA has had a formula³ suggesting for every additional kilometre of cycling, \$1.30 of health benefit accrues. This is part of a \$1.45 figure which also includes 5 cents for safety and 10 cents for reducing road traffic. It primarily applies to domestic users as improving the health of international visitors does not reduce the NZ health sector cost burden. An overall figure could be estimated at the next Business Case stage of the trail upgrade project.

In addition to the above benefits and the economic impact estimates in the next report section, improving the Around The Mountains trail will help deliver the following: outcomes as identified in the Murihiku Southland Cycle Tourism Opportunities Assessment.

- Attracting the type of visitor who is more likely to engage positively with the local community.
- Encouraging visitor dispersal throughout the region as trails weave their way through less populated areas of the region.
- Attracting visitors outside of peak visitor season by encouraging shoulder season visitation, (although not much in mid-winter for Around The Mountains).
- A more sustainable and low-emission way to travel the region.
- Improving public access to places of cultural, scenic or recreational interest.
- Improving active transport options and safety.
- Giving youth healthy active choices.
- Creating community cohesion as people work together on major trail projects for their town.
- Creating a platform for ecological restoration including fencing, planting and pest control associated with a trail project.

³ "Monetised Benefits and Costs Manual v1.7.2 November 2024"

4.0 Site Overview

The cycling trail proposed⁴ by the Trust is approximately 30km in length and spans a range of terrain, climate, ground conditions and vegetation. From the gently rolling alluvial outwash of the Mararoa River valley, the meandering braided Ōreti valley to the bush clad walls cloaked in thick mature silver beech forest of the Snowdon Forest around the Mavora Lakes.

The site is at times exposed to north-west winds that follow the big river valleys. The western flanks of Bald Hill are smoothly rounded in places and very craggy in others and offer the chance to explore more varied terrain and gain elevation and views across the quintessential Southland farming scene. The rainfall patterns show a marked decrease in volume as the trail heads south and east of the Mavora Lakes.

For purpose-built cycle trails the local environmental conditions can have a big impact on success and the user experience. Snug forested sections, mild climate, combined with outstanding scenic viewpoints, a sense of quietness and solitude all within a short distance of civilisation are keys to making a memorable experience for most users.

4.1 Assessment Methodology

This report assesses the technical feasibility of a preferred route plus key alternative options together with practical and statutory considerations and the development budgets associated with the key options.

In the context of a NZCT Great Ride, feasibility assessment means the identification of alignments and supporting infrastructure that will achieve the level of service for the intended user group (including for safety), provide the requisite high-quality experience for visitors intended by the NZCT Great Rides, and are sustainable from an environmental, capital and operating cost perspective.

This report has been completed using the following workflow:

- Review of the existing reporting available from the Trust, Southland District Council and from external agencies including DOC and Te Araroa
- Desktop assessment of route options using GIS mapping software
- Onsite assessment for each route option including identification of supporting infrastructure
- Preparation of high-level construction and operational cost budgets for each route

Review of existing information including:

- DOC reporting and data on existing use of recreational facilities including the Mavora Lakes campsites together with reporting from the Paparoa Great Walk
- NZCT and MBIE user statistics and feedback
- Te Araroa Trail use data
- RealNZ Walter Peak data
- Economic Impact reports on Fiordland Trails
- Interviewing trail operators

Desktop Assessments including:

- GIS analysis of detailed terrain models to identify the best terrain and track alignments for ground truthing
- Analysis of major terrain constraints and structures required including sites for ground truthing

Onsite assessment including:

- Walking parts of proposed track alignments to identify land management constraints, vegetation and ground conditions, terrain constraints and solutions together with significant structures and their siting

⁴ See ATM RFP for maps of the original proposed alignment

- Assessing the user experience on the proposed alignment(s)
- Where a better option(s) exists, investigating these & assessing against the above assessment methodology
- Logging of results using handheld GIS systems

High level construction & operational costs including:

- Rates for key raw materials like gravel, rock and machinery
- Reviewing the most similar relevant recent projects from the South Island including from DOC and cycle trail sources and comparing construction rates
- Sourcing operational costs across a range of different track owners

4.2 Route Options Assessment

This describes the process that we went through to develop two primary routes, a preferred route and an alternative.

The Around The Mountains Trust provided two rough options as a starting point in the Request for Proposal. One that completely avoided Public Conservation Land (PCL) and one that went through parts of Snowden Forest Conservation Area.

An online mapping workshop was held to review the two RFP routes as well as routes that had previously been proposed, including the various options considered during the Environment Court appeal case by Fish and Game.

These were refined back to a preferred route which does go through two blocks of Public Conservation Land and a series of alternatives that could be pursued if access to Public Conservation Land cannot be approved.

Figure 1 is derived from a map presented by Fish & Game to the Environment hearing in 2015. This shows two routes that were presented as potential alternatives to the original route through the Ōreti Valley which they opposed. This suggests that Fish & Game may have been willing to entertain parts of the trail through PCL and beside the lower section of the Ōreti river. The table below summarises the routes:

Colour	Description	Assessment
Red line	Original route through the Ōreti Valley	This would have been a high-quality riding experience, but it was ruled out via the Environment Court. The lower part of the trail beside the Ōreti is consented however.
Blue line	Suggested alternative over Bald Hill	This would involve a climb more than 400m. This is too much for a Grade 2 (easy) trail.

Figure 2 shows routes that were provided by the trust, as well as two others that were investigated. These are summarised in the table below:

Colour	Description	Assessment
Red line	Markus Roy route proposed during 2016 Upper Ōreti process. Through PCL east of the Ōreti River	This would be a great remote bush riding experience. It would however involve climbing around 500m over the saddle behind Lincoln Hill which is too much for a Grade 2 (easy) trail. It would also require a significant suspension bridge over the Ōreti River. For this study we ultimately excluded Upper Ōreti Valley due to the 2016 decline of original consent.
Orange line	Gary Patterson route. Through PCL and beside the Ōreti River.	The climb through PCL is similar to our preferred line. It would drop down close to the Ōreti River then have to climb 50m to continue south over some steep bluffs. The trail would impact on the PAMU farm as it crosses their main stock route. Parts of the trail would be close to the river, so it would be visible to anglers and may be opposed by Fish & Game. A lot of the current trail is already beside the Ōreti so alternative alignments would add more value.
Blue line	Route along foot of hill suggested by PAMU	This was proposed by PAMU as a way of avoiding the climb up to Burwood Bush as well as the climb up to the Haycocks/Centre Hill boundary. It would be more disruptive to Centre Hill than the boundary route. There were also concerns about flooding.
Yellow line	Beside the Mararoa River	A route along the Mararoa River was investigated, partly because this is the official Te Araroa alignment but most walkers don't follow it due to current obstacles. This could follow a small river terrace that is already fenced, but there are numerous stock crossings and PAMU were not keen on the alignment. The views from the terrace are fairly average with much of the riverbed covered in broom etc. The option to drop down below the terrace to avoid the above issues would have placed it at significant flood risk.
Yellow line	Traverse through PAMU paddock	An unfenced traverse through a PAMU paddock west of the farm boundary was proposed, as this would have eased the gradient of the trail, and taken riders through unfenced tussock land. This was not supported by PAMU, as the area is grazed by cattle and deer.
Cyan line	Route suggested by trust members	This route in general works, but it would require multiple switch back corners where it goes straight up steep boundaries. There is an area of recently planted pine trees that the trail can traverse through to get up to Burwood Bush instead of following the farm boundary.

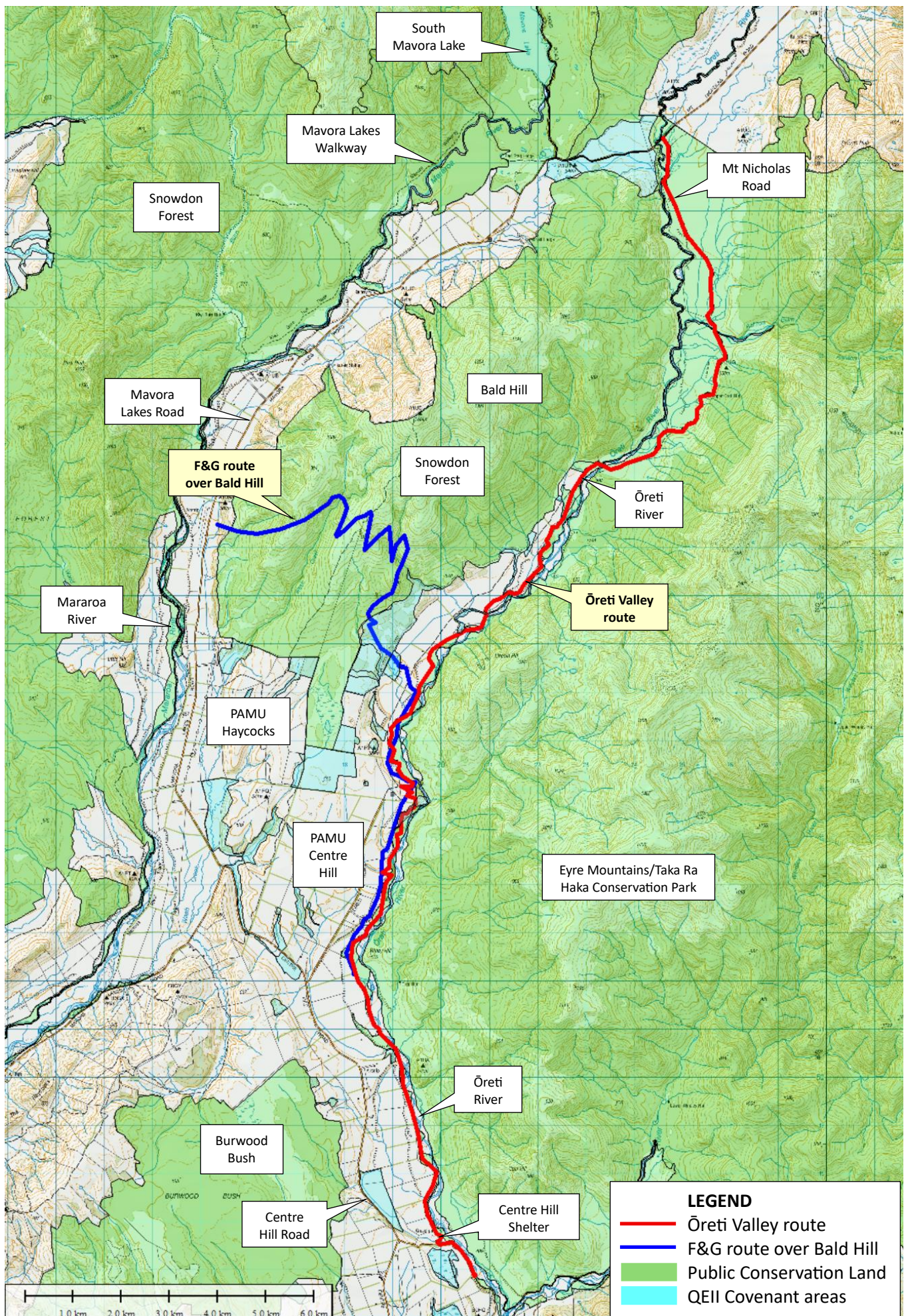


Figure 1: Map presented by Fish & Game to the Environment Court in 2015.

Data sourced from LINZ CC By 4.0

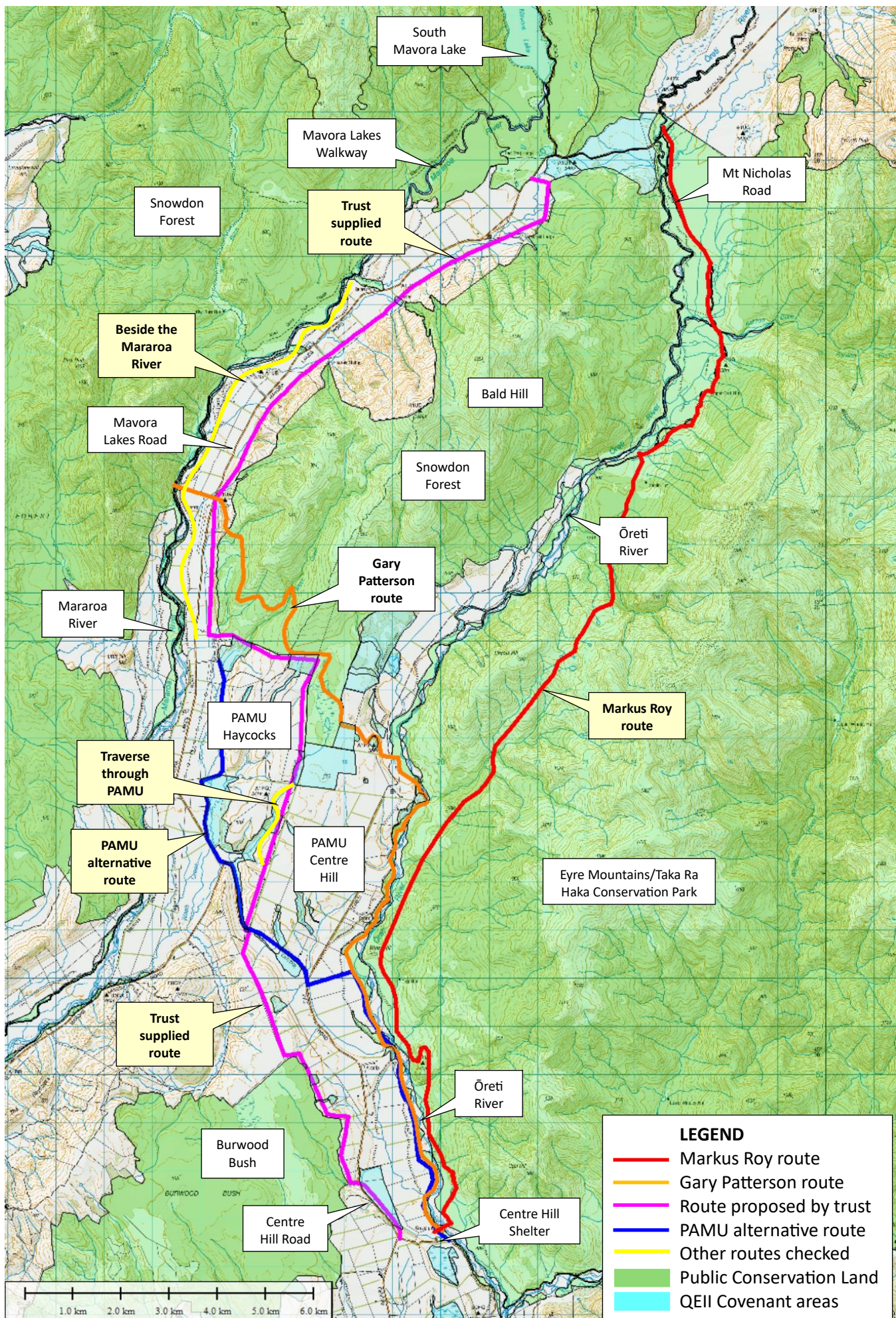


Figure 2: Route options presented by the trust, and other routes investigated Data sourced from LINZ CC By 4.0

4.3 Proposed Routes

Figure 3 shows the preferred route, together with alternative routes if access over PCL cannot be secured.

The aim was to:

- Develop a route that complied with the Grade 2 (Easy) NZCT standard as much as possible with small sections of Grade 3 where necessary.
- Provide a high-quality riding experience. One that would add as much value to the Around The Mountains Trail as possible.
- Take riders through varied vegetation (scrubland, native forest, pasture, plantation forest).
- Take riders to great viewpoints
- Provide shelter from the sun and the wind
- Minimise disruption of stock movements and extra fencing cost on PAMU working farms
- Avoid Public Conservation Land where possible due to CMS constraints on bike trails.

The preferred route is to:

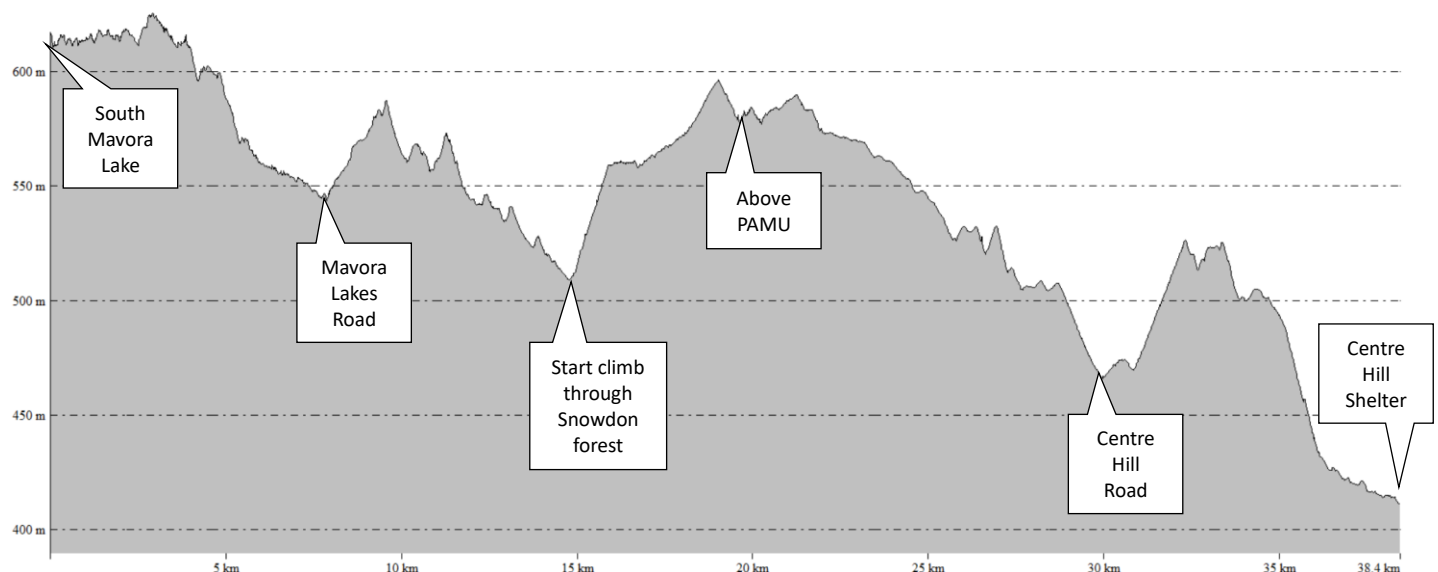
- Ride up the Mavora Lakes Rd to South Mavora Lake
- Upgrade the Mavora Lakes Walkway so people can ride south to the Kiwi Burn swing bridge, which would be upgraded to support cycle access.
- Cross the road and continue south along the base of Bald Hill on PAMU land.
- Climb up through Snowden Forest to a high point south of Bald Hill.
- Descend southward through several QEII Covenanted blocks on PAMU Centre Hill Farm, to Centre Hill Rd
- Cross the road to skirt around QEII wetland and gently climb through pine plantation towards Burwood Bush
- Traverse alongside Burwood Bush (outside PCL on PAMU land) before dropping back down to Centre Hill Rd
- Continue south to Centre Hill shelter.

Three alternative routes have been proposed if access through PCL cannot be secured:

- Along the base of Bald Hill just south of the Mavora Lakes turnoff
- Around the southern end of Snowden Forest/Bald Hill, through PAMU Haycocks Farm
- Through PAMU Centre Hill Farm down to the Centre Hill shelter.

Preferred route statistics:

- 38.4km long
- 16.4km on PCL
- 270m of climbing and 470m of descending when riding from north to south.
-



Elevation profile for the preferred route

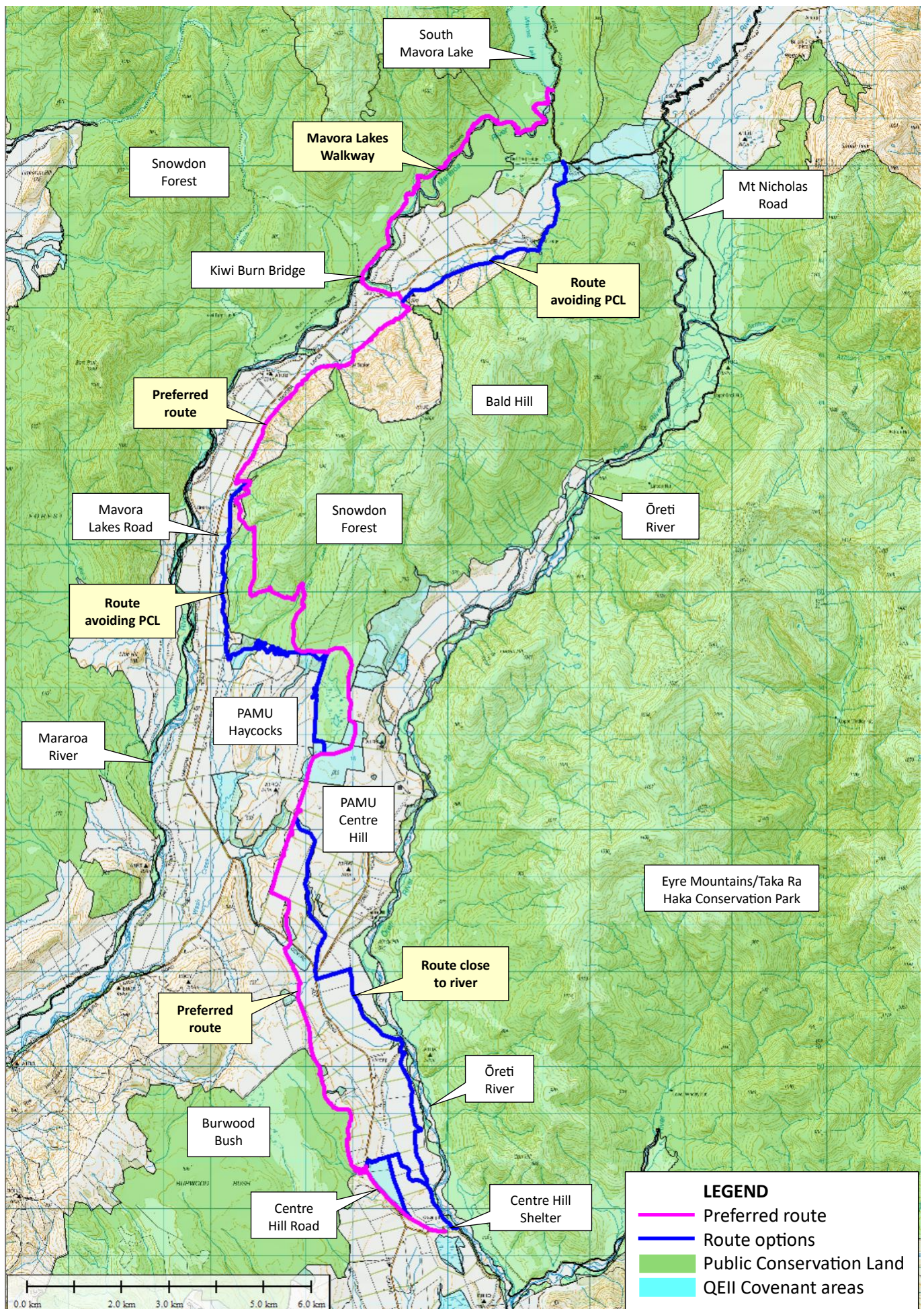


Figure 3: Proposed routes.

Data sourced from LINZ CC By 4.0

5.0 Technical Assessment

5.1 Cycle Trail Specifications

Cycle Trails have been a significant development in New Zealand since around 2010 when central Government announced the New Zealand Cycle Trail Project (NZCT). An output from this project is the NZCT Design Guide v6 2024. DOC have also developed their own standard and the DOC Cycle Track Service Standards 2020 are generally closely aligned with NZCT. Recreation Aotearoa also have a standard that is closely aligned with NZCT.

The relevant NZCT standards are shown below.

Table 1: NZCT Trail specifications

GRADE	2 - Easy	3 - Intermediate
Description	Some gentle climbs, smooth trail. Suitable for confident beginner riders, the trail is predictable with no surprises	Narrow trail, there will be some hills to climb, obstacles may be encountered on the trail, and there may be exposure on the edge of the trail
Width (m)	0.9-1.5 min (one way), 2.2m dual	0.9m for 90%, 0.6m min
Grade Max %	0-6% for 90%, 6-8.8% for max 100m, 8.8-10.5% for max 10m	8.8 for 90%, 8.8-12.3% max 100m, 17.5% max 10m
Built Features	Some rocks/roots/ruts that can either be avoided or are less than 50mm high. No stiles. Cattle stops should be minimum 1.2m wide.	Occasional rocks/roots and ruts may be up to 100mm high/deep and may be unavoidable.
Turn Diameter (m)	5m desirable with 4m min	4m desirable with 2.5m min
Turn Camber %	20	30
Structure width (m)	1.5m min	0.75m with handlebar min 1.2m
Surface Conditions	Compacted, firm, uniform, well drained, cambered	Generally firm, but may have some short muddy or loose sections

We have only shown Grades 2 & 3 as this is the target grade range for the proposed cycle trail for consistency with the existing sections of the trail and to maximise the range of users.

5.2 Levels of Service

The Level of Service for a Grade 2 cycle trail is directly related to the user skills and experience. Most grade 2 cycle trail visitors are not experienced riders, and they require a generally uniform surface free from ruts and roots. They do not have the ability to easily carry their bikes over tree fall or across wash outs (e-bikes are very heavy). For this reason, the maintenance level needs to be rigorous and regular. For instance, it would be expected that after every storm, an inspection is completed across the trail to ensure the trail is up to standard and if not, urgent maintenance is undertaken, or sections level of service and the relevant communications (social media, operators) is issued. This role is currently undertaken by the ATM Trail Manager.

Experience across the New Zealand Cycle Trail's Ngā Haerenga Great Rides indicates that visitors expect up to date information about the status of trails and will struggle if tracks are not serviced regularly as this interrupts visitors' itineraries. In considering the operating costs, this level of service is the main driver. For the cycle trails specifically, we have allowed in the operational budget for a 0.5-1 FTE employee 'trail champion'. This has been proven a winner in meeting visitor expectations across NZ's Great Rides including trails managed by DOC.

Where damage occurs to a cycle trail the operator should focus attention on immediate repairs, or if a realignment is required (e.g. for a large tree fall that cannot be cleared quickly or a landslide) the new alignment needs to be easily walkable with a bike as a minimum. A poor example is the realignment of the Waiuta end of the Big River track near Reefton. The track was realigned above a landslide, but the realignment is nearly impossible to negotiate with a bike while the track is promoted for bikes. So, visitors continue to cross the active landslide.

For cycle trails an allowance for renewal of surface gravel at 5% per annum should be made. This anticipates a maximum 20yr design life for the surface. In reality, wear and erosion is inconsistent and is likely to be concentrated in certain areas with other areas undergoing limited wear. Additionally, the gravel matrix used is critical and part of the detailed design will require testing to ensure a hard setting well bound material can be achieved. Any reduced gravel quality should be reflected in a shorter design life of at most 10 years. A budget allowance of 5-10% per annum ensures ongoing renewal to maintain the high standard expected by riders.

All structures will require inspection in accordance with the industry best practice. In the absence of treefall or landslide the major bridges are expected to last 50 years. We have seen significant changes in visitor expectations and volume in the past 20 years resulting in many bridges being replaced before the end of their design life. It is possible to design bridges to achieve a greater design life by using more durable products and this may be worth considering.

5.3 Assessment Methodology

Assessment Method Commentary	
Length (m)	Total proposed trail length in metres
Technically feasible	Yes or No with commentary provided to qualify decision
Technical Commentary	Summary of the major technical challenges to building or operating the proposed trail
Key Risks	Risk Types including; Bridges, Structures, Landslides, Weather, People, Flooding, Avalanche, Budget, Maintenance. Estimated exposure level is assumed Low unless noted Medium or High
Risk commentary	Comments on scope of anticipated risk
Visitor Experience met	Yes or No with commentary provided to qualify the assessment
Visitor Experience Commentary	Summary of the experience highlights and low lights related to the visitor experience, why it would be in our opinion successful or unsuccessful
Structures	What are the major critical structures necessary to deliver the track
Toilets	What is already onsite and what additional facilities are necessary to meet user expectations
Construction Cost	High level development cost estimate
Operating Cost	Estimated maintenance and operational costs
Sustainability & Resilience	What are the risks with developing the opportunity, can it be sustained from revenue generated by the track, trail or hut, are there resilience issues to consider
Other Comments	Related commentary not otherwise covered above

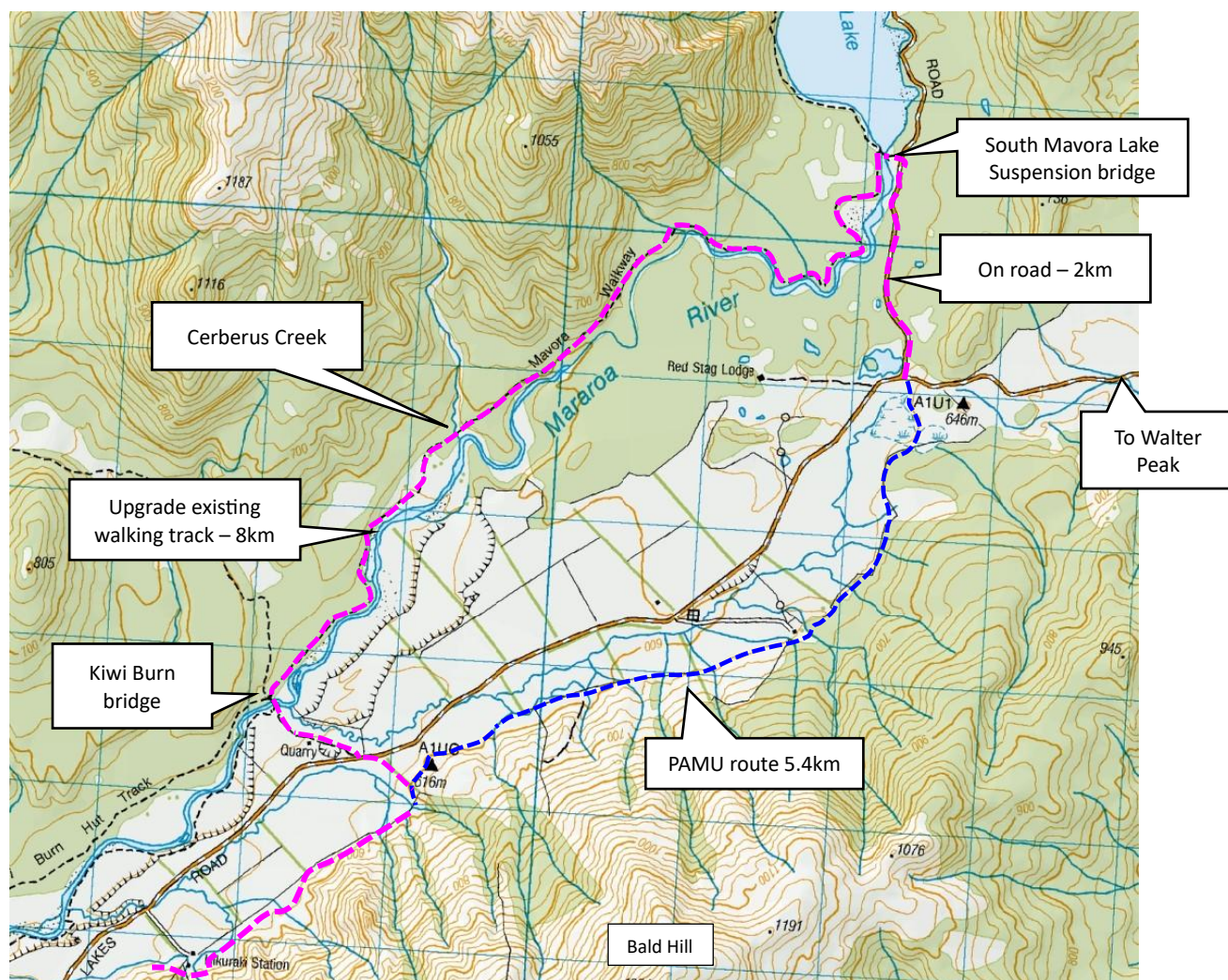
The assessments are presented for the preferred route from Mavora Lakes to Centre Hill and the route is split at convenient staging points.

Alternative routes where they have been investigated, are listed following the preferred route.

5.3.1 South Mavora Lake to Kiwi Burn Bridge



Existing DOC sign for the Mavora Walkway at South Mavora Lake bridge



Route map, Source topomap.co.nz from LINZ data by CC4.0

Mavora Walkway Upgrade	
Length (m)	8,000m
Description & Visitor Experience (see photos below)	From the outlet of South Mavora Lake, the trail route follows the existing Mavora Walkway downstream along the true right of the Mararoa River to the Kiwi Burn Swing bridge which links to Mavora Lakes Road. The trail would be widened and have 1.8km of short realignments where it is currently too steep. Consideration was given to limiting this section to one-way which would improve safety and enable Grade 2 standard to be met with a narrower trail width. However, it is preferred and recommended to be two-way to be consistent with the rest of ATM. Instead of going to the 2.2m Grade 2 standard for two-way trail it would be restricted to 1.5-1.8m which pushes the standard to Grade 3 for two-way trail. This minimises earthworks volume and vegetation impacts. A new bridge at Kiwi Burn is required to meet Grade 2 standards. At the next stage of this trail project, the options of trail width and grade should be explored further with NZ Cycle Trail Inc and DOC. This section will provide 8km of outstanding riding immersed in mature beech Forest and mossy forest floors interspersed with more open views over the Mararoa River to Bald Hill opposite. The beech forest riding is unique within the ATM and within the Southland and Otago region, can only be found on short sections of the Lake2Lake Trail along the Waiau River. The two bridges across the Mararoa will be photograph highlights. It is also made more interesting by a weaving trail with short climbs and descents, contrasting the existing flat straight, dusty road. Additionally, this trail will provide an easy return ride or loop for people staying at the Mavora Lakes Campsite. Getting to Mavora Lake entails using the existing gravel road for around 2 km from the main Mavora Lake Road. This road is narrow and there are restricted sight lines on some corners, so we considered the option of new offroad trail. However, new trail here would be harder for DOC to approve and cyclists are already riding this road section without complaint. The road surface is acceptable and the official speed limit is already restricted to 30kmph. Safety can be further enhanced with additional signage.
Technical feasibility	Grade 2-3 can be met for 100%. Where vegetation allows, the trail will widen to allow for passing.
Technical commentary	The existing 600mm wide single track 'bench' will be widened to 1.5m (1.8-2m in places) within the existing cleared vegetation corridor generally avoiding the need to remove mature trees. Realignments to meet gradients are achievable as noted above. Waterways can be bridged with conventional designs.
Key risks	Bridge at Kiwi Burn, Flooding in side streams especially Mt Cerberus tributary, Maintenance as the trail access via bridges limits machinery.
Risk commentary	Being accessed by bridges at each end limits both construction and ongoing maintenance access to small machinery with gross weights of around 2t. The bridge at Kiwi Burn does not meet visitor standards and would need to be replaced with a solid decked suspension design. Flooding in side streams needs to be considered in the design of water management to ensure flood flows can stay under bridges/culverts and to reduce ongoing maintenance.
Structures	South Mavora Lake Suspension Bridge; The existing bridge is 1m wide and 30m long. The decking is solid timber laid length wise. Although the bridge deck is

	narrow by cycle trail standards (it meets Gr3), the bridge is fit for purpose without upgrading at this stage. It is expected that most people will walk their bikes the short distance across the bridge which enables them to appreciate the view up the lake and down the river. While this is technically Gr3, we do not consider that this will in any way detract from the riding experience or adversely affect grade 2 riders. Kiwi Burn Bridge; New 32m suspension bridge to replace existing swing bridge. The existing rock outcrops supporting the current swing bridge are assumed to be adequate for a new bridge. The rock outcrops appear well above historic flood levels. Bridge over Cerberus Creek - new 20m bridge. There are no obvious solid rock outcrops that would offer 'gold standard' abutments so further site investigation and flood modelling is recommended to find the best site to cross this creek. Minor side streams; There are up to 8 short bridges. While we have noted these as 'minor', the sites are located in a high rainfall zone and care will be required to locate the short bridges/boardwalks. Short single span bridges offer the best level of service with the least maintenance. Retaining walls; We have identified 100m of retaining at 6,500m near Kiwi Burn Bridge.
Toilets	There are existing toilets as follows: • Ōreti River – single vault style • South Mavora Lake – Single vault style • Kiwi Burn Bridge – Single vault style Given the above availability of toilets we do not consider additional toilets are required to support this section of the project
Construction costs	\$ 1,687,204 – refer Section 9 for detailed breakdown
Operational costs	\$ 102,000 for full trail – refer Section 9
Operational commentary	Unlike the current sections of the trail between Centre Hill and Kingston, this 8km section will be relatively isolated with machinery access from each end only or by flying machinery to site. As a result, construction needs to be completed to a high standard and additional maintenance materials (e.g. gravel) positioned at key sites to enable easy cost-efficient ongoing repairs.
Other comments	This section of trail will be shared with walkers and in particular thru hikers completing the Te Araroa Trail which runs from Cape Reinga to Bluff. To minimise the potential for adverse environmental effects it is recommended that the trail is formed to around 1.5-1.8m wide, which will ensure it generally fits within the existing cleared forest corridor. This will also keep the feeling of closeness with the environment which is a key feature of the ride or walk. By reducing earthworks and vegetation removal the adverse effects on the environment can be best managed and this is supported by recent conversations with DOC and similar projects on PCL beech forest.

The following are some key scenes from this trail section in order north to south.



South Mavora Lake suspension bridge



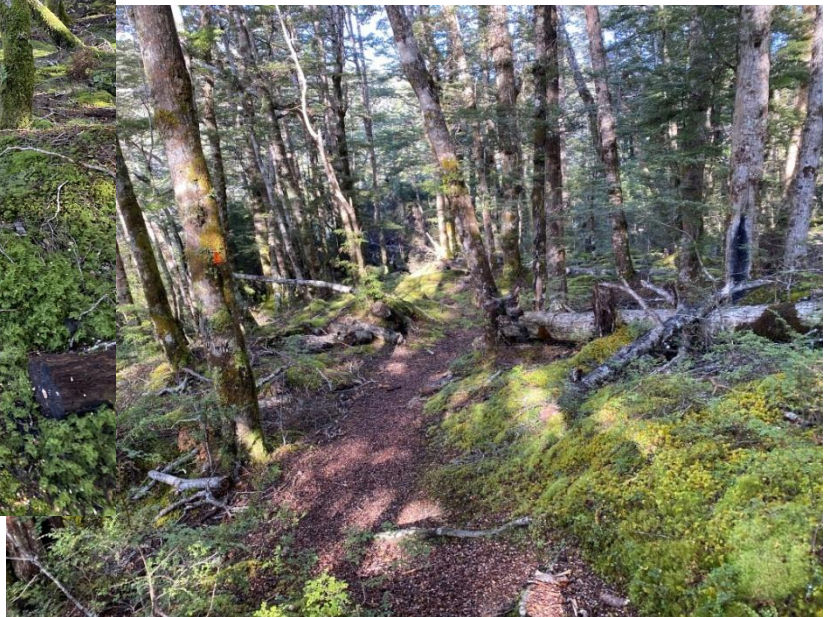
South Mavora Lake view



View across the Mararoa River to Bald Hill



Typical beech forest single track





Mararoa River view



South Island robin at South
Mavora Lake



Looking across the Mararoa River to Bald Hill near Cerberus Creek



Cerberus Creek



Open river flats near Kiwi Burn Bridge



Gravel banks near Kiwi Burn Bridge. Well-designed retaining will manage maintenance risk here.

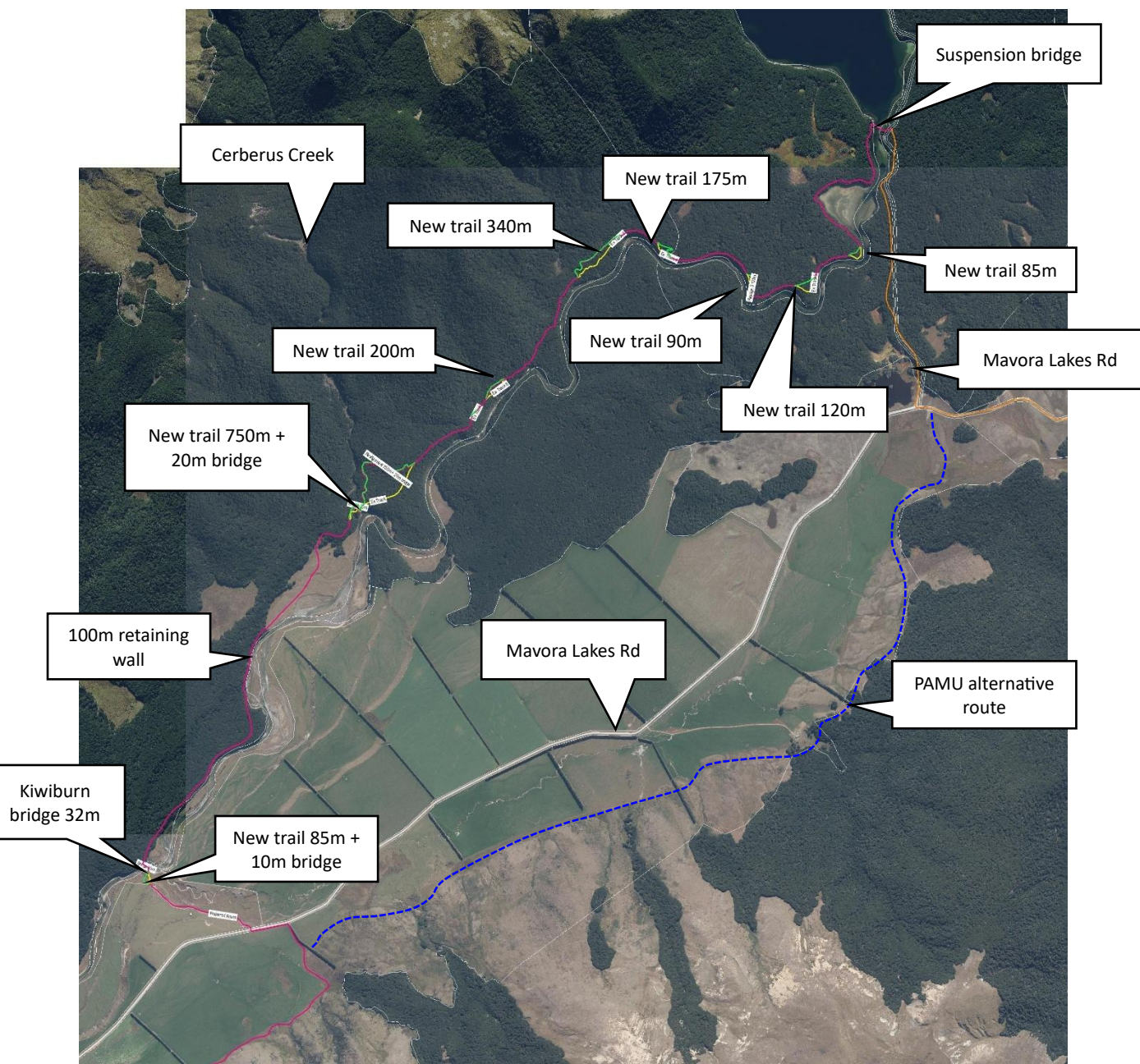


Kiwi Burn Swing Bridge over the Mararoa River

Upgrades to Mavora Lakes Walkway

To bring the existing Mavora Walkway track from south Mavora Lake to the Kiwi Burn Swing bridge up to Grade 2-3 trail standards requires the following:

- Widening the single track 'bench' from 600mm to 1.5m with passing bays of 1.8-2m where possible. This will mean Grade 3 for a two-way trail. To meet Grade 2 standards for two-way trail it would need to be 2.2m wide which increases vegetation removal and excavation.
- Replacing the Kiwi Burn Swing Bridge with a new 32m truss bridge
- Bridging all other waterways
- Realigning 7 steep sections totalling 1.8km that do not meet gradient specifications for Gr 2 & 3



Mavora Lakes Walkway upgrade plan

The above plan sets out the 8 areas where the current walking track crosses steep river terraces taking a 'straight is great' route. It is proposed to realign these sections to meet NZCT Grade 2-3 specifications. Across the eight sites, the total 'new' trail is estimated at 1.8km out of a total existing track length of 8,000m.

In addition to the upgrades in the formation of the track, all waterways will require bridging. The following bridges are required:

- Side Creeks; 7 @ 4m boardwalks = 28m
- Cerberus Creek; 20m
- Kiwi Burn Bridge; 32m
- Kiwi Burn Flood Channel; 10m

Total bridges = 90m

Lastly, 100m of 1m high retaining is required at distance 6,500m where the existing track crosses a loose alluvial terrace face. Realignment of the track to the top of the terrace would involve a 30m climb up and then down, and the Mararoa River margins are quite close to the track so realignment onto flatter ground is not an option. Having observed similar retaining walls near Bannockburn we believe this solution is practical.

5.3.2 Kiwi Burn Bridge to Centre Hill carpark

This continues the preferred route from the Mavora Lakes Road /Kiwi Burn access

Kiwi Burn to Centre Hill	
Length (m)	29,800m
Description & Visitor Experience	South of the Kiwi Burn the proposed route delivers another 23km of outstanding riding to Centre Hill Shelter. After crossing Mavora Lakes Rd the trail heads south for 6km along the lower flanks of Bald Hill. The hillside is currently only lightly grazed, and it may be completely destocked if a QEII covenant is established. This would remove any need to fencing the trail, reducing cost and enhancing the riding experience. From the 15km mark, the trail would start gently climbing through regenerating scrubland on PCL. This would take the users around the upper reaches of Wash Creek, climbing 120m to the high point on the trail. The trail has been carefully positioned through a mixture of manuka, matagouri and grey scrublands together with isolated remnant mountain beech forest gullies to the open gently sloping hill tops overlooking the Ōreti River with their distinctive red tussock and bog pine habitats. This climbing trail takes riders up above the valley floor for the first time on the trail. It will provide impressive views north to the Livingston Mountains, south to the Takitimu Mountains, up the upper Ōreti valley, and across the quintessential southland rural scene as far as the White Hill wind farm beyond Mossburn. The area around Wash Creek has some more mature beech forest and steeper terrain, providing further interest and variation. From here riders would head south around the east side of the wetland area, avoiding the outflows and most of inflows by skirting along the edge of the farmland. The elevation and aspect provide fantastic views of the Ōreti Valley and the Eyre Mountains/Taka Ra Haka Conservation Park. This is a great spot for viewing the surrounding valleys as well as interpretation about the adjacent wetland area and the restoration work by PAMU and QEII Trust. This elevation above the valley south of Bald Hill is also unique within the ATM where the remainder of the trail is valley or river margin based and does not afford riders very extensive views. On the good to great scale, the current ATM is in the good category while the proposed addition will be great. The trail then gently descends south through QEII covenanted land and along the PAMU farm boundary, before dropping down a retired gully to Centre Hill Rd. After crossing the road, the trail loops behind another wetland area before gently climbing through a recently planted pine block to the edge of Burwood Bush. Following the mature beech forest edge and at 100m above the valley floor this trail section offers superb views north up the Ōreti River. It then drops down across the Centre Hill Road and along gently sloping terrain to the existing Centre Hill car park.
Technical feasibility	Yes, Grade 2 can be met for 100%
Technical commentary	The trail alignment is technically straightforward, and with PAMU and DOC support, this route can be realised. The proposed alignment runs through many areas that will not require fencing (QEII covenanted farmland, PCL and pine plantation), and the remainder of the

	trail runs along farm boundaries. If the high ground on Bald Hill is retired from grazing, only 6.5km of the route will need fencing (17% of the entire trail). There would only be 3 low-use stock crossings, so the trail would have a minimal impact on PAMU farming operations. By taking the trail through PCL and retired areas, the trail alignment is less constrained, so it is easier to minimise the gradient of the trail, minimise the amount of climbing, maximise the user experience, and minimise the environmental impact (route around significant vegetation or sensitive areas). The elevation necessary to obtain great views can be gained gently, and the trail can be routed to make the most of the various aspects so that it is sheltered from the prevailing winds. There is good construction access via PAMU tracks and paddocks, with none of the trail more than 2.5km from an access point. There are existing quarries on Centre Hill that may be useful for trail construction material. Much of the trail will be across sloping land, so the trail can be benched into the ground with good drainage off to the side. The trail will pass through many different environments (pasture, tussocky grasslands, regenerating scrubland, beech forest and pine plantation), making for a rich and varied user experience. It will have both expansive views, as well as areas where there is shelter from the wind and the sun. The 80m climb through Snowden Forest, and the 55m climb up to Burwood Bush will give riders a good sense of accomplishment. Wash Creek is the only significant waterway to cross.
Key risks	Flooding in side streams and outwash fans where flood waters can easily spread over wide areas. Clay like ground across gently sloping land which can make construction & resilience difficult.
Risk commentary	The trail route around larger gullies and associated flooding in side streams needs to be considered in the route choice to ensure flood flows do not cross the trail alignment except where bridged. On the southern section towards Centre Hill Road the trail is in close proximity to existing wetlands. The underlying clay type ground is susceptible to holding water and can become very difficult to work with during construction and easily damaged with poorly planned maintenance. Careful route selection, trail pavement design and timing of construction & maintenance will be essential.
Structures	• Wash Creek– New 10m bridge. The trail crosses the creek in a remnant beech forest. • Minor side streams; While we have noted these as ‘minor’, the site is in a high rainfall zone and care will be required to size either culverts or ideally short bridges/boardwalks to cross most side streams. Short single span bridges offer the best level of service with the least maintenance • Retaining walls; We recommend these are used only if other alignment or earthwork solutions are not suitable. We have not identified any sites on this trail section during this high-level assessment
Toilets	There are existing toilets as follows: • Kiwi Burn Bridge – Single vault style • Centre Hill car park – single vault style plus refuge This provides for a toilet at each end with a 30km ride between. Based on the NZCT design guide the target interval is 7.5-10km of riding for grade 2 trail. We recommend a toilet is located between Wash Creek and the QEII wetlands that

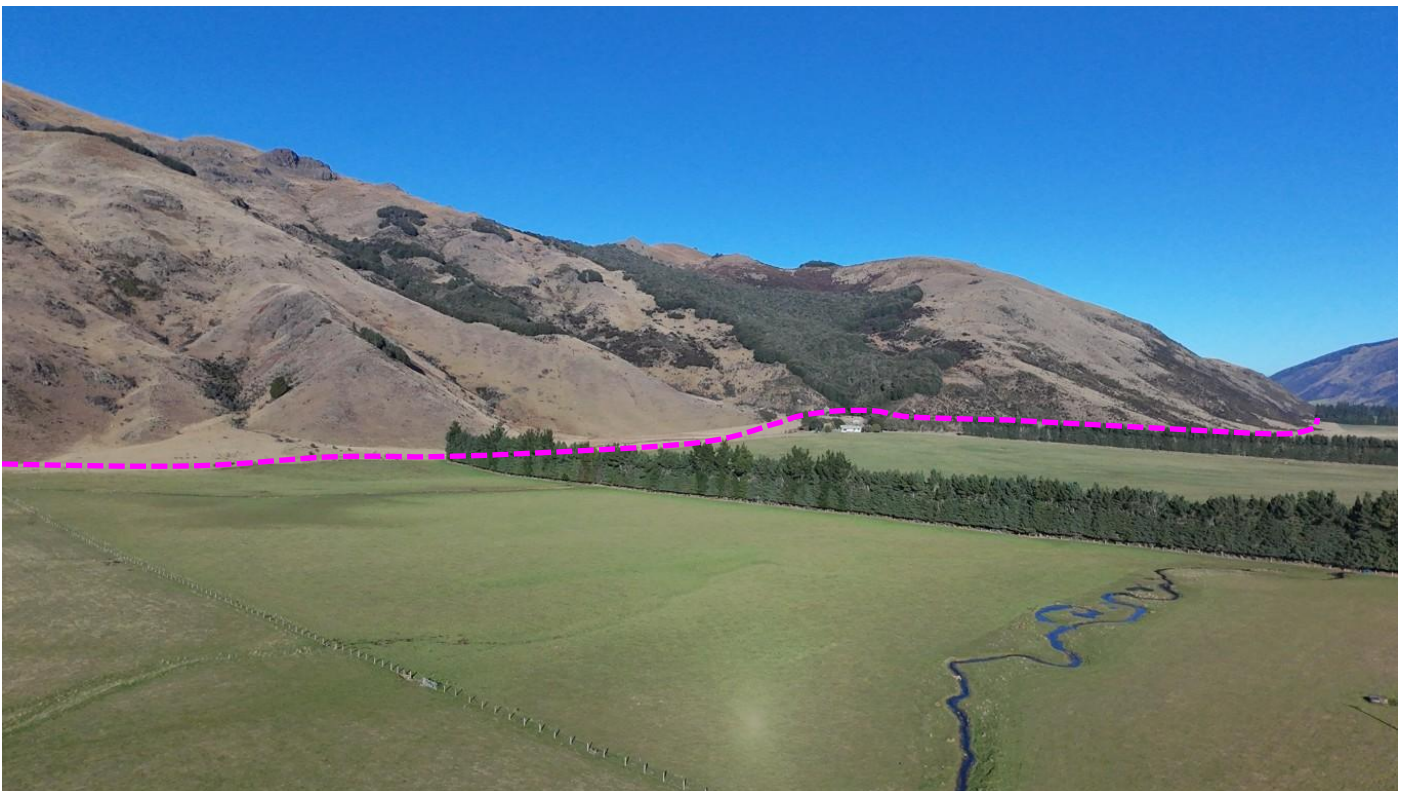
	border the PCL where good vehicle access is available for maintenance. The toilet should also be at a spot riders are likely to stop at. The precise location can be determined during the detailed design or construction stage.
Construction costs	\$ 3,574,290 – refer Section 9 for detailed breakdown
Operational costs	\$ 102,000 for full trail – refer Section 9 for detailed breakdown
Operational commentary	This section of trail has good road access along Centre Hill Road and across adjoining PAMU managed land to the southern slopes of Bald Hill and along the Mavora Lakes Road to opposite Little Hill. The section across the lower slopes of the hill through the regenerating Manuka will only be accessible from the two ends and like the Mavora Walkway will require more thought in terms of future provision for maintenance although a width of 2-2.2m is anticipated.
Other comments	This section of trail will take riders 120m above the valley through a mixture of open grasslands and scrub plus the small beech forest at Wash Creek. With lots of interesting turns and superb viewpoints at each ridgeline, this section is a key in delivering the rider experience. The trail has also been routed to provide good shelter from the prevailing northerly winds. Construction is of low complexity and there are no major rivers to cross.



9km. Kiwi Burn/Mavora Walkway joins Bald Hill PAMU route. The pink line is the preferred route. The blue lines are alternative route sections.



9km. Trail along the foot of the hill



10.5km to 12.5km. Trail along base of hills south of Kiwi Burn intersection



Trail continues along base of hill



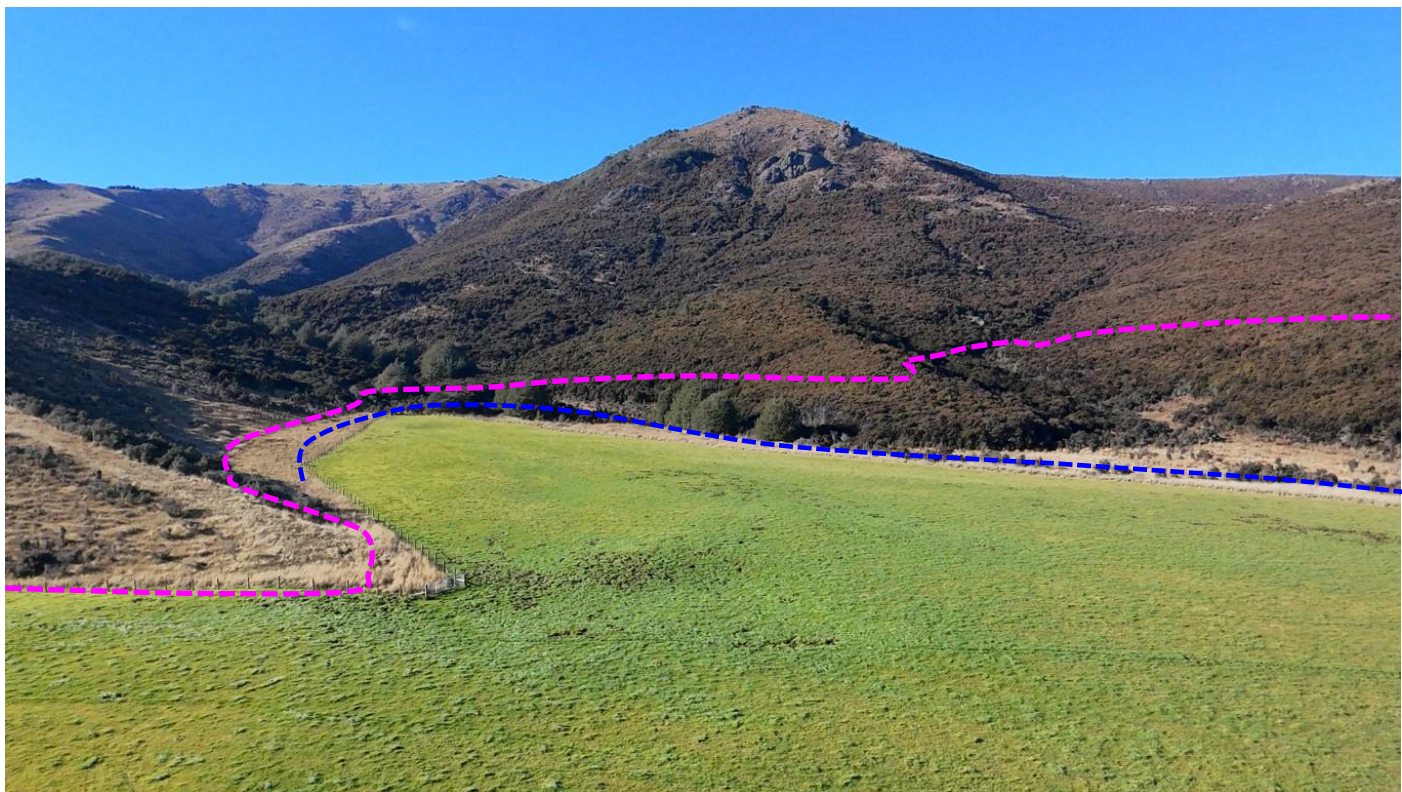
13.8km. Looking north along base of hills



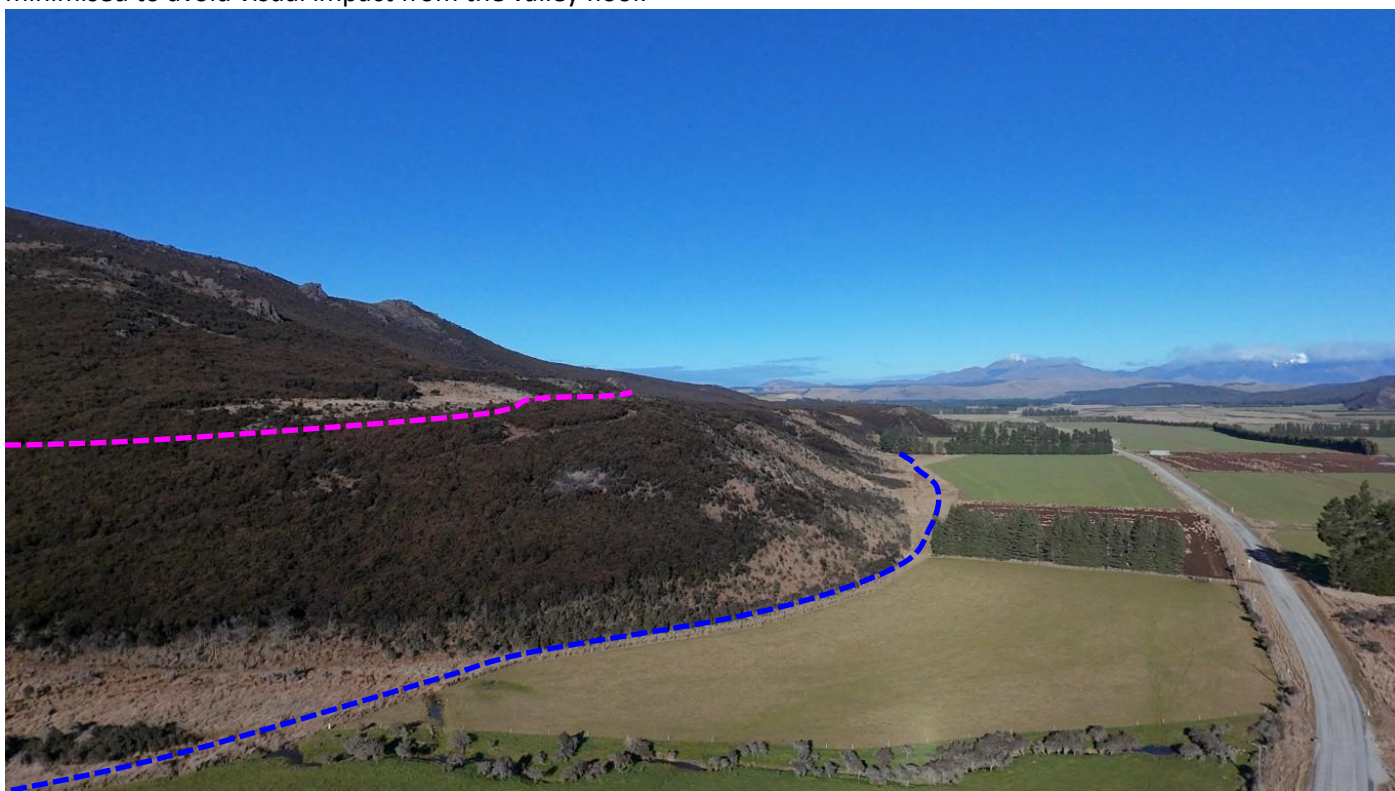
14km. Looking south along base of hill



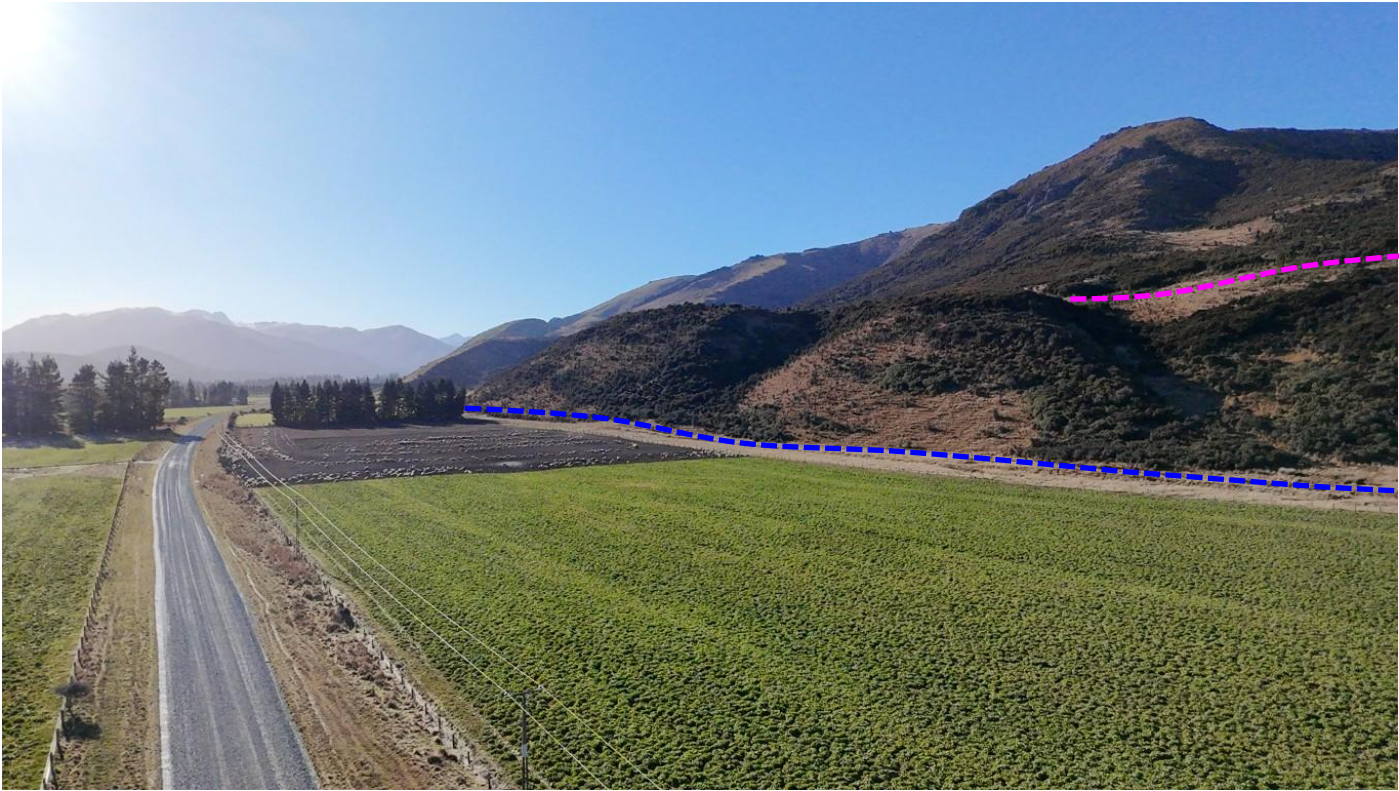
15km. Looking north and towards Bald Hill



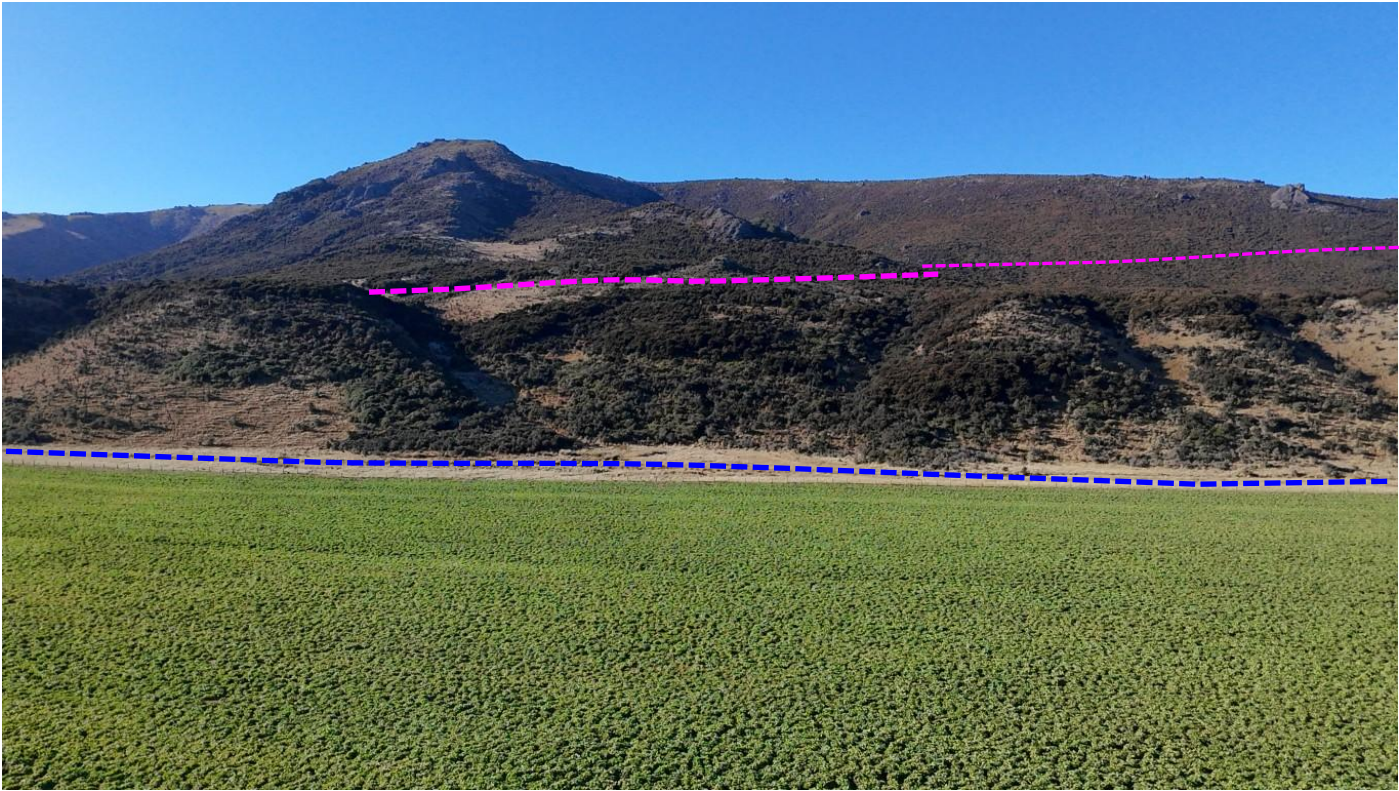
15km. Looking east at start of preferred route climbing up through regenerating scrub. Vegetation removal will be minimised to avoid visual impact from the valley floor.



15.8km. Looking south at climbing trail. The pink line is the preferred route. The blue lines are alternative route sections.



16km. on Mavora Lakes Road looking north



16km.



17km. the pink route sidles with little climbing to gain elevation from the descending valley floor and road



17km.



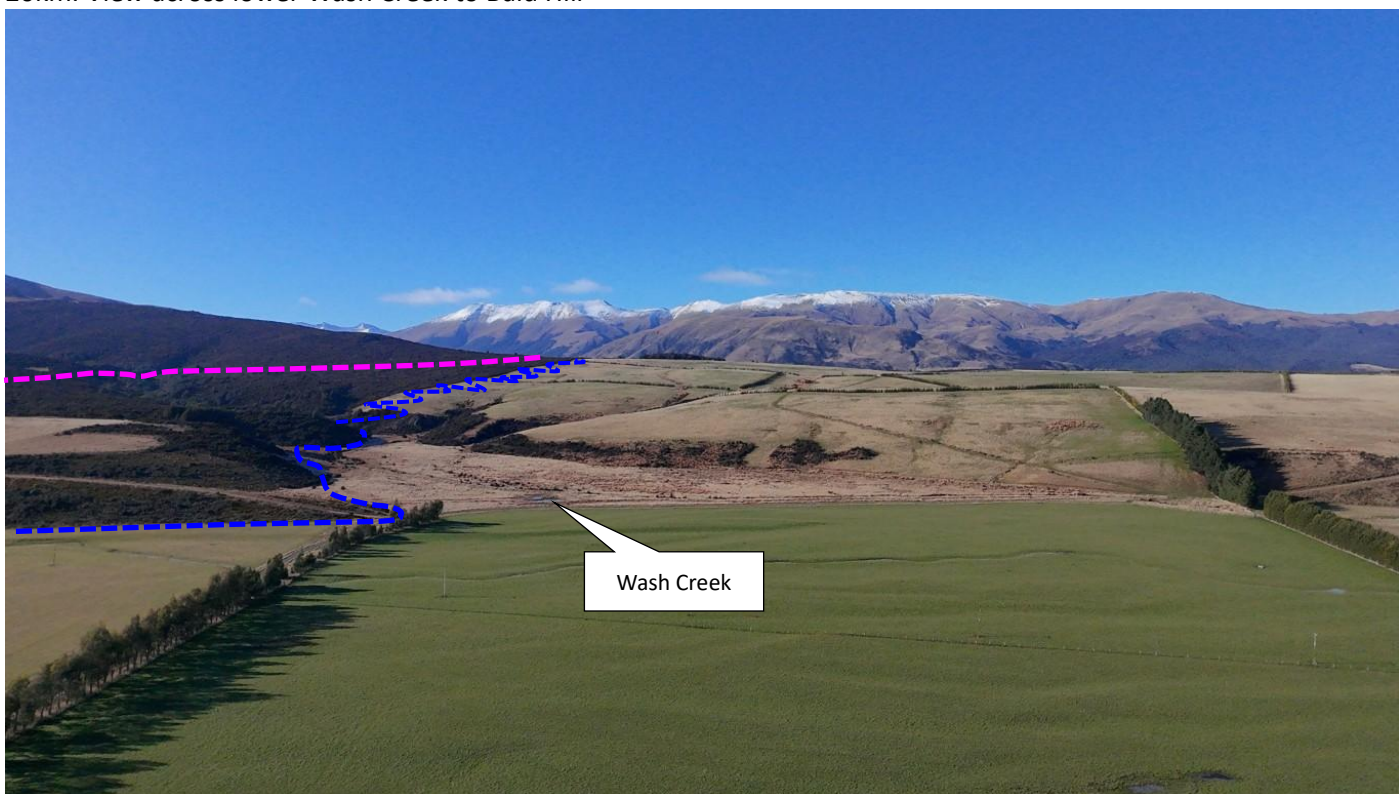
18km.



18km. Typical scrub



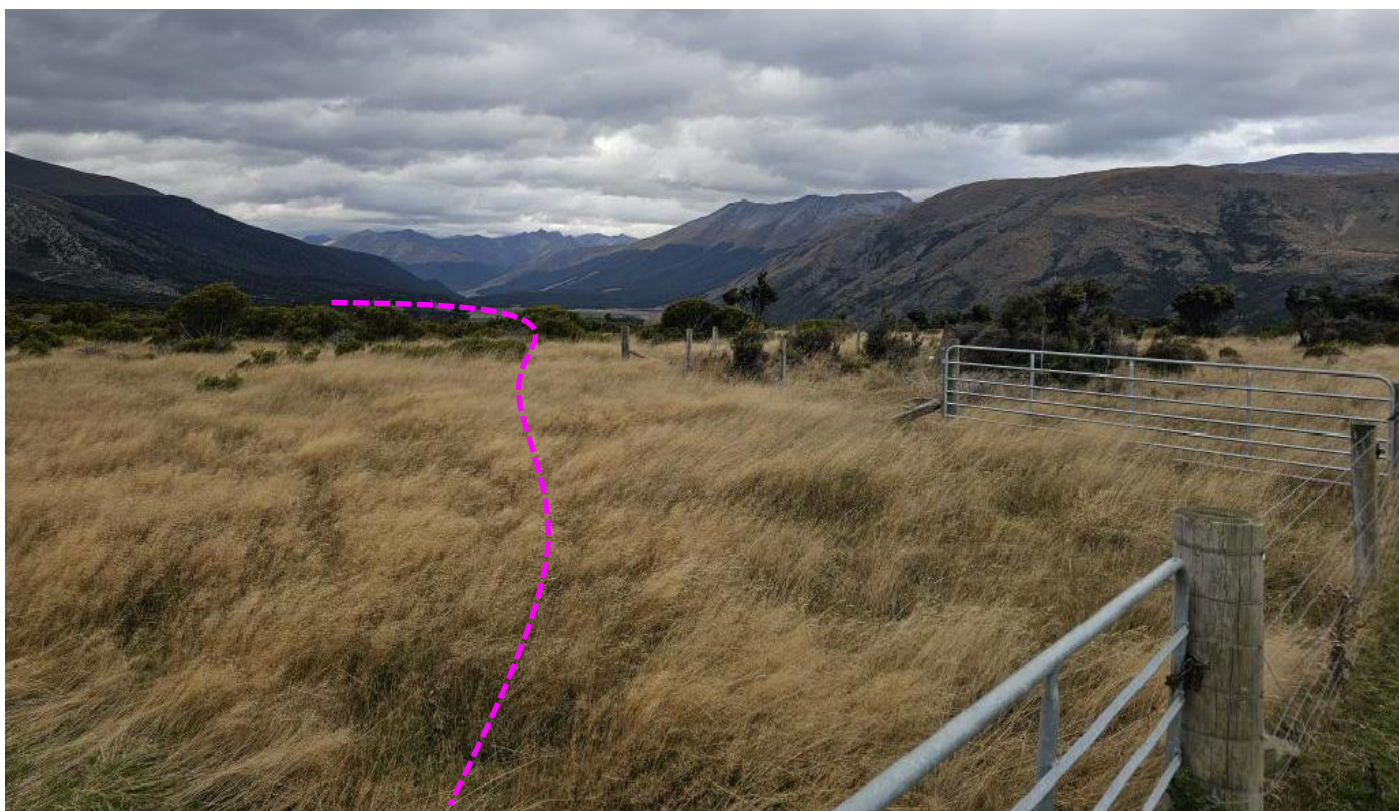
20km. View across lower Wash Creek to Bald Hill



20km. Looking east across Wash Creek



21km. Existing 4WD track through typical scrub. Snowden Forest PCL at the southern end of the Bald Hill range.



23km. Looking north up the Ōreti. Typical grassland.



23km. Looking southwest with the wetland in the distance. Typical denser vegetation that the trail can weave between.



24km. View looking east towards Rocky Knoll and Ōreti Rd



27.5km. Along eastern side of farm boundary. Sheltered behind trees and conventional fence.



27.5km. Western side of fence is less developed, but more exposed to wind and would need to move the deer fence.



29km. Trail along edge of paddocks



29km. Looking down the short gully.



30km. Trail at Centre Hill Rd crossing#1 located in QEII gully. Alignment to be refined with QEII Trust and PAMU



30km. Looking north back up the gully.



30km. Looking south from Centre Hill Rd.



30km. View south towards Burwood Bush



33km, Centre Hill Road looking southwest



33km. looking north



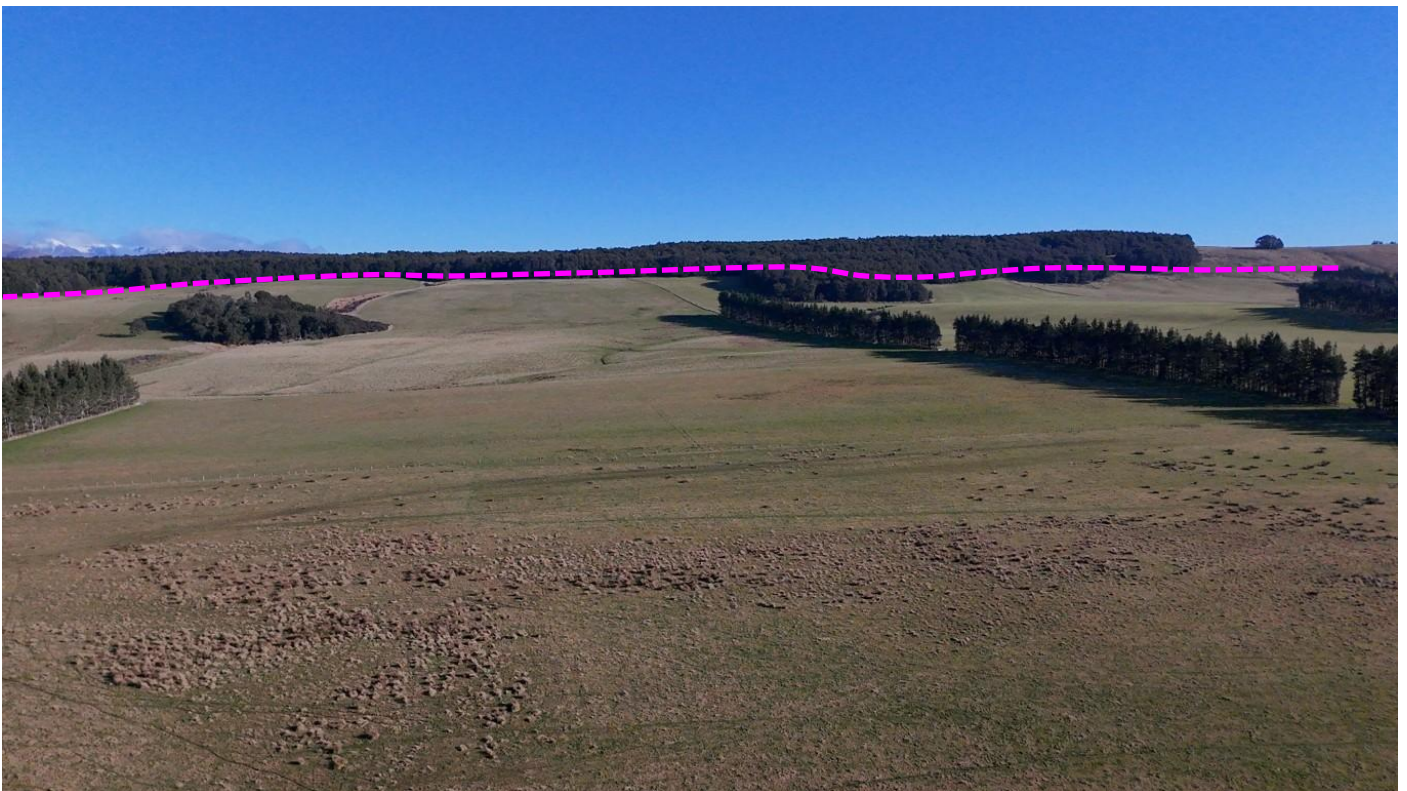
33km. Small stand of QEII covenant beach trees extending from DOC's Burwood Bush



34km. route alongside Burwood Bush on PAMU farmland



34km. looking east towards the Ōreti river



34km. View along Burwood Bush from Centre Hill Rd



35km. route along the edge of the bush



35km. through scattered beech trees.



35.5km Looking east towards the Centre Hill shelter



36km. Looking along Centre Hill Road, Burwood Bush at right edge



36km. Route dropping down to Centre Hill Rd.



39km. Trail from Centre Hill Rd crossing #2 to Centre Hill shelter



38.5km. trail leading to Centre Hill shelter and existing off-road trail

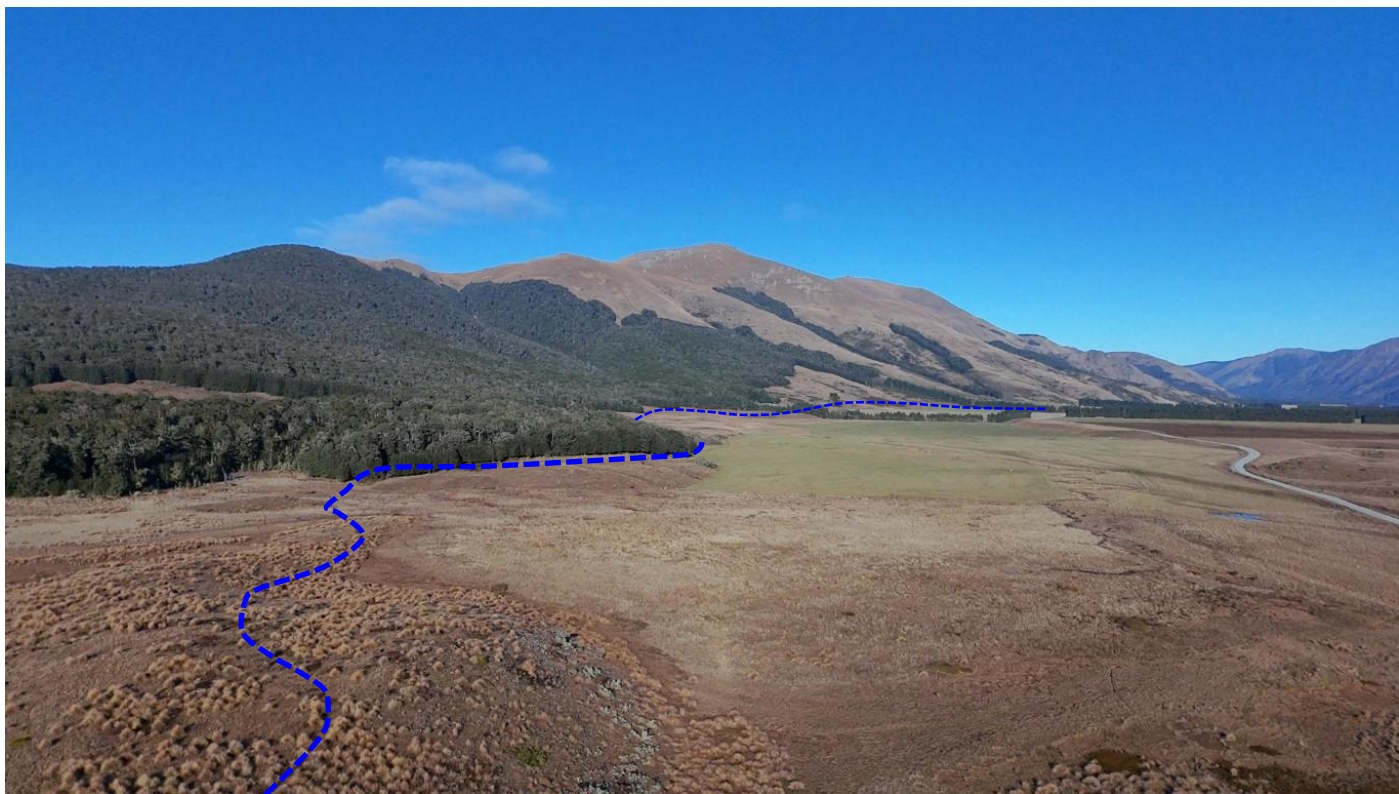


38.5km. existing trail heading south.

Alternative Route; Mavora Lakes to Kiwi Burn Bridge on PAMU, 0-5.4km

This route is included as an alternative to the preferred Mavora Walkway in the event that approval cannot be gained from DOC to upgrade the current track on PCL. The route is shown in the Figure 3.

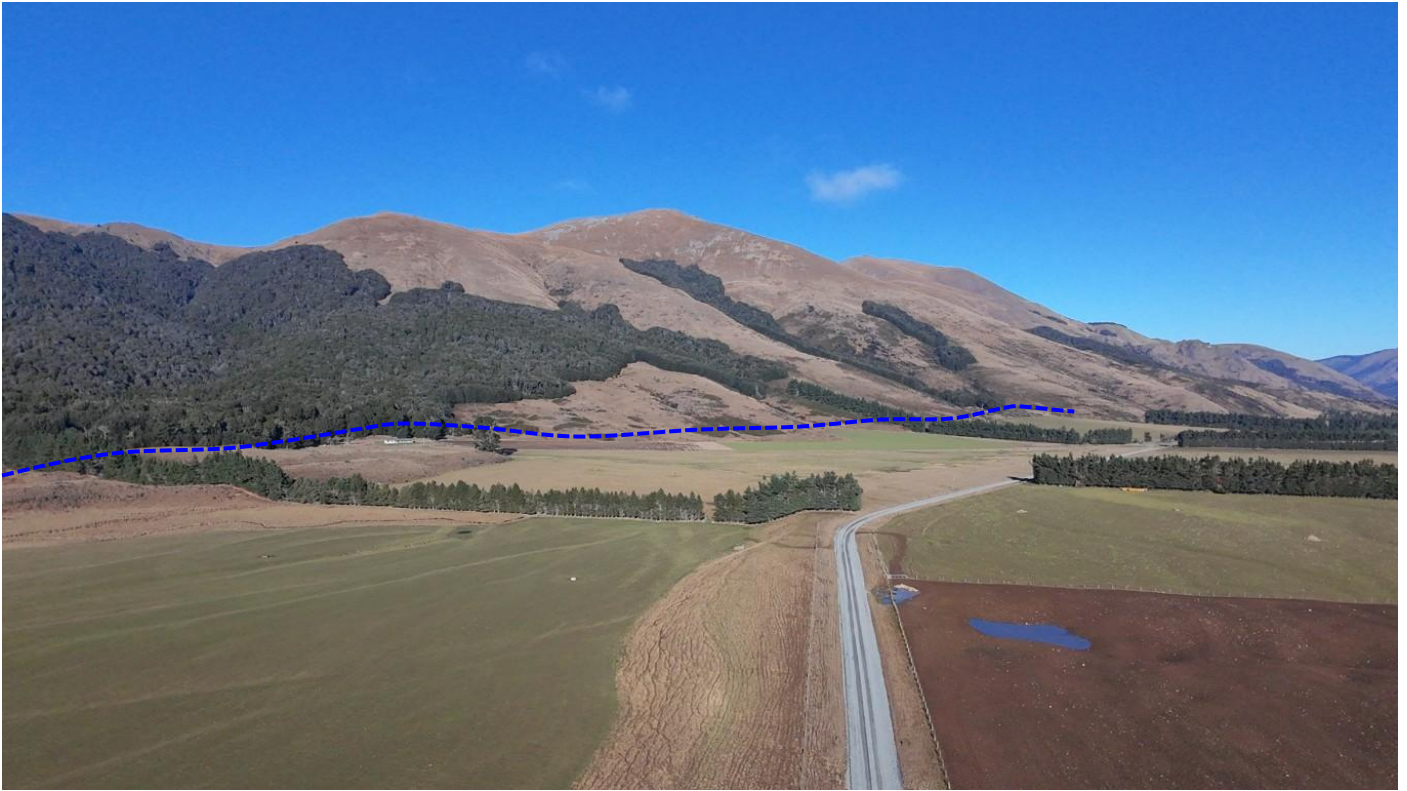
Length (m)	5,400m
Description	The trail route leaves the Mt Nicholas Road just north of the Mavora Lakes turnoff, heading across open rough ground into the margins of the Bald Hill forest that fringes the PAMU land. The alignment will need refining with QEII Trust and PAMU to avoid sensitive wetland and a Geopreservation site. The trail follows the forest edges and paddock margins, climbing up and down through some small gullies to reach the Kiwi Burn Bridge access on Mavora Lakes Road.
Technical feasibility	Yes, Grade 2 can be met for 100%
Technical commentary	The trail alignment is straightforward and with PAMU support, the trail could integrate into the existing fenced hillsides sidling through occasional native beech forest and across open faces up to 40m above the valley in places. There are some small watercourses to cross.
Key risks	Flooding in side streams and outwash fans where flood waters can easily spread over wide areas. Stock damage if the trail is not fully fenced and cattle are run on the trail
Risk commentary	The trail route around larger gullies and associated flooding in side streams needs to be considered in the route choice to ensure flood flows do not cross the trail alignment. Fencing of the trail to keep stock off may not be required if only sheep are being grazed. This practice is used on the Roxburgh Gorge Trail and Lake Dunstan Trail. Industry best practice would be to fully fence the trail but this may not be practical or desirable for farm management.
Structures	Small bridges/boardwalks; Boardwalks across wet areas and short bridges to cross side streams are required at 8 sites totalling 134m. Short single span bridges offer the best level of service with the least maintenance. Retaining walls; We have not identified any specific sites.
Toilets	There are existing toilets as follows: • Ōreti River – single vault style • South Mavora Lakes – Single vault style • Kiwi Burn Bridge – Single vault style Given the above availability of toilets, we do not consider additional toilets are required to support this trail section
Construction costs	\$ 700,500 – refer Section 9 for detailed breakdown
Operational commentary	The site is accessed at multiple locations from Mavora Lakes Road ensuring operation will be similar with the existing trail sections. Of note is the potential impact of stocking on sections of the trail if this is not 'stock proofed'. At the time of writing PAMU have indicated the hill blocks are mainly run with sheep, with cattle going in for 3 months in winter. They suggested cattle could be managed with electric fence over that winter period. Experience with other trails is that fully stock proofing remains the most failsafe solution to reduce maintenance costs.
Other comments	The trail section is in the valley bottom with some small hills that provide some views of the surrounding valley & hills. The trail remains within 300m of the Mavora Lakes Road for the length and is easily accessible.



0km. View of lower Mararoa Valley from trail start



3km. View from Mavora Lakes Rd



View to Bald Hill with trail along base of hill & forest edge

Alternative Route; Wash Creek on PAMU, 15km to 25.2km

Length (m)	10km
Description	This alternative route avoids crossing PCL and instead stays on PAMU land and continues near the valley floor south along the base of the hill. It skirts around a PAMU house to preserve privacy and on to Wash creek. A series of switchbacks climbs the edge of the paddocks to gain 120m and the high point at the edge of the PCL below Bald Hill. From here the route turns south and meanders along the boundary fence in and out of some small gullies to rejoin the preferred route at 25.2km
Technical feasibility	Yes, Grade 2 can be met for 100%
Technical commentary	The trail alignment is straightforward initially along the base of the hill then terrace riser to Wash Creek. After the creek crossing the trail must climb 120m in a series of switchbacks. Provided enough paddock space can be gained, the climb can meet Grade 2 standards.
Key risks	Flooding in side streams and outwash fans where flood waters can easily spread over wide areas. And stock damage if the trail is not fully fenced
Risk commentary	The trail route around larger gullies and associated flooding in side streams needs to be considered in the route choice to ensure flood flows do not cross the trail alignment except where bridged. Fencing of the trail to keep stock off is required over the more intensively farmed paddocks
Structures	Small bridges/boardwalks; Boardwalks across wet areas and short bridges to cross side streams are required. A 10m bridge is required at Wash Creek.
Toilets	There are existing toilets as follows: • Kiwi Burn Bridge – Single vault style • Centre Hill car park – single vault style plus refuge This provides for a toilet at each end with a 30km ride between. Based on the NZCT design guide the target interval is 7.5-10km of riding for grade 2 trail. We recommend a toilet is located between Wash Creek and the QEII wetlands that border the PCL where good vehicle access is available for maintenance. The toilet should also be at a spot riders are likely to stop at. The precise location can be determined during the detailed design or construction stage.
Construction costs	\$ 1,055,750 – refer Section 9 for detailed breakdown
Operational commentary	4km of the route is within 300m of the Mavora Lakes Road ensuring operation will be similar with the existing trail sections. The remaining 6km is accessed via PAMU farm tracks / paddocks.
Other comments	The need to climb 120m in a series of switchbacks concentrates the climbing and the resultant experience is likely to be less than optimal as most riders struggle to ride switchbacks and enjoy them. At least 13 switch backs will be required. This option would occupy around 12ha of PAMU land (not including QEII covenanted areas). While PAMU staff have indicated they may be able to support this route, they would much rather the trail to be built along the preferred alignment through PCL.



15km. view from Mavora Lakes Rd



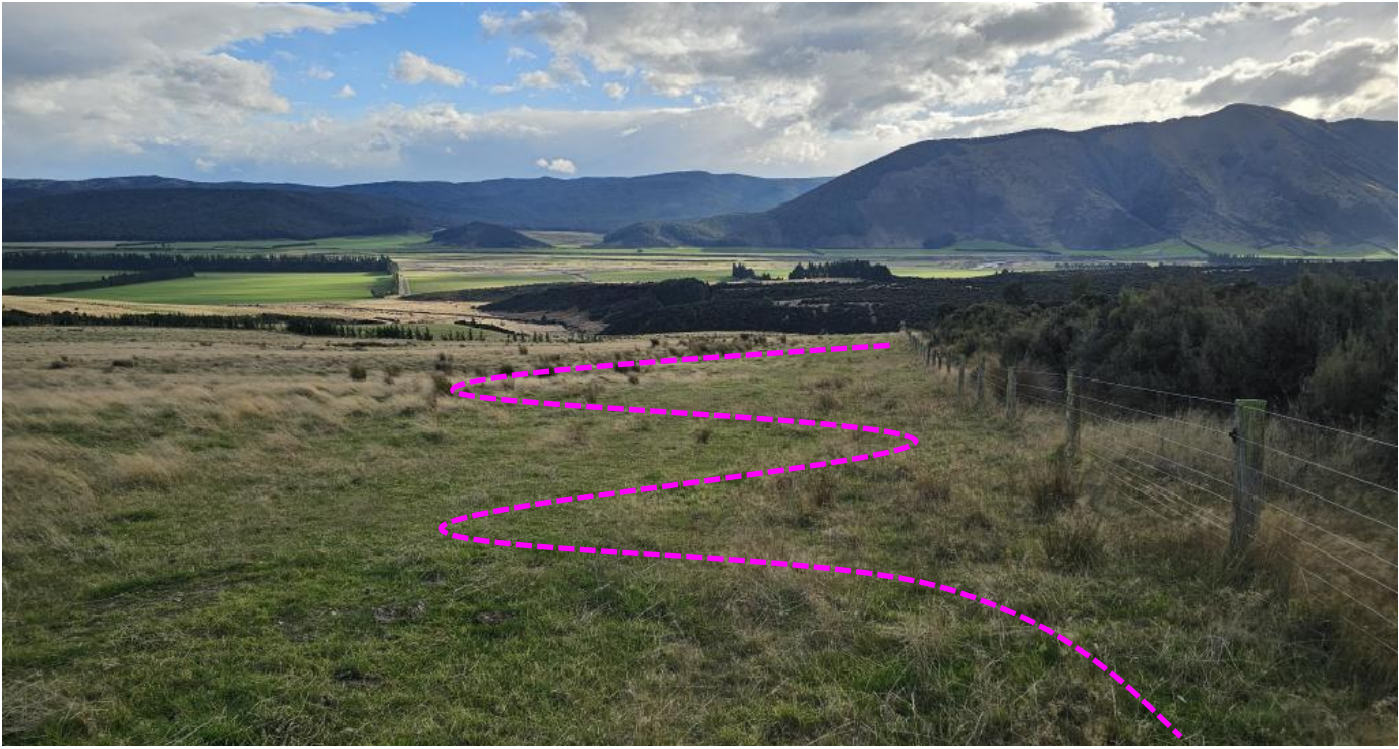
17km. looking south



18km. looking north



19.5km. looking west



21km.



21km. QEII Beech forest



22.5km Looking south along boundary. Trail zig-zags through gully

6.0 Land Tenure and Public Conservation Land status

There are two landowner / managers responsible for all of the off-road land considered for this new trail route. PAMU (Landcorp) owns Haycocks and Centre Hill stations which make up the majority of the routes. Our brief was to stay off Public Conservation Land (PCL) which The Department of Conservation is responsible for, if possible, due to the constraint on new bike trails in the Conservation Management Strategy, discussed further below. However, the preferred route does include two blocks of PCL. Hence, the approach will be to seek approval for the preferred route through PCL and have a fall-back option if that is not possible within an acceptable timeframe.

PAMU were cooperative with the trail planners in 2016 when the upper Ōreti route was proposed and they have continued to be supportive in principle as we have worked through new potential trail options. By working with the two farm managers to understand their stock management logistics, plus engaging with senior counsel and PAMU's environment manager, we have arrived at conceptual routes which they should be able to support. The next stage is detailed design to refine treatments such as fencing and develop legal easements for the routes. Leading into this stage, approval will be sought from QEII trust to make adjustments to the covenant documents to allow the trail.

The 2016 Murihiku Southland Conservation Management Strategy (CMS) is the key conservation planning document for the blocks of public conservation land which the trail would traverse. The trail is within the Western High Country Mata-puke Koikoi Place.

Under DOC's Destination Management Framework, Mavora Lakes is classified as a "Gateway Destination" which targets "New Participants" in conservation and recreation. The CMS notes the opportunity to develop more day recreational experiences in the area, which this trail project helps to deliver upon.

The Kiwi Burn Track network and hut are considered one of DOC's most accessible opportunities for families to have their introduction to a short overnight experience in the back country. This trail proposal upgrades part of that track network. This project would also mean progress on long term plans to connect a multi-use trail from Kiwi Burn to upper Whitestone and Upukerora rivers to reach Lake Te Anau and join Fiordland Trail Trust's network.

The proposed trail starts in the Mavora Lakes Conservation Area and then quickly crosses into Snowdon Forest Conservation Area. It exits to cross the Mararoa River and Mavora Lakes Road to the east, entering the separate

block of Snowdon Forest Conservation Area which includes Bald Hill. Immediately adjacent to Snowdon Forest Conservation Area to the east, is Eyre Mountains Taka Ta Haka Conservation Park including the Upper Ōreti River. However, this trail proposal does not cross into that park.

At the very southern extremity of the Bald Hill section of Snowdon Forest Conservation Area, there is a small section of wetland designated as “Priority Ecosystem - Wash Creek Wetland, Mararoa River Scrub”. This is described in the CMS as having Frost flats: Bog pine, mountain toatoa/celery pine scrub/forest. The proposed trail skirts east around this wetland to stay on drier terrain, whilst enabling viewing and interpretation of this important ecosystem. It then traverses PAMU farmland including some QEII covenanted blocks. Further south it sidles along the boundary of Burwood Bush (Red Tussock) Scientific Reserve on PAMU farmland.

CMS Allowance for Bike Trails

Under the current Conservation General Policy and the 2016 Murihiku Southland CMS, unless the CMS specifically allows for new bike trails to be considered in a given area, DOC is not enabled to approve new trails at management level. This legal barrier has caused issues elsewhere in New Zealand where trails with approved concessions from DOC, were subsequently discovered to be technically illegal because the relevant CMS did not allow for them. This includes sections of official Great Rides such as The Old Ghost Road and the Great Lake Trails in Taupō.

Various proposals to address this CMS bike trails issue have been worked on by DOC and stakeholders over the last few years with a proposal to shift to a simpler effects-based approach to approving new bike trails. The latest statement on this issue from DOC can be reviewed here <https://www.doc.govt.nz/our-work/nationwide-conservation-management-strategy-partial-review-for-biking/>. In summary, as of mid-2024 DOC had revised how it can “identify” where bike trails can be allowed. Eleven of the 16 CMS regions are considered likely to have flexibility to identify new trails. Unfortunately, Southland Murihiku CMS is not in that group and lacks flexibility.

While this work on providing more flexibility on bike trails was progressing well, the government has more recently proposed a significant restructure of the Public Conservation policy and planning hierarchy, alongside the review of concessions management and charging. This has resulted in the specific work on addressing the CMS bike trails issue to stall in the meantime.

The existing walking trail from Mavora to Kiwi Burn already allows for bikes, despite much of it not being rideable. Upgrading this trail should be allowed, provided impacts are minimised.

The second block of Snowdon Forest Conservation Area around Bald Hill, does not allow for new bike trails, despite having several 4WD tracks to the top and various bulldozed fence lines. The proposed bike trail does not use these existing routes and will therefore be treated as a new trail. This means that The Department would need to take the proposal to the Southland Conservation Board (SCB) and Kaitiaki Roopū Ki Murihiku (KR) for consideration to see if they would support the Department making a decision to approve a bike trail that is currently inconsistent with the CMS.

The type of information that would need to be presented to the SCB and KR would include:

- distance of trail involved,
- amount and type of vegetation clearance required e.g. mature vs regenerated
- known biodiversity values present and how impacts would be managed and mitigated.
- What other trail alignment options which avoid PCL have been considered and why these have not been used.

This level of detail is usually gathered at the design and consent stage of a trail project and was beyond the scope of this feasibility study. Our interpretation is that it is possible to put a strong proposal to DOC as outlined above and if barriers eventuate, the timeframe on raising funding and developing this trail is likely to coincide with updated policy for bike trails in Snowden Forest.

Treatment of E-bikes in the CMS

When the CMS was written and taken through public consultation, E-bikes were only starting to be used. The provisions set were more restrictive than for standard bikes because the impacts of E-bikes were not known at that time. This again means that use of E-bikes on the trail section as proposed on PCL would not be allowed for as the

area is not included in Table 2.3 of the CMS. Again, this would need to be put forward under CMS Section 3.4 providing information outlined in that section, and taken to SCB and KR to be included in their consideration above. We understand there are several other trails where this technical e-bike exclusion exists due to legacy policy; but it is not being enforced as it is impractical.

Justification for Including Public Conservation Land

As outlined earlier, this feasibility review has included considering several options to avoid accessing Public Conservation Land. All of the options provide a significantly inferior scenic and riding experience. They also interfere with PAMU's farming operations and increase the cost required for fencing on farmland. In addition, some of the alternative routes, while avoiding removal of scrub on PCL, entail going through QEII wetland restoration areas, so any advantage in minimising vegetation impact is negatively offset. The first section of PCL, from Mavora Lakes, is already accessible for bikes and there is space to navigate around the mature beech trees. The second block on the southern flanks of Bald Hill is mostly highly modified scrubland. We have built sustainable trail in these environments before and the trail project can be leveraged to engender more community support in ongoing restoration.

Taking the trail through Snowdon Forest from Mavora Lakes to Kiwi Burn will cost more than building more of the trail along the base of Bald Hill, but it is, in our view, well worth the additional cost and effort. The route past Mavora Lakes will elevate the trail from average to exceptional by incorporating the iconic Mavora Lakes and LOTR sites. Most trail users tend to stick to the trail, so bypassing the lakes will mean that most users will miss seeing them.

Taking trail users through mature beech will give the trail a unique point of difference to other trails in the area. This is essential if the ATM wants to attract new and repeat users in an increasingly crowded trail market. It has been well proven on many other cycle trails that building a quality trail pays dividends. The trail will be in place (hopefully) forever and the construction costs are in comparison, fleeting.

Obtaining permission to build the trail through PCL may take longer than obtaining permission to build the trail through PAMU land, but this may not necessarily slow the project down, as work on land access can proceed while funds are being raised for trail construction. If necessary, trail construction can be staged, with the sections of trail on PAMU property built while access to PCL is finalised.

6.1 Ōraka Aparima Perspective

In partnership with the Around The Mountains Trail Trust, we approached Te Ao Mārama for advice on appropriate Ngai Tahu Papitipu Rūnaka engagement for this feasibility report and we were directed to Ōraka Aparima Rūnaka. A Teams hui was held to talk through the project and some of the trail options and where Public Conservation Land was being considered. This was followed up with an email briefing and maps showing potential trail options. This was further followed up with a more refined map showing a preferred and optional route.

Initial discussions indicate that Ōraka Aparima appreciate the rationale for the trail upgrade including addressing safety issues, and the economic, employment and community benefits associated with recreational trails. There may be partnership opportunities around guiding and interpretation and businesses associated with the trail.

In their Kaitiaki role, Ōraka Aparima will be interested in any heritage sites and values and the same sort of environmental effects that DOC will assess. At the design and consenting stage, an Assessment of Environmental Affects will include providing detail on the total trail excavation area, vegetation removal and biodiversity values. Protecting wetlands is also of particular interest. Ecological surveys are likely to be necessary in some areas. There are no archaeological sites noted anywhere within this project area on the NZAA Arch site. An Accidental Discovery Protocol would be followed at design and construction stage.

It is suggested that representatives from Ōraka Aparima are provided the above details and invited on a walk-through of the conservation lands closer to the design and consent stage to determine if they formally support the trail project and route.

The trail presents a unique opportunity to tell stories about Ngāi Tahu and the work PAMU and QEII are doing together on the various habitats and restoration activity. Budget for cultural assessment, signage and interpretation has been included in this report's overall trail project budget.

6.2 Known Biodiversity Values

The scope of this feasibility review does not include conducting new ecological surveys, assessments of environmental effects or preparation of consent applications. To assess likely feasibility, we have made enquiries with key organisations and individuals with expertise in this field to understand what is already known and identify if there are any obvious roadblocks with respect to sensitive ecology. We approached DOC Fiordland Area Office, Forest and Bird Southland, Environment Southland, Fish and Game Southland, QEII Trust and PAMU Farms' Environment Manager. This included Brian Rance who used to work for DOC as an expert ecologist for Murihiku Southland, is on the Southland Forest and Bird Branch committee and currently works on contract for QEII Trust.

The first section of trail in Mavora Lakes and Snowdon Forest Conservation Areas, running from the Mavora suspension bridge to the Kiwi Burn swing bridge is primarily mature Red Beech forest. It would contain yellow mistletoe and potentially some bat habitat but this is unlikely to be affected as the trail will navigate around mature trees rather than remove any. There are some broom species likely down on the river flats, whereas the trail will stay above the terrace edges.

Across in the Bald Hill block of Snowdon Forest, towards the southern end, this is primarily regenerating manuka and mixed scrub. This area is more likely to have skinks and geckos, especially around any rock outcrops. There is some more mature beech forest in the Wash Creek valley, where larger trees result in more open forest floor which the trail can weave through. Where tight space or slope makes it difficult to get around a tree, small sections of retaining are a proven solution.

6.3 QEII Covenant Blocks on PAMU Land

There are several QEII blocks across both PAMU farms, some of which the trail is proposed to pass through. This has the benefit of not requiring new fencing as they are already fenced off from stock. All of the QEII blocks are highly modified by past farming activity but some do contain areas of wetland and special plants.

In an effort to understand the ecology of these QEII blocks we sourced two High Value Area (HVA) ecological assessment reports commissioned by Environment Southland. These cover the QEII blocks on PAMU's Haywards and Centre Hill Farms, which the trail would potentially traverse. The HVA assessment programme is to provide landowners with factual information about the presence, condition and relative value of indigenous biodiversity on their land.

These reports mention the following:

- Small areas of leached terraces comprising old glacial till which support minor areas of manuka and bog pine scrub that complement the neighbouring protected scrub and wetland complex on Public Conservation Land.
- Hill slopes dominated by regenerating manuka scrub with a diverse subcanopy of other indigenous woody species and minor areas of mountain beech forest. Small areas of modified red tussock tussockland transition into marsh wetlands dominated by rank exotic grasses.
- Patches of regenerating Manuka and Coprosma scrub, and minor areas of Carex sedgeland.
- On Centre Hill Station the preferred trail would pass through the Landcorp Louise Wetland QEII block. This includes pockets of bog pine moss shrubland, and swamp inaka / wire rushland and coprosma shrubland. In the southern section it runs into red tussockland.

There are likely to be some sensitive species which will need to be surveyed by an ecologist at the design and consenting stage. The trail budget we have prepared includes surveying in these areas to divert trail around sensitive species and a specialist herpetologist for the lizards. The budget also includes sustainable trail building practices and protection, relocation and replanting if necessary.

6.4 Upper Ōreti Valley Environment Court Case Ecology Findings

The Environment Court Decision (2016) on the case between Fish and Game vs Southland District Council, overturned the consent for the proposed Upper Ōreti Valley section of the original Around The Mountains Cycle Trail.

Whilst there is no physical overlap of this rejected route with what is now being proposed, some of the scrubland terrain has similarities with the new proposed route and could therefore provide useful insights into ecological values and consentability.

At the time, evidence from a Mr Beale suggested there were no nationally threatened species on the Ōreti route, several bird species of conservation concern (NZ Falcon, black fronted tern, black-billed gulls) reside permanently or seasonally along semi-braided Ōreti and Mararoa river beds; and up to six species of lizard were likely to inhabit the grey scrubland and shrubland; and that the shrubland vegetation typically supports a diverse assemblage of invertebrates.

The court decision found that the environmental effects in these areas of similarity were minor or less than minor and could be consented with standard best practice sustainable trail building and revegetation conditions. The reasoning for rejecting the Upper Ōreti Trail consent was not around ecological effects on the valley sides. The main concerns were areas of river flats and impacts of a new bridge crossing in the northern part of the valley; and the effects on recreational amenity, particularly the iconic trout fishing resource.

Based on the above information and our site assessments; and our trail building experience in other sensitive areas of Aotearoa New Zealand, including National Parks and wetlands, we have high confidence that the trail could be built and maintained sustainably, with minor or less than minor effects. However, until more detailed design and ecological surveys are done, we can't pre-determine consentability.

7.0 Technical expert inputs

The authors have worked with a range of technical experts and over the past 15 years have developed a close working relationship with those experts who understand the site-specific requirements of backcountry cycle trails. Our advice below reflects the level of knowledge specific to a cycle trail.

7.1 Structures

All route options require some bridge structures from the simple short spans through to the more complex 32m Kiwi Burn Bridge. For this high-level feasibility, we have assessed the sites and measured practical lengths which will be refined during the detailed design.

Active Systems has worked closely with structural engineers in the delivery of cycle trail bridges since 2011 across a number of great ride trails. As the project progresses from concept to design, it will be essential to engage a well-respected and experienced bridge designer specialised in specific backcountry cycle trail structures.

Active Systems Ltd can recommend OCEL Consultants Ltd of Christchurch and Milward Finlay Lobb of Timaru as two suppliers who deliver good quality and great value for money in fixed bridges and minor structures.

ReNature Ltd (Andrew Mackenzie) of Auckland offer suspension bridge design and Abseil Access Ltd (Martin Wilson) of Wellington offer suspension bridge design and build services. The authors have worked with both suppliers.

7.2 Archaeology

We have reviewed publicly available data on NZAA Arch site and there are no archaeological sites noted anywhere within this project area. Accordingly at this stage we do not believe that an archaeologist will be required as part of this trail project.

7.3 Ecology or Herpetology

The proposed trail crosses areas of QEII covenant and Public Conservation Land (PCL) part of the Snowdon Forest. Both areas contain native habitats and may contain threatened plants and animals. The reports prepared for

Southland District Council and Environment Southland '*High value areas, Ecological Assessment Report, UPKR26 & UPKR27*' identify a range of native plants across dryland and wetland habitat units and highlight the need for a detailed trail specific ecological assessment to support any application for access and resource consent.

As the proposed route crosses PCL it is certain to trigger the need for a lizard assessment undertaken by a herpetologist. This will lead to a Lizard Management Plan (LMP) and Authority under the Wildlife Act 1953. Note that the Wildlife Act (WAA) is currently being reviewed.

The scope of the LMP will not be fully understood until the onsite investigation stage. Ideally the LMP will only cover PCL and this will limit the scope and costs for the LMP and WAA.

7.4 Landscape

Cycle trails can have adverse impacts on landscape values. The project area has no 'outstanding landscape features' identified within the Southland District plan therefore there may not be a requirement to engage a specialist landscape architect as part of the project.

However, it would be both prudent and industry best practice to consider landscape values in the trail alignment and design with particular attention paid to the location and design across exposed hillsides or ridgelines to ensure the trail has the least visual impact. This applies to Bald Hill where removal of scrub will be kept to an absolute minimum and best practice rehabilitation carried out to limit any visual impacts from the valley floor and road.

The writer has worked successfully with Phillip Blakely of Blakely Wallace in Arrowtown on a number of great rides and we can recommend his expertise and pragmatic solutions should they be required.

7.5 Geotechnical

The location of large bridge structures should be considered by an engineering geologist or geotechnical engineer to ensure the foundations are positioned on solid footings, where possible (noting this is not always possible). It is recommended that a specialist with particular experience in outdoor structures be used to ensure the advice is fit for purpose.

8.0 Regulatory Assessment

8.1 Resource Management Act 1991

Note proposed changes to the RMA in government legislation, expected to be enacted in early 2026, will replace the RMA with The Natural & Built Environments Act and the Spatial Planning Act. The implications of these two acts are unknown. We have provided the below based on current legislation.

8.2 Southland District Council

The site is within the Southland District and covered by the Southland District Plan. We have reviewed the online GIS mapping and district plan rules and provide the following advice:

- Zoning; General rural zone
- Overlays; Natural Hazards (flooding & Inundation), Mountains Overlay, Riparian Margins
- Flooding & inundation; Applies to the Mararoa River below Cerberus Creek confluence including the Kiwi Burn Bridge site. Goes downstream across the project site and would cover options along both banks of the

Mararoa River above and below Kiwi Burn Bridge. Mapping appears 'broad brush' and precise location using LINZ contours will refine the outline.

Natural Hazards

The District is prone to a range of [natural hazards](#) which can pose risks to people, [property](#), communities, businesses and [infrastructure](#). The intensity, frequency and risk of [natural hazards](#) vary and some are likely to be exacerbated over time by climate change. The location and nature of [subdivision](#), [land](#) use and development, including [regionally significant infrastructure](#), must take account of [natural hazard](#) risks and avoid or mitigate these risks, where practicable. This includes any change or intensification of developed areas now known to be at risk from [natural hazards](#). Similarly, these activities must not exacerbate [natural hazard](#) risks and any associated adverse environmental [effects](#). Areas of the District identified as being at risk from flood and coastal hazards are identified on the District Plan Maps through the [Natural Hazard Overlay](#). The [Natural Hazard Overlay](#) incorporates flood inundation and coastal hazard information which has been sourced from the Southland Regional Council. Generally, the significance and level of risk can only be identified following a [site](#)-specific assessment of an area. That applies to areas covered by the [Natural Hazard Overlays](#) as well as areas that are not.

The design of the trail earthworks and in particular structures will need to consider flooding and good reasoning provided in any consent application as to why the trail and bridge(s) need to be located in the hazard zone. It should be noted that detailed LINZ lidar data exists to make credible assessments of likely flood hazard.

Natural Environment Values; Mountain overlay applies to all of Bald Hill forested areas. It also applies to some areas of QEII covenant south of Bald Hill.

Objectives of the Mountains Overlay

The Mountains Overlay encompasses the mountainous areas of the General Rural Zone, where Council seeks to protect and enhance the soil resource and the natural character of the area.

Objective MTO-O1

The soil resource and natural character of the area encompassed by the Mountains Overlay shall be maintained.

Policies

Policy MTO-P1

To avoid, remedy or mitigate the adverse [effects](#) on natural character and soil resources within the Mountains Overlay.

Explanation: The siting, design and location of [buildings](#) and [structures](#) can detract from the natural character of the mountains and can give rise to adverse [effects](#), particularly visual [effects](#) and [effects](#) on [biodiversity](#). If it is considered that a proposal is likely to generate these [effects](#) then there are additional rules, objectives and policies in other parts of the plan that will apply in addition to this policy. These relate to [ECO - Ecosystems and Indigenous Biodiversity](#) and [NFL – Natural Features and Landscapes](#). [Earthworks](#) and other [land](#) use practices can also give rise to adverse [effects](#) on the soil resource. [Subdivision](#), [land](#) use and development within areas encompassed by the Mountain Overlay must avoid, remedy or mitigate these [effects](#).

The location of the trail will need to be carefully considered to ensure the existing landscape and ecological values are not adversely impacted, e.g. avoid cutting across high open faces or ridgelines. Depending on the final alignment, support from a landscape architect may be required.

Rock/gravel extraction is not covered by a permitted activity rule. Consent may be required for the supply of gravel to build the trail if this is sourced from within private/PAMU land or within PCL.

Earthworks within riparian margins will require consent as will earthworks generally for the trail formation as it is likely the permitted activity rules will be exceeded in either volume or area or both respects.

8.3 Environment Southland

Environment Southland manage the entire project site.

Rules relating to earthworks within 20m of a river and within 20m of a wetland will be triggered across much of the site. Additionally, consent will be required for all bridges and culverts.

The trail will seek to navigate around sensitive wetland areas as impact on wetlands is a key consideration and any adverse impact will need to be supported by expert ecological advice as the NPS-FM2020 generally does not permit reduction in wetland areas. This needs to be carefully considered during the detailed design stage to minimise impacts and consenting risk.

In summary consent is required for earthworks within 20m of a river or wetland and for structures crossing waterways. Based on similar consents handled by the authors, we expect these to be granted on a non-notified basis.

8.4 Summary of Land use Consents

Consent for the trail earthworks is required as the permitted activity rules cannot be met under either district or regional rules. A more thorough analysis will be required once the alignment and design is complete to determine if this results in a restricted discretionary or a fully discretionary consent.

8.5 Geo preservation Society of NZ

Mavora Lakes glacial swamp and lake; This is the area around the Mavora Lakes turnoff at the northern end of the project site. See image below.



The alternative route from Mavora Lakes Road through PAMU land may interact with this site. Any new tracking should be carefully located away from the main feature(s) to avoid damaging the visible remains of this glacial feature. Geopreservation # 347

9.0 Development Budget

9.1 Project Budget – Preferred route

The preferred route has been estimated to cost a total of \$ 7.145M allowing for all design, pre-construction planning, physical works and supervision.

Table 2: Project Budgets

		Preferred	Preferred	Alternate	Preferred	Alternate
Item	Preferred Route	Mavora Walkway	Kiwi Burn to Centre Hill	Bald Hill PAMU	Wash Creek PCL	Wash Creek PAMU
Track Construction - Length (m)	38,600	9,250	29,350	5,450	10,460	10,200
Track Formation	\$3,676,994	\$1,287,004	\$2,389,990	\$496,500	\$855,350	\$799,250
Structures	\$1,258,700	\$400,200	\$858,500	\$204,000	\$212,100	\$256,500
P&G & Misc.	\$325,800					
Sub Total	\$5,261,494	\$1,687,204	\$3,574,290	\$700,500	\$1,067,450	\$1,055,750
Contingency @ 20%	\$1,052,299					
Total Construction	\$6,313,793					
Planning, Design & Construction Management						
Trail Design & Project Management	\$458,949					
Structure design	\$57,650					
Technical experts	\$58,900					
Approvals	\$35,590					
Land Access & technical support	\$82,200					
Sub Total	\$693,289					
Contingency @ 20%	\$138,658					
Total Planning, Design & Management	\$831,947					
Total Budget June 25	\$7,145,740					
Operating Cost	\$102,000					

The above table details the full development cost for the preferred route. Additionally, we have broken down the route into separable portions where there are well defined alternatives that have been investigated as part of this report. For each alternative route we have prepared only the physical works budget to allow for easy comparison. The 'Planning, Design & Construction Management' costs will be very similar for all routes as the total trail length, general complexity, statutory authorisations and required technical inputs will remain very similar in scale and detail. Operational costs are also considered to be quite similar for all routes as the total trail length and levels of service required define the level of maintenance, not the specific route choice.

With current construction cost inflation tracking at up to 5% p.a. if the project start is delayed by multiple years, this will increase the budget that needs to be funded. One option for the Trust is to add 5% now. We have left inflation off at this stage but still have a standard 20% contingency to manage some budget risk.

The Bald Hill PAMU alternative route is \$986,704 less than the preferred Mavora Walkway upgrade route but the latter is strongly recommended because it provides some of the most distinctive scenery and riding experience on the whole ATM Trail. We have already noted this would also set it apart from the rest of the trails in the whole of Otago Southland regions. It also better enables wider inter-regional trail connections in future (e.g Kiwi Burn to

Upukerora and Te Anau) and avoids disrupting additional PAMU farming property on the alternative route. The preferred route also enhances opportunities for other recreational user groups including campers at Mavora Lakes and Te Araroa walkers.

9.2 Budget Methodology

The construction and development budget has been prepared using recent construction contract rates together with other costs observed across recent trail projects in Otago, Canterbury and Marlborough. The costs are based on achieving the design specification laid out in the Cycle Trail Specifications section.

Besides physical work, other costs estimated cover the following:

- Planning, detailed trail design and resource consent costs
- Securing legal access including surveying
- Technical expert costs e.g. Landscape, geotechnical, herpetology & structural
- Ongoing technical support from an experienced trail designer to support the Trusts work which is wrapped up in the heading 'Project Management'

9.3 Construction Rates

In preparing this report the authors sought current construction rates for the recent repair and upgrade work completed on the ATM by the trail owner, Southland District Council. However, due to commercial sensitivity, these rates were not available.

Instead, this report relies on contract rates from similar projects as follows:

- The Whale Trail, 194km, \$18M budget, portions opened since 2023, Completion expected in 2026
- Alps to Ocean Trail, 300km, \$6-10M budget, Opened in 2013, still under development in 2025
- Paparoa Great Walk, \$19M budget, opened 2022,
- Old Ghost Road, 95km, \$6M budget, opened 2014,
- Kawarau Gorge Trail, \$10M budget, 28km, Completion expected in 2026
- Lake Dunstan Trail, \$7M budget, 40km, Opened 2021

The authors have also been responsible for design and delivery of numerous walking, MTB and cycle trails across Otago, Canterbury, Marlborough and Wellington in addition to those listed above. From the range of projects, we have derived a table of rates that cover all the types of work required to complete this trail.

At the draft stage of this report, SDC did however provide suggested revisions to our initial draft Operational budget including reductions where activities can be delivered at great scale across the whole ATM trail. This significantly reduced the ongoing Operations cost to \$102,000 p.a.

9.4 Applying Construction Rates

Track formation and surfacing; This is simply the aggregate length of trail required at the estimated metre rate with changes in rate for easy or hard terrain, remote working or easy access.

We have budgeted for helicopter gravelling on the Mavora Lakes walkway upgrade with stockpiles within 1km on PAMU land on the true left of the Mararoa River giving fly times of 2min return.

Rock fill (base course); This is estimated at 250-300mm uniform depth on all flat terrain as much of the project site contains high quality deep soils. Our experience building in similar ground conditions is a layer of weak angular rubble rock is necessary to provide a solid base for the trail to prevent it from sinking, slumping and overall deterioration.

We have priced to excavate river run material from within PAMU land at already identified areas and crush onsite. This reduces the cost but also reduces emissions from trucking.

Basecourse rock would ideally be sourced from onsite borrow pits on the Mavora Lakes Walkway subject to DOC agreement. For budgeting purposes, we have allowed to fly all rock onto the site.

Culverts; Small culverts of minimum 300mm internal diameter have been estimated at 50m intervals from the total track lengths. Larger culverts 500-1,000mm have been based on specific terrain features mapped from imagery and terrain contours. We have not completed catchment specific sizing.

Bridges; These are mapped from onsite observations and contour data.

Boardwalks; Using the terrain maps and aerial photos combined with site verification we are able to identify wetland/swampy areas. Timber boardwalks with 1.5m wide clear decking has been specified. Some may require barriers where the fall height is >1.5m

Fences, Cattle stops and gates; It is expected all private land will be fenced a minimum of one side. Where the trail crosses intensely farmed paddocks we expect lane fencing is necessary so have doubled the quantity required for these sections. This is why we have taken the route through forest, scrub and fenced off QEII covenant land in places, to reduce fencing cost. Cattle stops and gates provide permanent cyclist and stock crossings and have been estimated from fence crossings. Gates across the trail or stiles are to be avoided.

Toilets; It is recommended that a single additional toilet is required south of Bald Hill. Most cycle trails operating in remote sites use Blenheim Fibreglass 'vault' style toilets and this has been budgeted.

9.5 Operational & Maintenance Costs

We have estimated costs covering the following:

- Vegetation control including weed spraying and mechanical trimming
- Surface gravel repair or renewal (Allow for up to 5% of trail length renewal annually)
- Annual visual inspections of assets including culverts, bridges, retaining walls & signs
- Structural Engineer bridge inspections every 5 years
- Tree fall clearance for the beech forest sections
- Toilet cleaning & emptying
- Regular trail inspections

A significant portion of the above could be completed by volunteers.

We anticipate that surface repair would be undertaken in large chunks across 10-15km at a time meaning annual money is often pooled or special funding sought for large renewal programmes every 5-10 years instead of undertaking small quantities every year.

Lastly, the trail ownership structure has a huge influence on costs. Clutha Gold is run by volunteers and annual costs are very low in the range of <\$500/km, while Queenstown Trail is maintained by the District Council with higher costs >\$3,000/km.

With a total new trail length of 38.6km we estimate the total O&M budget is \$ 102,000 per annum.

Maintenance Activities	Cost
Weekly inspection – Inspections after events	\$ 3,250
Toilet empty and clean – add on to others	\$ 3,250
Annual Bridge inspections – visual & Trail inspection	\$ 2,400
5yr Bridge inspections - structural	\$ 4,400
Bridge repairs & replacements	\$ 13,000
Vegetation clearance - biannual	\$ 6,000
Trail envelope weed spraying	\$ 5,700
Signage repairs	\$ 5,000
Surface repairs & replacement – Capital works	\$ 30,000
Tree fall clearance & vegetation control	\$ 9,000
PM & Misc admin	\$ 5,000
Contingency 20%	\$ 15,000
Total	\$ \$102,000

9.6 Inflation Effects on Funding

At the time of writing, CPI inflation is down to 3% p.a. from its high of 7.2% post Covid. But these figures do not reflect construction cost inflation which has been between 10% and 20% for much of 2021- 2023. How inflation plays out between now and when the project progresses towards construction could have a significant impact on funding requirements. This is a matter often overlooked when seeking funds for a project. And if funds are not inflation adjusted, significant shortfalls can occur. This is a scenario that was not faced by the majority of NZCT trails built between 2010 and 2019 when underlying construction cost inflation was 1-2% p.a.

9.7 Volunteer Work in kind

What we have not done is attempt to figure out what value the community could add through locally sourcing raw materials or volunteer time. For instance, the Northern Southland community may be able to supply rock for basecourse and top course from a local source which could reduce overall costs 20-30% as these are the two key raw materials. While this sort of 'in-kind' or 'discount' supply is achievable it cannot be relied upon and has not been included at this high-level stage for budgeting purposes.

Similarly, a highly focused group of local volunteers could undertake the land access negotiations. And a local lawyer may be able to complete much of the legal assistance pro bono. These are matters for the Trust to consider and tapping local people to assist. Given that outside the Public Conservation Land, and SDC managed roads, PAMU farms is the only other landowner, land access negotiations should be much more straight forward than many other trail projects with multiple private landowners.

As an example of the above, Waimate Trail were able to utilise their extensive local networks and completed much of the land access themselves together with sourcing rock from farmers' pits. Additionally, they undertook much of the fencing as a local fund-raising project which halved the costs. So, it can be done.

In Te Anau the local Fiordland Trails Trust has also been able to achieve some amazing value using local skills for the planning and design and very favourable local materials suppliers and combined this has driven down the cost of development to between \$40-\$80/m. So, a committed group of locals with good landowner support and access to raw materials could potentially save millions of dollars. This would lead to a re-evaluation of budgets and reflect a higher level of understanding of costs to deliver the project. At this point it is simply not possible or credible to rely on in-kind contributions.

9.8 Securing Enduring Access

As already noted above, land access negotiations can be delivered by the community volunteers. This is by far the most cost-effective solution and delivers the best engagement with landowners leading to long term enduring relationships necessary to execute these complex projects. This is our recommended model.

The three methods to secure land access are:

- Community led - lowest cost but highest volunteer time
- Community + technical support - Excellent cost management with technical support and solutions on hand only as required
- Outsourced experts - highest cost with dedicated & expert resource, does not build the best long-term community relationships

We have budgeted for full outsourcing within the 'land access & technical support' budget line item. The Trust may be prepared and technically capable of undertaking the land access, then this budget can easily be reassessed.

9.9 Technical Experts

This includes landscape architects, ecologists or biologist, herpetologist (Lizards) and geotechnical expertise. These experts are increasingly necessary to meet stringent resource consent rules as well as comply with the latest DOC land access requirements as embodied in the Otago CMS. We have budgeted to meet the latest DOC requirements which will be rolled out nationally as a result of a change to the Conservation General Policy <https://www.doc.govt.nz/our-work/partial-reviews-ofconservation-general-policy-and-general-policy-for-national-parks/>. This high bar requires applications for new cycle related tracks on Public Conservation Land to provide full environmental assessments as part of any application.

As noted earlier the writers have developed close relationships with a range of experts who have specific expertise related to cycle trail design and construction and can assist with recommendations where required.

9.10 Herpetology

Our budgeting has assumed that if the trail crosses PCL, a Lizard Assessment will be required and this will lead to a Wildlife Act Authority (WAA) issued by DOC to manage lizards within the trail footprint.

At the time of writing there are two paths.

- LMP and WAA is restricted to PCL, or
- LMP and WAA is site/trail wide

Kawarau Gorge Trail is understood through its resource consent to have undertaken LMP and WAA across the entire trail length (28km approx.) while The Whale Trail is currently undertaking LMP and WAA only on PCL (6km of a total of 172km). For the former the budget would be \$ 250,000 - \$300,000 as this requires extensive assessment and onsite mitigation, while for the latter \$25,000 - \$50,000 would be appropriate due to the limited scope.

9.11 Ecology

The writers are aware of ecological reporting⁵ covering QEII covenanted land within PAMU's holdings and these give a good picture of the natural habitat values within these covenant areas. To successfully build trail on these areas will require more detailed site-specific ecological advice and this has been budgeted for.

We have assumed that to build trail in these areas will be achievable subject to the following:

- Micro adjusting the trail alignment to avoid areas of significant native vegetation and habitat, and/or

⁵ High value areas, Ecological Assessment Report, Centre Hill UPKR26, Southland District Council & Environment Southland

- Relocate plants/habitat where these cannot be avoided, and
- Mitigate by eco sourcing seed, propagating and planting areas disturbed by earthworks where these areas cannot be avoided

This hierarchy of avoiding, relocating and mitigation is supported by ecological advice on various other cycle trails so is a recognised approach to minimising or mitigating the adverse effects of earthworks on native habitats.

This approach has been adopted for the Mavora Lakes Walkway upgrade where impacts on the natural environment can be minimised or avoided by keeping the trail width within the existing cleared vegetation line. Mitigation will still be required to ensure disturbed areas are covered by duff and leaf litter/moss and small seedlings as was successfully used for rehabilitation on the Paparoa Great Walk in the Paparoa National Park.

9.12 Legalising Access

This is for costs associated with surveying the access corridor to secure easements that can be registered on the title with the relevant landowners. This ensures enduring access. Access agreements initially take the form of 'Agreement in Principle' which is then progressed to an easement which is secured using an 'Agreement to Grant Easement' which is legally binding on the owner signing it. These may then be temporarily secured using an appropriate registered document on the Record of Title, to protect the project in any landownership change.

9.13 QEII

QEII have indicated support for the trail proposal for the QEII covenant areas on the two PAMU farms outside Public Conservation Land. Legally the process is to make an adjustment to the Covenant documents for each block. This process could be initiated with QEII and PAMU during 2025/26, even if design and consenting stage occurs later. In other trail cases, PAMU and QEII have agreed easements as detailed design is done, but held off surveying until the trail is built to ensure accuracy and allow for minor alterations that will inevitably occur at the construction stage.

9.14 DOC

Access to Public Conservation Land (PCL) is secured by a concession (The Whale Trail, Clutha Gold Trail, A20) or community agreement (Kawarau Gorge Trail). There is no consistent national direction on which type of agreement is required. The most recent trail project to secure access over PCL is The Whale Trail, June 2025.

The process to secure access over PCL requires a detailed Environmental Impact Assessment (EIA). The EIA will consider ecological and herpetological impacts together with all trail design and construction methods, impacts and mitigations. Any response to adverse impacts arising from the construction will require expert technical reporting and is likely to include a Wildlife Act Authority for impacts on Lizards together with ecological reporting (plants and possibly insects as well). There may also be the need to consider instream values although this can be avoided through bridging all waterways in preference to culverts.

9.15 Resource Management Act

Our budgets estimate likely costs to prepare the consent applications to lodgement with Southland District Council and Environment Southland. Based on the current rules (which are subject to change resulting from District Plan reviews and Government NPS's & new legislation in 2025/26) we anticipate applications being processed on a non-notified basis*. It should be noted that it is often more cost efficient to prepare applications covering the longest length of trail at a time as opposed to small sections.

*The processing of an application on a non-notified basis is determined by Council and cannot be relied upon. It is best to prepare a high-quality application and ensure all affected landowners & stakeholders are supportive and provide their written approval. Should the application be notified, costs can rapidly increase. For example, we are aware that Kawarau Gorge Trail in Central Otago cost almost \$250,000 to consent including a hearing and array of technical expert witnesses.

9.16 Detailed Trail Design & Project Management

This line item includes the following:

- Designing the trail alignment in detail including structure locations, drainage, signs, fences etc
- Managing the input of technical experts including structural engineering, ecologists and so forth
- Tendering and managing construction contracts

This line item is often used by trail groups to cover a plethora of tasks including supporting or leading land access, finding and engaging all the technical experts, managing technical expert outputs and integrating all the required parts of a complex puzzle to deliver an outstanding trail. Typically, this element of work consumes up to 10% of the project budget. Part of this can be undertaken by skilled volunteers.

9.17 Timelines

The writers have been heavily involved in numerous cycle trail great rides from idea to completion. As a starting point we would anticipate that from the initial concept stage to delivery is somewhere within a 5-year horizon.

Once the Trust has confirmed its objectives from this report, the next step is developing a business case for MBIE Great Rides funding and securing the required legal access. This usually involves considerable negotiation with landowners together with supporting technical information where required such that agencies can consider the impacts on their land.

In our experience securing legal agreements takes 1.5-2 years from initiation. It is possible that agreement from PAMU and QEII Trust can be secured relatively quickly. However, gaining approval from DOC is an unknown at this stage. During this period is a good time to lock in funding. Although seeking funding never stops, the Trust will need to secure a cornerstone partner to get the project off the ground.

Once the alignment has been secured, the detailed design is completed and consents applied for to gain all the authorisations required to build the trail. Concurrently any Wildlife Act or other authorisations can be sought. Consenting and approvals typically takes 6-12 months due to the scale and complexity of the project.

This takes us 3 years forward to where, with funds secured, delivery can start with the tendering and construction process expected to take 1.5-2 years depending on weather conditions and resource costs.

10 Estimating Market Demand on Around The Mountains Trail

Collecting accurate use data on Great Ride trails has proven and continues to prove problematic since they opened. This is equally so for Around The Mountains. Certain sections of multi day trails get much more use than others according to their proximity to resident population, transport, tourist flows and outstanding scenery. Trail data presented in the media often doesn't clarify if it is individual users, individual trips, rides of a complete multi-day trail or just counts at multiple points on the trail which will double-count individuals on longer rides. Making that distinction is necessary to understand the impact of a trail. Expenditure impact is usually based on the number of rider days or nights and an estimated average spend per day.

It's important to note that some experienced operators associated with the trail feel that the reported trail counts overstate trail use compared with their observations. However, as one operator noted, the trend is more important than debating absolute trail counts. As outlined below, the recent trend on Around The Mountains and surrounding trails is positive.

10.1 Trail User Characteristics

The Murihiku Southland Cycle Tourism Opportunities Assessment⁶ goes into significant detail on the various segments of cycle trail user. The ATM Trail attracts primarily "Destination Cyclists" whose primary trip purpose is for

⁶ <https://greatsouth.nz/storage/app/media/Publications/Murihiku-Southland-Cycle-Tourism-Opportunity-Assessment---A4-Booklet.pdf>

a cycling experience but as new more interesting trail is developed it will also attract more “Visitor who Bike”. These are travelling for other reasons but will include a cycling experience along the way. ATM’s core market is the easy trail rider, increasingly older age group, but because of the remoteness making it more adventurous than some other Great Rides, it also attracts a younger, more experienced cycling visitor. It is also a feature of the Tour Aotearoa and attracts the growing bikepacking and gravel biking market. We refer to this Opportunities Assessment Report rather than detailing the market segments here.

To try to make sense of the existing data and then form a view on growth scenarios, we have looked at the initial projections in 2016, various reports by MBIE and the data provided by the Around The Mountains Trail Trust. The most robust effort to distinguish between trail counts and complete trail rides was carried out by Jonathan Kennett in 2020. We were unable to get any properly vetted data from MBIE and Cycle Trails NZ for the wider Great Rides network since their 2020/21 report. This is because the raw data is plagued by inconsistencies which requires knowledge on each trail’s counter set-up and the application of various assumptions and formulas clean it up. This work by Jonathan Kennett is underway at the time of writing this report but unfortunately won’t be completed until late 2025. It will hopefully be available to inform the next stage business case work.

10.2 Estimates for the original ATM Trail and Upper Ōreti Valley

In the 2016 Environment Court case on the Upper Ōreti Valley trail consent, user demand evidence sought to show the difference between the ideal Upper Ōreti Valley Route and the inferior alternative Mararoa Valley route. This was premised on the clear assumption that a lodge would be established in the Vonn/Mavora area and that whichever route was approved, it would be a quality grade 2/3 off-road cycle trail and provide a range of other best practice trail services and facilities. This estimated 7,000-12,000 cyclists and walkers on a multi-day trip and 47,000 – 62,000 overall cyclists/walkers anywhere on the 200km trail.

	With upper Ōreti route in place ²⁹¹ (per annum)	With Mararoa route in place (per annum)
Day trippers on upper Ōreti or Mararoa sections only	4,000	Not assessed ²⁹²
Cyclists/walkers on a multi-day trip	12,000	7,000
Day trippers on one or more sections of the 200km trail	50,000	40,000
Overall cyclists/walkers anywhere on the 200km trail	62,000	47,000

Excerpt from Upper Ōreti Environment Court Case 2016

From this, total person days were estimated according to assumptions on riders spending four, five or six days on the trail and an extra one day at each end of the ride. This resulted in 80,400 person days in Year 5 for the Upper Ōreti Route and 46,900 for the Mararoa route. Adding further single-day users pushed totals for each route up to 130,400 and 86,900 respectively.

Based on the above user estimates, new spend was predicted for the Otago/Southland region, i.e. not specifically for Northern Southland or Southland Region. Assuming an average \$200 spend per day, the total spend result was between \$9.2M and \$16.7M for the Upper Ōreti route and \$5.8M to \$9.9M for the Mararoa Route.

With the benefit of over a decade of actual use across Great Ride trails; and 2024 counts of around 15,000 cyclist and walker trips (not people), these 2016 estimates were extremely optimistic for a trail in an isolated area. However, it does reinforce the notion that use of the existing Around The Mountains trail has been severely constrained by this section remaining incomplete, unsafe, unpleasantly dusty and with a 100km accommodation gap. There are no other Great Rides with that extent of trail that is devoid of accommodation.

10.3 Estimates from 2015, used in Angtong Victorio 2016 Cost Benefit Analysis

A 2016 cost benefit analysis of all the Great Rides by Angtong Victorio provided the following estimates for Around The Mountains.

Total uses 11,754, with international users assumed at 13%, (1,964). This has proven to be a big over-estimate based on more recent trail counts. Spend per day was estimated as follows:

- International spend per visitor per day \$280
- Domestic spend per visitor per day \$240.19

It is not clear to us why these trail user numbers were so much lower than those provided around the same time for the Upper Ōreti Environment Court case. Even so, these have also proven to be too high given that the next set of relatively official numbers we have for 2019-20 suggest 6,676 trips including both cyclists and pedestrians for the whole trail.

10.4 Evaluation of NZ Cycle Trail – Counter Data Analysis, 2020

This data offered the most robust effort to develop methodology and formulas to estimate the number of people completing whole trails. One of the issues for Around The Mountains counters was stock movements boosting the numbers. These anomalies were fixed as much as possible. This work was carried out by Jonathan Kennett and Marilyn Northcote, using data from 1 March 2019 to 28 February 2020.

Great Ride	Pedestrian trips	Cycle trips	Cycling most/all trail	Overall Trips (pedestrians + cycles)
Twin Coast Cycle Trail	35,669	32,948	5,000	68,617
Hauraki Rail Trail	27,692	44,177	2,445	71,869
Waikato River Trail	16,146	14,428	1,483	30,574
Te Ara Ahi	36,548	55,343	3,466	91,891
Motu Trails	6,387	10,977	n/a	17,364
Timber Trail	3,612	8,863	6,682	12,475
Great Lake Trail	22,257	21,008	650	43,265
Mountains to Sea	6,076	14,470	2,000	20,546
Hawke's Bay	219,737	188,037	n/a	407,774
Remutaka	145,319	73,451	1,976	218,770
Queen Charlotte	21,871	5,054	2,333	26,925
Coppermine (Dun Mtn)	29,801	51,870	4,645	81,671
Tasman's Great Taste	84,212	183,006	n/a	267,218
St James Cycle Trail	n/a	1,822	627	1,822
Old Ghost Road	6,343	5,173	4,130	11,516
West Coast Wilderness	32,635	33,935	5,389	66,570
Alps 2 Ocean	50,838	19,504	3,000	70,342
Otago Central	21,848	46,427	13,000	68,275
Roxburgh Gorge	10,498	9,417	1,350	19,915
Clutha Gold	4,568	6,001	2,988	10,569
Queenstown	239,935	131,037	n/a	370,972
Around the Mtns	3,357	3,319	1,500	6,676
TOTAL	1,025,349	960,267	62,664	1,985,616

Note: 'Pedestrians' refers to walkers, runners and trampers. 'Cyclists' refers to mountain bikers, bikepackers, cycle tourers and any other person on a bicycle.

Below are excerpts for the Mt Nicholas and Mossburn area counters showing workings. Later in this report we use the 1,692 rides for Mt Nicholas Rd to estimate what proportion of total trail counts are relevant to the Mavora to Centre Hill Shelter upgrade section of trail.

Mount Nicholas Rd

Pedestrian count = Nil Cycle count = 1,735

This counter records cyclists but not walkers/runners. Mt Nicholas Road is part of Tour Aotearoa, and also a traditional cycle touring route from Queenstown to Southland via the Mavora Lakes. In 2019 the directional split was 530 heading north and 716 heading south = 57%. In 2020 the directional split was 295 heading north and 786 south (73%); this is a Tour Aotearoa year.

The assumption is, on average that 67% of counts are heading south, and that 95% are going in one direction only. Therefore, to derive cycle trips/uses, multiply the number of counts x 0.975.

Total cycle trips/uses = counts 1,735 x 0.975 = 1,692 unique uses/annum

Mossburn (on the trail just northwest of town)

Pedestrian count = 1,779 Cycle count = 1,631

Observations:

This counter:

- is only 1 km from the centre of Mossburn
- gets a high use of pedestrians
- 70% of the pedestrian counts are towards Mossburn.

In 2019 the directional split shows 63% of the cycle counts are towards Mossburn. In the first half of 2020 this increased to 76% heading towards Mossburn. By far the highest level of use was 654 cyclists towards Mossburn in March 2020 (most of whom were doing Tour Aotearoa), although this was outside the period for which data was analysed.

For pedestrians, the assumption is that 40% of the pedestrian counts are there-and back trips. Therefore, to derive the number of trips/uses by pedestrians, multiply the number of counts x 0.8.

For cyclists, the assumption is that, on average, 70% of cyclists are riding to Mossburn and 10% of the counts are there-and-back trips. Therefore, to derive the number of cycle trips/uses, multiply the number of counts x 0.9.

Total pedestrian trips/uses = 1,779 counts x 0.8 = 1,423 unique uses/annum

Total cycle trips/uses = 1,631 counts x 0.9 = 1,468 unique uses/annum

Note: By far the highest level of use was 654 cyclists towards Mossburn in March 2020 (most whom were doing Tour Aotearoa).

10.5 Data from Around The Mountains Trails Trust, 2020-2025

The following graphic is from a 2025 trail trust stakeholder presentation and shows steady growth from 2020 to 2025 and the trend line. This data is sourced from the MBIE funded trail counters. The pedestrian count overtakes the cyclist count from 2020-21 but we assume this is mostly related to local residents and visitors doing shorter walks in and near the trail towns, especially Kingston. These pedestrian counts have little relevance to the current and future use of the Mavora to Centre Hill Shelter section which has very few walkers other than those doing Te Araroa for a short sub-section.

NOTES TO GRAPH

Six seasons 1 Mar – 29 Feb

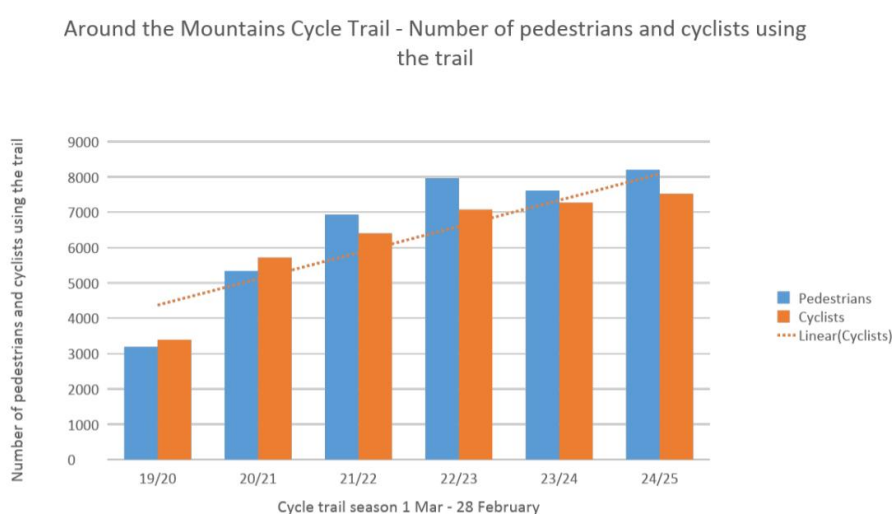
- 2019/20
- 2020/21
- 2021/22
- 2022/23
- 2023/24
- 2024/25

Counters are located at

- Mt Nicholas Rd/ Oreti River
- Mossburn
- Lumsden
- Athol
- Kingston

Increased growth year on year

- High number of pedestrians through Kingston counter

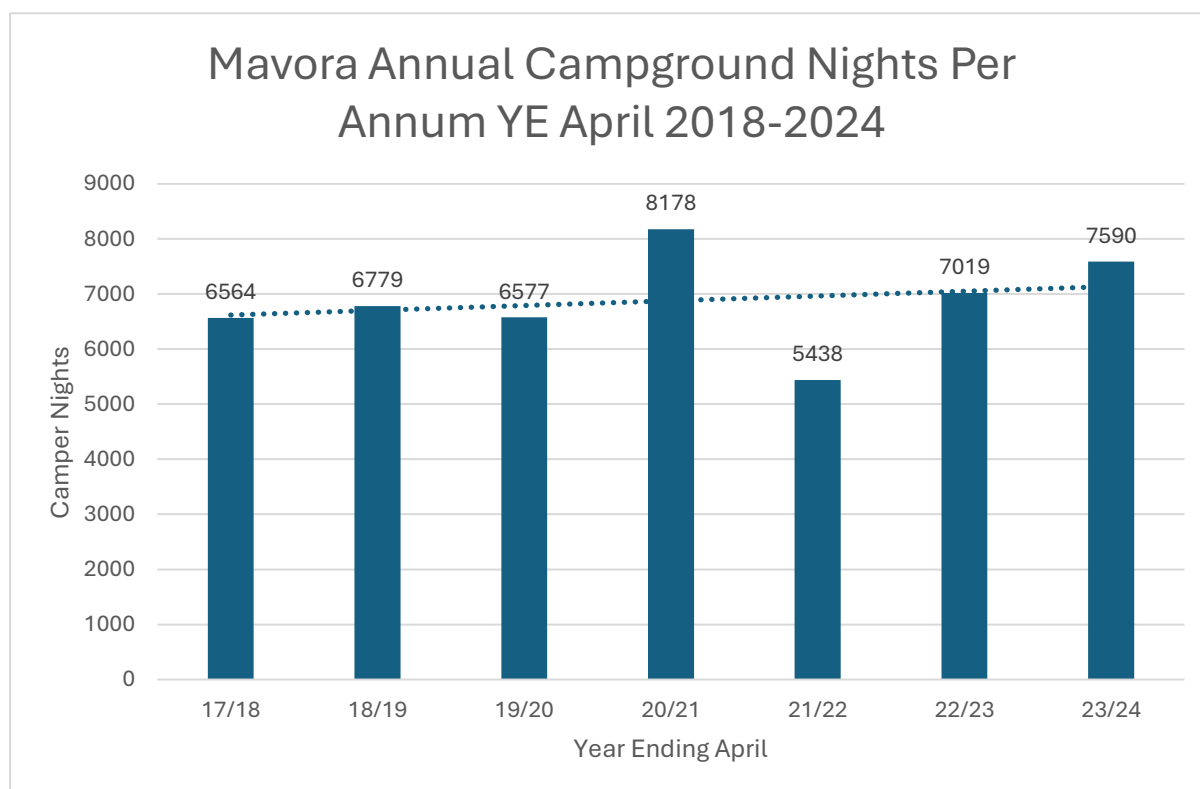


If we take a rounded figure of 7,600 cycling trips in 2024/25 and apply the same 50% share for Mt Nicolas Road that was reported in the 2020 study, that would mean 3,800 per annum using the Mt Nicolas Road and therefore likely to ride an upgraded Mavora to Centre Hill section. We use this figure as a base for forward projections later in this report.

10.6 Mavora Lakes Camping Visitor Data from DOC

The proposed new trail takes in Mavora Lakes which is popular in the holiday season, especially with domestic Southland and Otago visitors but it has a growing campervan market from further afield. DOC's data on Campground bookings showed 7,590 nights in the year ending April 2024. It peaked in 2021 during the pandemic as it was accessible for its core market during border closures and regional lockdowns. It has been growing steadily over three years since the lull in 21/22 and the long term (six year) trendline shows overall growth despite the disruptions.

Onsite ticket bookings suggest an average 1.7 night stay per person. Length of stay for online bookings was not shown.



Not only does this mean ATM trail users access a new and unique scenic experience, the new trail provides a new recreational opportunity for the existing and future Mavora Lakes visitor market. This will encourage longer stays at Mavora and increase market awareness of the overall ATM trail leading to future growth. The upgraded section of Te Araroa to Kiwi Burn swing bridge will enable either a return ride, or riding a loop coming back on the road, past the LOTR Orc Mound site, to Mavora Lakes. There is growth in the market of Campervan visitors, both domestic and international, who have their own bikes and ride sections of trail as they tour around. This trail will be perfect for that market.

If we assume the overall average camper stay is 1.7 nights that would mean 4,465 annual visitors. If 10% of them ride the new trail that would imply 446 new users.

10.7 Walter Peak Visitor Data from RealNZ

When ATM initially opened there were a range of cycling opportunities trialled including RealNZ offering bike hire for short rides from Walter Peak. They soon dropped this in favour of leaving cycling experiences to specialist operators working with them.

For three years up to 2023, Southern Discoveries operated trips to Mt Nicholas which saw a package including cycling part of the ATM back to Walter Peak and returning to Queenstown with RealNZ. In 2023 Southern Discoveries ceased their Mt Nicholas operations and RealNZ took over their Spirit of Queenstown vessel to increase their capacity

between Queenstown and Walter Peak. That ceased the opportunity to do the Mt Nicholas – Walter Peak loop cycle experience using the two vessels.

RealNZ data for its total Walter Peak passenger numbers show strong growth over the last five years with 26% increase for calendar year 2024 and 15% increase for the first quarter of 2025 over the previous year quarter. Their main passenger market is quite different to the specialist cycle tourism niche. Less than 2% of total passengers have bikes. However, growth in Walter Peak trips does indicate a growing market *opportunity* for ATM.

Total bike passengers have been in the range of 1,800 to 2,000 per annum. Only a small proportion of these are doing short rides returning to the boat. Most would be doing at least the first full day on ATM to the Vonn Mavora shuttle pick-up. This seems to align with the estimates made by Jonathan Kennett of 1,500 people doing the whole ATM circuit in 2018.

There are also options to use Queenstown Water Taxis and over summer, Barge Services NZ which caters to larger groups with up to 22 bikes. These are not included in RealNZ data above. With the Earnslaw decreasing in capacity, cyclists are encouraged more on the early and late trips. This can be more cost effective for groups whereas there is no bike group discount on RealNZ vessels and capacity is best utilised for full package Walter Peak visitors.

Depending on the future capacity and vessel configuration of RealNZ, growth in cyclists getting to Walter Peak to start the ATM trail may come from these other water taxi and barge services, including electric vessels currently being trialled.

10.8 Te Araroa walkers

Before Covid there were close to 2000 hikers each year doing the length of Te Araroa including Mavora Lakes. During the 2022/23 season, more than 4,000 people walked the trail and it's believed numbers could continue to grow by 10 per cent each year. Upgrading this section of trail will not have significant impact on the number of people walking the whole Te Araroa trail. However, it does have potential to attract walkers who are travelling between Te Anau and Queenstown, interested in shorter walking trips.

10.9 Paparoa Track Bednights

Paparoa Track is one of the few we could get post 2021 data for. This is quite a different proposition to Around The Mountains but the use far outstripped the original business case projections

- 2020/21: 2,825
- 2021/22: 11,645
- 2022/23: 13,267
- 2023/24: 12,821

10.10 Lake Dunstan Trail

The Lake Dunstan Trail, officially opened in May 2021 and immediately exceeded all expectations. Its business case projected 7,500 users in its opening year, but it attracted over 80,000. After this initial surge, annual demand settled back to 56,000 trips per year. This is one of the most used trails outside those which have large local resident populations nearby. However, it is much closer to population centres than Around The Mountains. Queenstown, Wanaka, Cromwell, Clyde and Alexandra are all within a 30-minute drive.

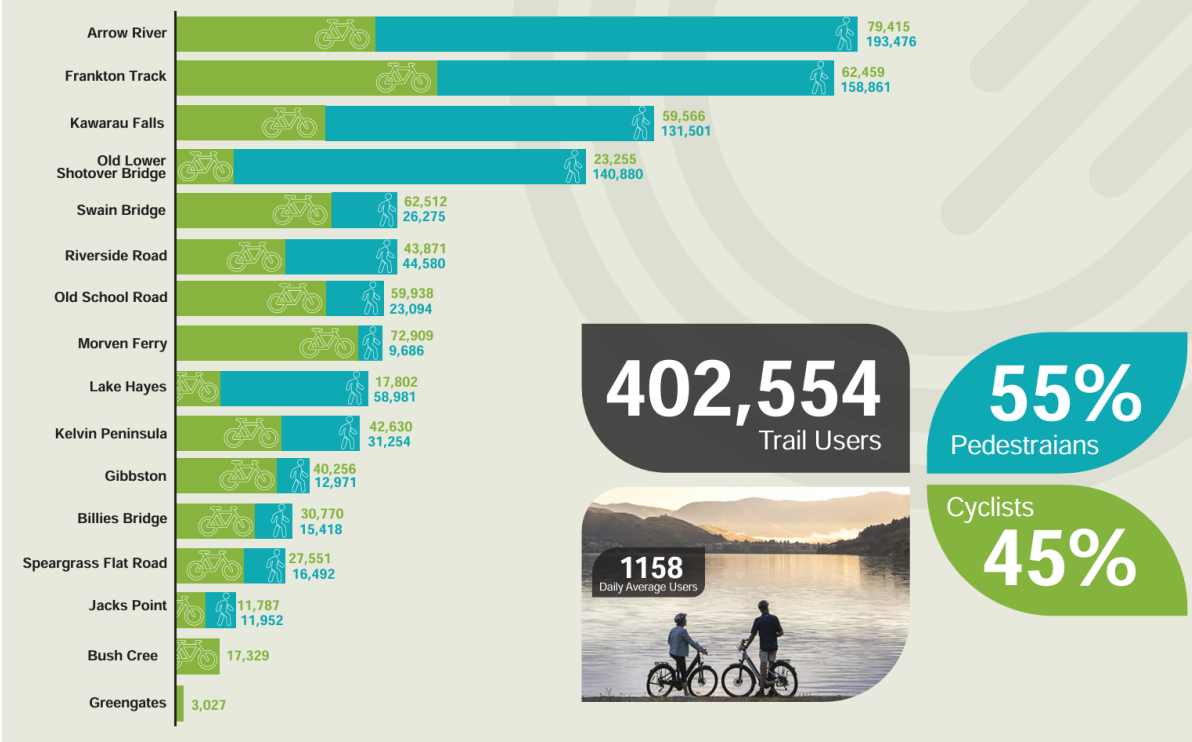
10.11 Trends on Queenstown Trails

The growth in both trail network extent and usage in Queenstown presents two different possible impacts on future use of ATM. From one angle, there is an increasing array of trails competing for the New Zealand trail market's attention, time and money. This is where getting ATM up to genuine Great Ride standard is critical, so it is seen as an aspirational experience within the wider trail network surrounding Queenstown.

Queenstown Trails actually saw a 15% decrease from 370,973 trail uses in Year ended Feb 2020 to 315,274 in 2021. This was largely due to the covid pandemic and a decline in pedestrian activity. while cycling use remained relatively constant over that period. As can be seen from the graph below, use has well-surpassed pre-pandemic levels, including a 12.5% increase from 2023 to 2024.

Trail Statistics 2023-2024

The Queenstown Trail network saw 402,544 users hit the trails during the 2023-24 period, which was a 12.5% increase on the previous year.



Source: Queenstown Trails Trust

Queenstown Trails growth is overall a benefit for ATM. The stronger the lower South Island becomes as a must-visit cycle tourism destination, the bigger the overall market to share around the trails. Their profile will also attract more serious cycle tourists wanting to tick off the iconic rides on their initial trip and potentially return to tackle additional trails. Over the first 13 years of NZ Cycle Trails evolution, international cycle tourists have made up a small proportion of users on most trails. Queenstown has been the main exception. As inbound tourism builds back towards pre-pandemic levels and New Zealand's reputation as a cycling destination grows, international visitors will increase on our Great Rides.

The most recent indicator of Queenstown trail popularity is on the new Shotover Gorge Trail where the new Kimi-ākau suspension bridge had 10,000 visitors in the first week from opening. Proximity to Queenstown's growing resident population makes this trail a daily option for many but it will still see a lot of tourism use.

10.12 Overall Cycle Tourism Market Trends

Global Market Insights produced a forecast for the Global Cycle Tourism Market for 2024-2032⁷. It sized the 2023 market at US \$130.6 billion, *projecting an 8% compound annual growth rate (CAGR)* and reaching US \$234.5 billion by 2032.

11 Estimated Spend Driven by Trail Upgrade

To estimate spend that will be supported by the trail upgrade, we have considered recent studies on other relevant trails and survey data on Around The Mountains.

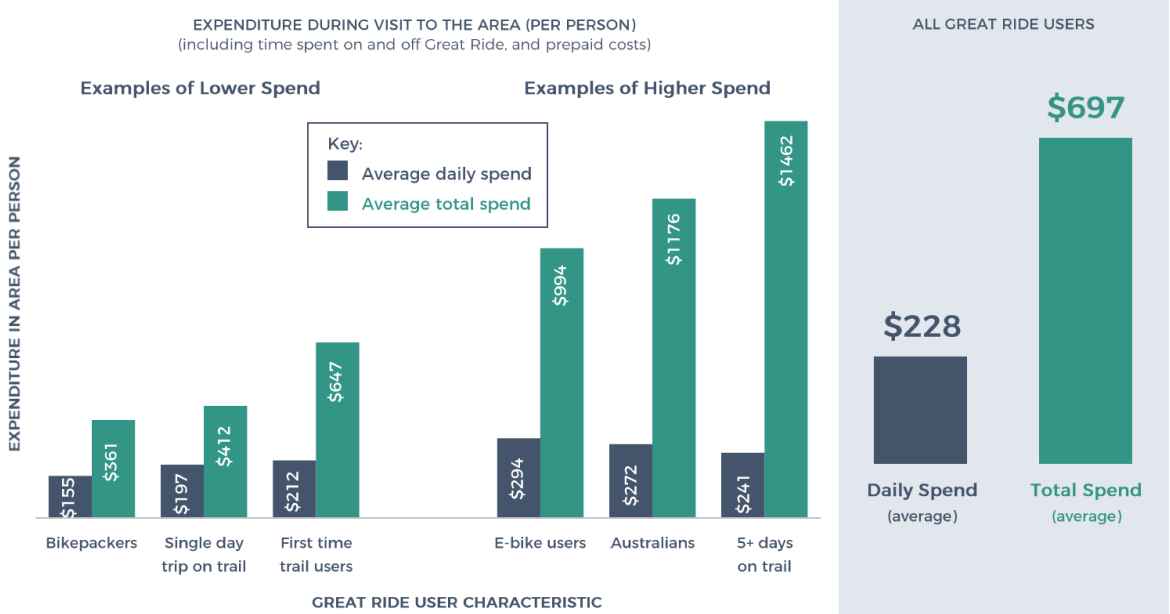
11.1 MBIE, Angus Associates Spend Data, 2021

The graphic below comes from data collected through 2020-2021. Angus & Associates estimated \$228 average spend per person per day and \$679 total trip spend per person. Being during the border closure, this data excluded most international visitors, who tend to spend more.

⁷ <https://www.gminsights.com/industry-analysis/cycle-tourism-market>

VISITOR EXPENDITURE

The average daily expenditure for Ngā Haerenga Great Rides New Zealand trail users is \$228 per person, and the average total trip spend is \$697 per person. Users with above average expenditure include Aucklanders, those aged 60+, multi-day users, and users with the trail as main trip reason.



angus & ASSOCIATES Source: Ngā Haerenga New Zealand Cycle Trails user survey (May 2020 – August 2021)

With respect to the segments of cyclists in the graph, Around The Mountains, at 186km does tend to have longer trips, a high proportion of e-bike users and access to the Australian market with the trail hubbing out of Queenstown. These are the higher spending groups. However, Around The Mountains is also ideal for Bikepackers including the Tour Aotearoa participants. Since 2021 we believe the average spend per night will have increased significantly.

11.2 Trends and Spend on Fiordland Trails Trust Lake2Lake Trails

The Lake2Lake trail, while offering a different context and experience compared with Mavora to Centre Hill, does provide some insights into potential impacts of a quality trail upgrade. It is a similar day ride length and is often offered as an add-on to Around The Mountains by tour operators, with shuttles in between. Lake2Lake’s market opportunity is bigger though, with proximity to a regular-use residential population and significant commercial accommodation and hospitality for tourists.

The Mavora – Centre Hill trail upgrade may well generate a higher average per night spend per rider. This is because most of the spend in Te Anau is on accommodation and dining. Around The Mountains will still generate similar accommodation and dining spend even when much of it is done in Te Anau. However, this section of Around The Mountains, because of its remoteness, has to include a long shuttle service which can be up around \$180 on its own. The following table shows Lake2Lake usage counts on multiple legs, so not individual trail users. The growth has been spectacular since 2020 with the exception of the Covid dip in 2021.

Year	Total usage across all legs	% change
2020	96971	Base (pre Covid)
2021	54338	56% (Covid influence)
2022	102670	106%
2023	109310	113%
2024	186514	192%

Source: Fiordland Trails Trust

Angus & Associates carried out an economic impact study for Fiordland Trails Trust in 2023.

Average spend per night for those whose main reason for visiting was to ride the trail was \$221 per person. Unique trail trips were estimated at 32,560. Approximately 5,000 visitors came to Te Anau because of the trail, or extended their stay because of it, staying over 10,000 nights.

Lake2Lake is estimated to have generated \$3.024M direct contribution in the year to March 2023, from trail visitor spend, events impact and the construction and maintenance activity. This spend is estimated to have supported 26 jobs, 10 directly and 15 indirectly. While the impact study figures have not since been updated, it is fair to assume that a doubling of trail use has also seen major increase in economic impact in 2024.

11.3 Estimated demand and spend for proposed Milford Opportunities Trails

Angus & Associates also did a later 2023 study on the proposed new cycle trails within the Milford Opportunities Project. This was for a new trail of around 56km from Te Anau Downs to Cascade Creek, which was estimated by Southern Land to cost just over \$28M with \$869,000 annual operating costs. The impact figures below were on the assumption that it joined to a completed Te Anau to Te Anau Downs trail that is currently being built in sections by Fiordland Trails Trust. Combined, the two trails would mean 110-120km of riding from Cascade Creek to Te Anau township and this of course joins to the Lake2 Lake Trail carrying on to Manapouri.

The use case scenarios in the table below were based on varying levels of new charging for access to Fiordland National Park. The *Lower* use case was with a \$100 charge, the *Moderate* case was with a \$50 charge and the *Higher* case was based on there being no charge. The latest government announcement on the Milford Opportunities Project has not supported any charge for National Park Access in the near term.

The average spend per additional night attributed to the trail was estimated to be \$258 in 2028, rising to \$347 in 2040 based on inflation.

Scenario 2028	Cycling Visitors (#)	Incremental Visitor Nights (#)	Visitor Expenditure ¹ (\$)	FTE Jobs (#)
Higher use case scenario	74,433	76,599	\$19.8 million	173
Moderate use case scenario	58,802	60,513	\$15.6 million	136
Lower use case scenario	51,954	53,466	\$13.8 million	121

Source: Angus & Associates

Whilst these Milford Opportunities Trails are quite a different proposition to upgrading one section of Around The Mountains, the projections show the potential growth in the addressable market that will travel through Northern Southland. Around The Mountains will certainly attract some of this market.

11.4 Current Cycle Tour Operators using ATM

Around The Mountains Cycle Tours is by far the biggest operator putting customers on the Around The Mountains trail, with bike hire, accommodation and shuttle pick up. The same owner also operates Queenstown Bike Hire with customers mostly riding Queenstown Trails. Across both businesses they have seen 56% increase in the 2023/24 season on the previous year; and 25% increase into the 2024/25 season. Most of this growth is Queenstown Bike Hire but good growth has also been experienced on Around The Mountains.

Around The Mountains Cycle Tours customers are largely unassisted, other than their contact with and pick-up by the shuttle operator. They are booking e-bike hire, boat, shuttle and accommodation for most of their clients, with their four and five day riders also including Te Anau.

They estimate a 70% share of the total tour operator market, excluding completely independent riders like those doing Tour Aotearoa. The figures provided on total trip spend by 2, 3, 4 and 5 day riders indicate a spend of between \$190 and \$238 per day with an average of around \$210 across all of them. This excludes food and beverage and any extra accommodation used when staying the night before and after their trip.

Around seven other companies operate package or assisted tours on the whole trail. Their numbers of cyclists are currently very modest though. Some operators are incorporating parts of Around The Mountains within a bigger itinerary through Otago/Southland.

11.5 Current Trail Survey Data (GetSmart)

Angus & Associates GetSmart survey is funded by MBIE and offered across all of the Great Rides, with quarterly reports on spend⁸. This includes the Regional Economic Contribution Per Person per night and per trip. Around the Mountains figures increased over the last year. The average over the year to July 2024 was \$241 spend per night. This increased to \$336 average over the year to April 2025. Averaging out five quarterly reports from January 2024 to April 2025 produces a figure of \$261 spend per night. The table below shows the composition of spend for April 2025 for the quarter and the last year.

Regional Economic Contribution Per Person Per Night

	Around the Mountains last 12 months (n = 237) Around the Mountains last quarter (n = 120) All Trails last 12 Months (n = 7882) All Trails last quarter (n = 2954)			
	Around the Mountains last 12 months	Around the Mountains last quarter	All Trails last 12 Months	All Trails last quarter
Sample Size (n)	237	120	7882	2954
	Average	Average	Average	Average
Accommodation per person per night	55	51.3	69.3	58.9
Petrol/fuel purchased in the area per person per night	4.1	0.8	13.8	11.2
Transport - cycle trail specific (e.g. shuttle, jetboat) per person per night	21.5	21.8	17.2	15.5
Other transport used in the area per person per night	4.3	7.7	5.1	5.5
Activities/admission fees - cycle trail specific per person per night	56.5	5.7	36.1	14
Other activities/admission fees per person per night	2.1	1.5	4.5	2.6
Snacks/groceries purchased in the area per person per night	14.3	12.9	15.8	14.9
Cafes/restaurants/eating out in the area per person per night	39.4	39.2	31	30.3
Money spent at bars/nightclubs in the area per person per night	3	1.4	4.7	3.6
Other expenditure or shopping in the area per person per night	1.9	2	6.5	5.4
TOTAL cost of tour/package (if individual components unknown) per person per night	230.2	247.9	139.7	146.2
Expenditure Total per person per night	336.6	392	265.2	306.5

Source: Get Smart, ATM Quarterly Economic Contribution to Area, April 2025.

The ATM spend per night is often higher than the average across all Great Rides. This will be partly due to the need for longer, more expensive shuttle services and the relatively low share of frequent use by locals who spend less. Across all of the surveys from January 2024 to April 2025 the average total trail trip spend was \$919.

Based on all the above surveys and estimates of average spend per day/night across Around The Mountains and other trails, we propose using a round figure of \$260 per night for estimating Around The Mountains trail spend. Annual inflation of 3% will be applied per annum, to project forward.

⁸ Around The Mountains, Quarterly Contribution to Area Reports, Get Smart

12 Economic Impact

We have only seen two expenditure estimates done for Around The Mountains, none of which were recent and both of which are inapplicable to the current situation, with the benefit of hindsight.

The estimates in 2016 for the Upper Ōreti Environment Court Case indicated total spend would be between \$9.2M and \$16.7M for the Upper Ōreti route and \$5.8M to \$9.9M for the Mararoa Route.

12.1 Angtong Victorio's Cost Benefit Report on all of the Great Rides. 2016

This assumed 11,754 total visits of which 1,934 were estimated to be internationals. Spend was estimated at \$647,000 domestic and \$372,000 international, producing a total of \$1,019,000 direct spend per annum. While the suggested trail user numbers have proven much higher than reality, the estimated spend seems relatively low.

12.2 Modelling Impact of Upgrading Mavora-Centre Hill Shelter Trail Section

To estimate the economic impact of upgrading the Mavora to Centre Hill section of trail we need to estimate the following:

- Current Use of Around The Mountains
- What proportion of that use is occurring in the Mavora area of the trail?
- What is likely to happen to these numbers without the upgrade? (do nothing scenario)
- How much additional use will result on top of the already projected growth?
- How many extra nights in the region will that extra trail use generate?
- What is the average spend per night by trail users on this part of the trail?
- By multiplying these figures, what is the direct additional spend?
- What is the approximation of new employment supported by that direct spend.

We are focusing on cyclists for this exercise as there are few walkers on this section and the Te Araroa walkers will largely be camping. There is potential to grow walkers using shuttles and staying in higher value accommodation once a new trail is settled in but we are discounting that at this stage to remain conservative.

Our starting point is 2025 cycle trip counts from ATM Trust for the whole trail (7,600) less 50% = 3,800. This aligns with the percentage on Mt Nicolas Rd when Jonathan Kennett developed his formulas to rationalise counter data in 2020. This is also close to his estimate of ATM complete trail riders (1500 represented 44% of total trail unique users).

Market Growth assumed for Great Rides generally.

- the domestic market will continue to grow but won't see the big surge that occurred with closed borders. The boomer segment grows as a proportion of NZ's population and e-bikes continue to grow in share.
- NZ's inbound tourism should return past pre-covid levels in the next 2 years. The key cycle tourism segments of Australia, North America, Europe and UK will continue to be the main inbound cycling markets.
- As China grows back and markets like India and other Asian markets grow, they will also mature and see more independent adventure travel. However, this is off a small base so they remain a smaller segment in the near to medium term.
- Based on the above, ATM numbers would continue to grow at 5% on average per annum on a do-nothing scenario. Any models going past five years would need adjustment because the compounding effect would produce unrealistic results.

Upgrading Mavora-Centre Hill Shelter could boost ATM numbers an additional 5% (low) to 10% (high) on top of the do-nothing growth of 5% (so 10-15% in total).

The trail upgrade on its own will create modest growth above business as usual but development of accommodation in the Mavora area is what will seriously boost growth and spend from the trail. Accommodation development is

beyond scope of this report but we have provided an illustration to show its importance in longer term planning for the ATM Trail.

The next stages are to:

- work out the difference between do nothing and the new development scenarios to estimate new riders due to the upgrades.
- Then apply an assumed spend \$260 per night based on other trail studies and surveys of ATM users. This increases 3% pa with inflation.

The model shows new spend if they stay an extra 1, 2, 3, or 4 nights.

The 3 and 4-night scenarios (\$740 - \$1,040) are considered most relevant and sense-check well with the GetSmart survey total spend per ATM trip; and those provided by ATM Tours (which excluded food and beverage and stay before and after riding).

Current Use of Around The Mountains	7,600 cycle trips in 2024/25
What proportion of that use is occurring on the relevant section of the trail	50% = 3,800
What is likely to happen to these numbers without the investment?	Average growth over the last 3 years has been 6% per annum. Suggest using 5% going forward. This produces 4,850 by year 5 without an upgraded trail.
How much additional use will result on top of the already projected growth?	We use the Higher 10% growth on top of the 5% do nothing scenario, so 15% per annum = 7,643 by year 5. This is an additional 2,973 users of the new trail.
How many extra nights in the region will that extra trail use deliver?	Model for 3 and 4 nights. Some will stay longer, especially if they complete the whole trail and spend nights before and/or after. Some will spend less, doing shorter trips.
What is the average spend per night by trail users on this part of the trail?	\$260 and assume 3% increase annually with inflation, so by year 5, \$293 per night.
By multiplying these figures, what is the direct additional spend?	3 nights = \$ 2.45M direct spend p.a. by year 5. 4 nights = \$3.27M
What is the approximation of new employment supported by that direct spend	If assuming \$115,000 of direct spend supports 1 FTE role, the above spend would support between 21 and 28 jobs.

The spreadsheet model also shows accommodation opening two years after the new trail section. It could be done earlier, alongside the trail upgrade if the two projects were proactively programmed in coordination. The combined effect of the trail upgrade and accommodation could boost growth by 30% on top of the 5% do nothing scenario, ie. 35% per annum in total. Even with accommodation opening two years after the trail upgrade it transforms the spend generation to an incremental \$8.8M per annum in year five.

Current Cycling Use (50% of total 2024/25 trail trip counts)	3,800	Y1	Y2	Y3	Y4	Y5
Historical Growth, do-nothing scenario	5%	3,990	4,190	4,399	4,619	4,850
Lower, trail upgrade only	10%	4,180	4,598	5,058	5,564	6,120
Higher, trail upgrade only	15%	4,370	5,026	5,779	6,646	7,643
Trail upgrade + Mavora Accom 2 yrs later	35%			6,784	9,159	12,365
This is the extra use compared with the Do nothing 5% scenario above						
Extra users Lower trail upgrade only		190	409	659	945	1,270
Extra users Higher trail upgrade only		380	836	1,380	2,027	2,793
Extra users, Trail upgrade + Mavora Accom 2 yrs later				2,385	4,540	7,515
spend per night increasing 3% per annum with inflation		\$260	\$268	\$276	\$284	\$293
1 night extension						
Extra spend Lower trail upgrade only		\$ 49,400	\$ 109,396	\$ 181,726	\$ 268,385	\$ 371,663
Extra spend Higher trail upgrade only		\$ 98,800	\$ 223,881	\$ 380,747	\$ 575,974	\$ 817,406
Extra spend, Trail upgrade + Mavora Accom 2 yrs later		\$ -	\$ -	\$ 657,988	\$1,289,869	\$2,199,057
spend if the extra users stay 2 nights	2	\$ 520				
Extra spend Lower trail upgrade only		\$ 98,800	\$ 218,793	\$ 363,453	\$ 536,771	\$ 743,326
Extra spend Higher trail upgrade only		\$ 197,600	\$ 447,762	\$ 761,495	\$1,151,948	\$1,634,812
Extra spend, Trail upgrade + Mavora Accom 2 yrs later		\$ -	\$ -	\$1,315,976	\$2,579,738	\$4,398,114
spend if the extra users stay 3 nights	3	\$ 780				
Extra spend Lower trail upgrade only		\$ 148,200	\$ 328,189	\$ 545,179	\$ 805,156	\$1,114,989
Extra spend Higher trail upgrade only		\$ 296,400	\$ 671,642	\$1,142,242	\$1,727,923	\$2,452,218
Extra spend, Trail upgrade + Mavora Accom 2 yrs later		\$ -	\$ -	\$1,973,965	\$3,869,607	\$6,597,171
spend if the extra users stay 4 nights	4	\$ 1,040				
Extra spend Lower trail upgrade only		\$ 197,600	\$ 437,585	\$ 726,905	\$1,073,541	\$1,486,652
Extra spend Higher trail upgrade only		\$ 395,200	\$ 895,523	\$1,522,990	\$2,303,897	\$3,269,624
Extra spend, Trail upgrade + Mavora Accom 2 yrs later		\$ -	\$ -	\$2,631,953	\$5,159,477	\$8,796,228

Modelling by Destination Planning Ltd

13 Summary & Conclusions

Destination Planning Ltd and Active Systems Ltd has been engaged by the Around the Mountains Cycle Trail Trust (the Trust) to prepare a technical feasibility report for a new section of Grade 2-3 NZCT cycle trail between Mavora Lakes and Centre Hill in Northern Southland.

In our opinion this new 39km off-road cycle trail will add significantly to the appeal of the Around the Mountains Cycle Trail (ATM) by bringing riders into vastly different and diverse environments compared to what is available on the current trail. Of critical importance, the new trail addresses the existing issues of a risk of injury of death on the public road and the poor riding experience due to the dust and loose shingle.

The preferred alignment introduces riders to the South Mavora Lake with its bush fringed margins, numerous native robins and endless pools, beaches and Lord of The Rings film sites. The importance of including iconic locations such as this on the route cannot be overstated, as these create the photo opportunities, the memories, the referrals, and the repeat business. The Mavora Lakes to Kiwi Burn section of trail will give riders access to 8km of mature beech forest riding. There are currently no other trails in Southland or Otago that can compare, so taking this section of the trail through PCL would give the ATM trail a unique selling point.

The sections on the flanks of Bald Hill in the Snowden Forest Conservation Area will take riders gradually up to 120m above the valley floor so they can experience the panoramic views over the quintessential Southland farming scene, with views down to the Takitimu Mountains and up the Upper Ōreti Valley. Relatively small climbs are followed by longer descents as the trail drops down the valley, ensuring that the reward more than outweighs the work.

The trail scenery also takes in large areas of remnant red tussock and grey scrublands protected by QEII covenants. These formerly widespread habitats host a diverse range of native species. The trail will take visitors close giving the opportunity for telling the unique story of the post glacial history of the area that has shaped this landscape in the past 18,000 years.

All of the proposed trail would be off-road, with all but 2km of the trail located well away from public roads. 22km (58%) of the trail would be unfenced, winding freely through forest, scrub or tussock land, providing the best possible riding experience. This may in the future increase to 70% of the trail if PAMU protect additional land via QEII covenants.

The preferred trail is estimated to cost \$7.15M to build to a high standard suitable for Grade 2/3 and have an annual operating cost of \$102,000. These figures include 20% contingency but they are in today's figures and do not account for inflation according to whenever construction begins.

The new addition to the trail network could bring an additional 2,800 visitors to the region by year five, after discounting growth that should occur without the upgrade. This could generate an annual incremental spend estimated between \$2.45M and \$3.27M by year five. If the upgraded trail incentivises development of new accommodation in the Mavora area, that would significantly further boost growth in visitors and their spend towards \$8.8M per annum.

No technical constraints have been identified that would constrain the preferred route. Subject to detailed design, ecological surveys and various expert inputs, we believe the trail is consentable and offers a great opportunity to profile ecological restoration along the route. Securing the preferred access over two blocks of Public Conservation Land will require more ecological values and impact reports to be considered by the Murihiku Southland Conservation Board and Kaitiaki Roopu. The remaining land is managed by PAMU farms who have been supportive based on the preliminary alignments presented in this report. With the right technical support and with good engagement from the Trust supporting access negotiations and funding, it is expected the trail could be delivered in around 5 years.

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