



MILFORD
OPPORTUNITIES

MILFORD OPPORTUNITIES PROJECT

Transport and Access Report

10 March 2021



Stantec NZ Limited



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EXECUTIVE SUMMARY

INTRODUCTION

The New Zealand Aotearoa Government Tourism Strategy has as its centrepiece: “Te puāwai tonu o Aotearoa i te tupu tonu o te ao tāpoi New Zealand-Aotearoa through sustainable tourism growth”

Core to the strategy is to have regions and communities benefiting more from tourism. There is a desire to migrate tourism in New Zealand from a model based on volume; a relatively short but intense peak tourist season, and intense concentration on a number of highly visited sites to a broader spatial and temporal spread and an increased focus on moving up the tourism value chain.

The strategy states that visitors need to be able to get to where they want to visit safely in a timely way for an appropriate cost. This includes air, road, rail, sea, trails, and cycleways. But perhaps nowhere more is the journey as central a part of the experience as the destination than on the Milford Road, considered one of the world’s greatest road trips and a bucket list item for many international visitors to Aotearoa New Zealand.

CURRENT STATE

The Milford Road forms a core element of the Milford Opportunities Project transport and access workstream along with State Highway 95 linking Te Anau to Manapōuri. But it needs to be considered in the broader context of tourism flows in the lower South Island. This is characterised by Queenstown’s importance as the base for the 45% of visits to Milford Sound Piopiotahi. Most of these are day trips to and from Queenstown¹ and tends to drive tourism flows away from other parts of Murihiku/ Southland, which is dominated by smaller numbers of domestic visitors while Fiordland (including Milford Sound Piopiotahi) is dominated by larger numbers of largely international visitors². This is evidenced by there being 1.4 million international visitors to Fiordland in 2018 but only 258,000 international visitors to the rest of Southland³

VISITOR NUMBERS (2018)

In 2018, 1.8m visitors travelled to Fiordland, the vast majority (77%) were international visitors. Southland, on the other hand, received 1.3m visitors, and 80% of these were trips undertaken by domestic travellers.

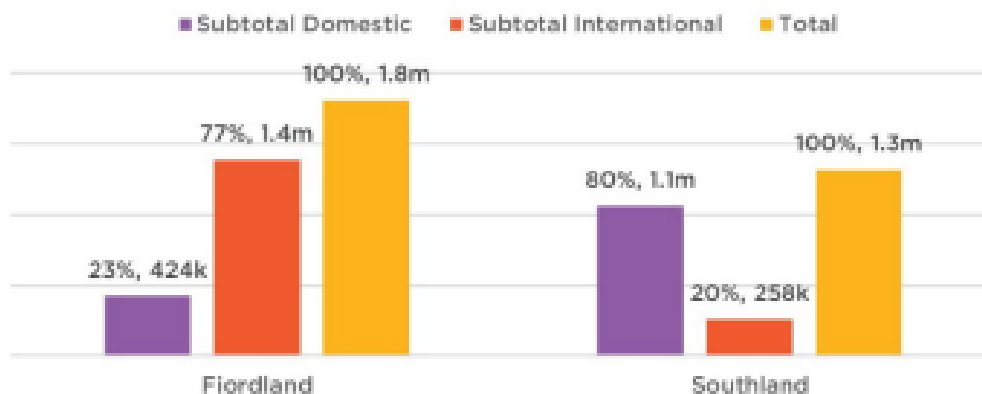


Figure 1 Visitation to Southland and Fiordland

¹ Visitor Solutions Ltd & Fresh Info Ltd 2021. Milford Opportunities project: Tourism Workstream Report, page 10

² Southland Murihiku Destination Strategy Summary Document. Great South, November 2019, page 4

³ Southland Murihiku Destination Strategy Summary Document. Great South, November 2019, page 4

A key consequence of the current Queenstown and daytrip focus for the Milford Road and Milford Sound Piopiotahi is the compression of both the road travel experience and the destination experience at Milford Sound Piopiotahi. While the Milford Road itself could not by any standards be considered congested in absolute numbers, the combination of increasing congestion in Queenstown; visitors underestimating their travel times (including queueing for the traffic signal controlled one-lane Homer Tunnel); a concentration of cruise times on every other hour (9am, 11am, 1pm and 3pm with the bulk of trips on the 11am and 1pm cruises) and the lack of other activities apart from cruises to do in Milford Sound Piopiotahi has significant negative consequences for safety and the quality of the driving and visitor experience on the Milford Road.

This impacts on all modes of transport to Milford Sound Piopiotahi leading to the “race to the boat” driving (sometimes literally for self-drive visitors) a range of negative outcomes. For example, in aviation, it means that flights are concentrated in very narrow windows, leading to congestion on the approach and departure paths as well as congestion on the apron at the aerodrome itself. The flying conditions are already very challenging with significant topographical and meteorological conditions and aircraft congestion making those conditions even more challenging. This makes Airways NZ proposed withdrawal of the Aerodrome Flight Information Service (AFIS) at Milford Sound Piopiotahi Aerodrome even more of a concern. For the road journey, the “race to the boat” exacerbates an already challenging drive in a situation where vitally needed help in the event of a crash is a long way away.

This “race to the boat” issue is a function of how Milford Sound Piopiotahi works as a visitor destination but also means that there are viable options to address those issues through demand management, such as peak spreading, as the current issues are most acute for four hours a day (11am-3pm) for four months of the year (December-March).

The biggest opportunity is for the travel experience to be a core element of a much more immersive experience involving Te Anau / Manapōuri as the point of entry; the road itself; and the revelation of Milford Sound Piopiotahi as its end point. But a self-drive Free Independent Traveller model focused on the “race to the boat” does not deliver that experience nor does it deliver any significant value-add for Aotearoa New Zealand, acknowledging while some journeys such as access for Ngāi Tahu for exercising Treaty of Waitangi rights to taonga as well as hunting, fishing and servicing need to be provided for.

CONNECTIONS WITH OTHER WORKSTREAMS

Transport and Access for Milford Sound Piopiotahi cannot be considered in isolation from all of the other elements of the Milford Opportunities Project. The primary function of movement in the corridor is a combination of a destination and journey. So, transport and access is not an end in itself but a means to an end of experiencing both the corridor and destination. The journey itself is part of the experience but this does not exist in a vacuum. For transport and access elements to implement the project pillars an integrated cross-workstream approach is essential. More than just about any place, the role of transport is to serve the destination and for the journey itself to be a key part of the visitor experience.

The most critical element is to ensure that transport and access reflects the principles of equity and partnership inherent in Te Tiriti o Waitangi/ The Treaty of Waitangi and that the role of Ngāi Tahu as mana whenua and Treaty partner is acknowledged and Te Ao Māori values are embedded throughout the Masterplan. More specifically, the outcomes need to minimise the environmental impact of transport; enable more economic opportunities for Ngāi Tahu Whānui, Papatipu Rūnanga and Te Rūnanga o Ngāi Tahu, enable and in fact require authentic expression of mana whenua cultural narratives and place- and people-based stories rather than having those narratives interpreted (or even worse misinterpreted) by others.

The following research questions have been developed by mana whenua to assist in the understanding and embedding of mana whenua aspirations and values throughout the Masterplan that relate to transport and access are:

- How is Ngāi Tahu cultural integrity demonstrated and embedded throughout the Masterplan?

- Where and how can operations and infrastructure in Milford Sound Piopiotahi minimise the impacts of tourism and other human activities and reciprocally provide for te hauora o te taiao (wellbeing of the environment)?
- How can visitors benefit the economic resilience of Ngāi Tahu Whānui, Papatipu Rūnanga and Te Rūnanga o Ngāi Tahu?
- The cultural heritage of Ngāi Tahu is the fundamental driver to express and exercise its tino rangatiratanga and Kaitiakitanga in Te Rua o te Moko.
- The cultural identity of Ngāi Tahu is to be expressed in the built environment.
- Development should restore and enhance the mana of Te Rua o te Moko.
- Development is to be deliberate, concentrated, and redevelopment options considered. The overall outcome sought for development is utu, a mutual benefit for the environment and its setting.
- Sustainable practices are to be promoted and supported, and considered ki uta ki tai, within te hauora o te taiao (the wellbeing of the environment).
- The Milford Opportunities Project is to draw manuhiri to experiences and places that mana whenua want them to see, rather than the project define 'no go' areas (with the exception of Ōhupōkeka (Anita Bay) – possibly becoming a Mana whenua-controlled areas).

Other key workstream connections are with masterplan, tourism, conservation, infrastructure, and resilience. The tourism workstream worked with all of the other workstreams, particularly those listed above, to define a desired future state capacity for Milford Sound Piopiotahi. This capacity provides for significant growth over current visitor numbers but in a way that better supports the journey experience and the destination. The form of the preferred access solution was shaped by this integration with the other workstreams and the form of the access solution itself was designed to integrate all project workstreams and to be a key element of delivering on the Milford Opportunity Project pillars and objectives and mana whenua aspirations.

The other key integration element was with the governance and legislation workstreams as the preferred transport and access solution need to be sufficiently adaptable to work under a number of governance and legislative scenarios.

IDENTIFICATION OF FEASIBLE TRANSPORT SOLUTIONS

Over the years, a number of transport and access solutions have been proposed largely focused on accelerating access between Queenstown and Milford Sound Piopiotahi. These have generally been significant pieces of infrastructure through the Te Wāhipounamu World Heritage Area ranging from bus tunnels to monorails. While each of these proposals has had its backers, they have also aroused significant controversy and felt to be at odds with maintaining the World Heritage Area in a pristine condition. These past proposals, plus a proposal to provide a direct transport connection to the West Coast/ Te Tai Poutini were included in the long-listing process. However, when measured up against the Milford Opportunity Project pillars and objectives, they did not perform well as they tended to bypass significant parts of the Milford Road; did not support Te Anau as the gateway to Milford Sound Piopiotahi and would not encourage tourism flows east and south of Te Anau to support Southland/ Murihiku as a visitor destination.

The site visits between the project team, the governance group and mana whenua (in both their roles on the project governance group and as a project workstream) in January 2020 clearly manifested the significant issues caused by the “race to the boat”. Observations on the site visit, deliberately timed for the peak of the visitor season, and before significant onset of the Covid-19 pandemic and the February 2020 floods, included the detection of unlicensed passenger service vehicles at the Te Anau Downs checkpoint; a significant feeling of crowding at stops on the road at Mirror Lakes and Knobs Flat; unsafe overtaking manoeuvres and other risky driving behaviour on the Milford Road; and what was felt to be

participants to be a disappointing and underwhelming arrival experience in Milford Sound Piopiotahi. Some early discussions took place about ways to address the observed issues.

IDENTIFICATION OF POTENTIAL ACCESS SOLUTIONS

From the site visits and frequent ongoing interactions within the project team and project working group and governance, thinking emerged about a choice between a mixed access model retaining a significantly reduced amount of parking at Milford Sound Piopiotahi and a managed access model requiring all visitors to Milford Sound Piopiotahi to use public transport (with some very limited exceptions).

The key elements of these options were:

- Either all or most visitor access by bus (some limited exceptions apply).
- Low/zero carbon buses.
- Te Anau terminal integrated with visitor hub.
- Series of hop-on, hop-off and tour bus stops along the way.
- Discreet Milford Sound Piopiotahi terminal integrated with visitor hub.
- Safety and resilience improvements on Milford Road.

This was developed into an access model which was iterated within the project team and with the project working and governance groups. The intention of this was to develop the concept to a “proof of concept” level of detail that would give an envelope of effects and a sufficient level of detail to take the access model through into the phase 3 master planning part of the project. An initial steer on the possible form of the access model is as follows:

- Preference for a mixed access model retaining some visitor carparking in Milford Sound Piopiotahi – albeit at 60 percent below current parking levels (130 parking spaces as opposed to the current around 330 parking spaces) with the parking pre-booked and pre-paid for New Zealand drivers licence holders.
- All international visitors would need to use the public transport option to access Milford Sound Piopiotahi with strong encouragement (supported by very limited parking) for New Zealand visitors.
- Some limited parking on the corridor but with priority for existing and new bus stops on the road at key points.
- Any use-related parking, for example at camping sites, track heads and visitor accommodation, would need to be accommodated on site and be reserved for users of those sites.

CONCLUSION

For around four hours a day for four months a year, Milford Sound Piopiotahi experiences significant congestion on the Milford Road and in Milford Sound Piopiotahi itself. Part of this is caused by a significant proportion of current visitors doing a day trip to Milford Sound Piopiotahi from Queenstown, which requires a very early start and a very long day with a concentration of buses moving along the corridor and arriving at Milford Sound Piopiotahi at much the same time, focused on 1pm boat departures. This concentration of travel has safety consequences and negative impacts on the visitor experience through busy stops on the road and the pressure to reach Milford Sound Piopiotahi in time for pre-booked cruise departures.

The consequence of this is that the intense tidal flow of visitors creates an intense feeling of congestion and overcrowding at traffic volumes typical of a minor local road in a conventional context. Another consequence of this is that Te Anau’s role is more one of a stop on the way rather than being a

destination in its own right, given that 62% of all visits to Fiordland, which includes Te Anau, are day trips⁴.

The current model is not delivering significant value to Murihiku/ Southland and is exacerbating pre-existing issues with significant congestion in Queenstown. While Fiordland generated \$233 million in tourism spend in 2018⁵, a significant portion of that went to Queenstown based coach and air operators⁶. Put simply, the corridor and the destination are not meeting their own costs. For example, it costs significantly more to operate the Milford Road than is covered by fuel excise and road user charges for the distance of the journey.

The proposed transport and access approach would provide a better visitor experience on both the corridor and the destination and one that supports a stronger role for Te Anau as a destination and gateway. In addition, it would help address the significant safety and resilience issues on the Milford Road; improve conservation values in a world heritage area; and moves towards Zero Carbon through a transport model that better aligns with New Zealand's clean green image. This would work within the ecological and other limits of the Te Wāhipounamu World Heritage Area and Milford Sound Piopiotahi itself.

⁴ Southland Murihiku Destination Strategy Summary Document. Great South, November 2019, page 4

⁵ Southland Murihiku Destination Strategy Summary Document. Great South, November 2019, page 4

⁶ Based on the coach and air operations and their employees being largely based in Queenstown

1 PROJECT BACKGROUND / DEFINITION

PURPOSE OF PROJECT

- 1.1 The purpose of the Milford Opportunities Project (MOP) is to develop a collaborative Master Plan for the Milford corridor and Milford Sound Piopiotahi sub-regional area to ensure:

“that Milford Sound Piopiotahi maintains its status as a key New Zealand visitor ‘icon’ and provides a ‘world class’ visitor experience that is accessible, upholds the World Heritage status, national park and conservation values and adds value to Southland and New Zealand Inc.”

PROJECT AMBITION

- 1.2 The Milford Opportunities Project Master Plan must be world class, ambitious and creative. It should not be constrained simply by what can be done now within the current rules, instead it must consider what needs to be done and what the most appropriate outcome will be. The project is about making a substantive change and creative ‘outside the box’ thinking is needed before it is filtered by practical operational realities. The outcome must be:

- Consistent with the project’s purpose and objectives.
- Consider a time frame of at least 50 years.
- Able to significantly enhance both conservation and tourism.

The Master Plan must give effect to the seven pillars (or values) identified in Stage One of the project and be supported by robust assessment and analysis.

PROJECT PILLARS

1) MANA WHENUA VALUES WOVEN THROUGH



Iwi’s place in the landscape and guardianship of mātauranga Māori me te taiao (Māori knowledge and the environment) are recognised. Authentic mana whenua stories inform and contribute to a unique visitor experience.

2) A MOVING EXPERIENCE



Visitors experience the true essence, beauty and wonder of Milford Sound Piopiotahi and Murihiku / Southland through curated storytelling, sympathetic infrastructure and wide choices suited to a multi-day experience

3) TOURISM FUNDS CONSERVATION AND COMMUNITY



The visitor experience will become an engine for funding conservation growth and community prosperity.

4) EFFECTIVE VISITOR MANAGEMENT



Visitors are offered a world class visitor experience that fits with the unique natural environment and rich cultural values of the region.

5) RESILIENT TO CHANGE AND RISK



Activities and infrastructure are adaptive and resilient to change and risk, for instance avalanche and flood risks, changing visitor trends, demographics and other external drivers.

6) CONSERVATION



Manage Fiordland National Park to ensure ongoing protection of pristine conservation areas, while enabling restoration of natural ecological values in less pristine areas.

7) HARNESS INNOVATION AND TECHNOLOGY



Leading technology and innovation is employed to ensure a world class visitor experience now and into the future.

PROJECT OBJECTIVES

1.3 The objectives for the MOP are:

- a) Protect and conserve the place now and into the future.
- b) Recognise iwi's place in the landscape, guardianship and values.
- c) Increase the effectiveness, efficiency and resilience of infrastructure.
- d) The visitor experience funds conservation growth and community prosperity.
- e) Reduce visitor exposure and risk to natural hazards.
- f) Increase the connection of people with nature and the landscape.
- g) Offer a world class visitor experience that is unique and authentically New Zealand.
- h) Identify sustainable access opportunities into Milford Sound Piopiotahi.

- i) Identify parts of the built environment that are surplus to requirements or could be shifted to improve visitor function and resilience.
- j) Identify opportunities to create additional economic benefit for the communities of Southland and Otago including Queenstown via the pulling power of Milford Sound Piopiotahi.
- k) Develop a Master Plan that:
 - i. Creates and encapsulates a unique experience.
 - ii. Is culturally, environmentally and physically appropriate and sustainable.
 - iii. Clearly articulates what is acceptable and what is not acceptable visitor management and development within the identified value framework.
 - iv. Considers the impacts of climate change at place.
 - v. Supports the economic stability of Te Anau, Queenstown, Southland and NZ Inc.
 - vi. Portrays a clear future for investment.
 - vii. Informs the review processes for Fiordland National Park Plan and Southland Coastal Plan.
 - viii. Sets out the ideal governance and management structure to ensure successful delivery on the objectives.

NATURAL DISASTERS AND COVID-19 IMPACTS

- 1.4 MOP stage 2 approach was impacted significantly by the 2020 Fiordland floods and then the COVID-19 pandemic.
- 1.5 Strategically, the consultant project team were required to be flexible in our approach and creative in our delivery. As a response to changing conditions we proposed methodologies to make allowance for factors such as lack of visitors, an initial inability to undertake site visits, and at times a restricted or reduced availability of staff from external organisations.

WORKSTREAM OBJECTIVES

- 1.6 These Objectives were refined from Stage 1 and were agreed with the Governance Group during Stage 2. The application of the Objectives within this Workstream is shown in the table below.

Table 1: Application of Stage 2 Objectives

#	Stage Two Objective	Application to Transport and Access
1	Ngāi Tahu’s role as mana whenua and Treaty partner is acknowledged and Te ao Māori values are embedded throughout.	How will functions, design and structure enable tino rangatiratanga to be exercised?
2	Milford Sound Piopiotahi is protected and conserved as required by its World Heritage status.	How do we ensure that conservation management, heritage management conservation activities remain key?
3	The visitor experience is world class and enhances conservation of natural and cultural heritage values and community.	What will be the impacts on management of infrastructure and services, and concession arrangements, approval, review and term?
4	Infrastructure is effective, efficient, resilient, and sustainable (including access methods).	How do we ensure ongoing investment into infrastructure in a coordinated, sustainable manner?
5	Visitors benefit communities, including Ngāi Tahu, communities of Te Anau, Southland, and Otago.	How do we support connection to destination management and local economic development potential?

2 SCOPE OF WORK: TRANSPORT AND ACCESS

- 2.1 Transport and access are significant issues for this project to consider and require fresh and innovative thinking. It is expected that a comprehensive review will be undertaken that provides potential 'game changing' options for inclusion in the Master Plan.
- 2.2 The Master Plan Development Team will explore how transportation and access may be changed to produce different outcomes along the corridor and at Milford Sound Piopiotahi, including but not limited to:
- alternative access and visitor movement.
 - exploring alternative and low to zero carbon transport solutions.
 - reduction of visitor risk and congestion in key locations.
 - transport related visitor experience and visitor safety improvements.
 - transport movement to support conservation gains.
 - transport movement to/and from the regions.
- 2.3 The key outcomes of this project are to:
1. Produce a transport strategy that includes:
 - An assessment of the current state.
 - How the strategy connects with other workstreams.
 - Identification of feasible transport solutions.
 - A spatial plan showing the location of key nodes.
 - Identification of potential access solutions.
 - A high-level estimation of capex and opex of final options if they were implemented.
 - A high-level estimate of the benefits and costs of potential options.
- 2.4 Contribute information to the Master Plan that enables the identification and development of strategic options.
- 2.5 Transport and Access delivers on the pillars in the following ways:
- **Mana Whenua Values Woven Through** by acknowledging mana whenua's role as kaitiaki and enabling – in fact requiring – an authentic expression of mana whenua narratives; through responding to mana whenua desires for reduced environmental impacts; opportunities for employment and enabling a quieter, more restful and more tranquil experience on the Milford Road and in Milford Sound Piopiotahi. Acknowledging Te Tiriti o Waitangi by guaranteeing mana whenua access to taonga, including mahinga kai and other customary rights.
 - **A moving experience** where the journey is as important as the destination with a less hurried, deeper and more immersive visitor experience enabled by a transport and access model that facilitates this through a less hurried tour bus model and a hop-on, hop-off bus model for access to the Milford Road corridor for a variety of experiences.
 - **Tourism funds conservation and community** is enabled by a managed access model where visitors both meet the costs of their visitor experience plus funds conservation and community.

- **Effective visitor management** is delivered through the transport and access model filtering people to Milford Sound Piopiotahi at a rate that the destination can handle by spreading arrivals and departures over a larger portion of the day and enabling a better visitor experience on the Milford Road itself.
- **Resilient to change and risk** is delivered through safer access largely through professional bus drivers with everyone, including self-drivers, required to have a safety briefing before entering the national park. The transport and access model is scalable in line with demand and able to accommodate growth in travel within the limits of the national park and Milford Sound Piopiotahi.
- **Conservation** is enabled through a low carbon transport model where the impact of transport on the environment is significantly reduced but which enables a better managed visitor experience more supportive of the natural and landscape values of the national park and Milford Sound Piopiotahi.
- **Harness Innovation and Technology** is enabled through a staged transition to an electric bus fleet and leveraging the Milford Fibre Project to deliver real-time information to visitors and through on-line tools to manage access to the corridor and Milford Sound Piopiotahi.

3 BASELINE: CURRENT STATE

- 3.1 The New Zealand Aotearoa Government Tourism Strategy has a defining centrepiece that states: “Te puāwai tonu o Aotearoa i te tupu tonu o te ao tāpoi New Zealand-Aotearoa through sustainable tourism growth⁷”



Figure 2: New Zealand Aotearoa Tourism Strategy

- 3.2 Core to the strategy is regions and communities benefiting more from tourism. There is an aspiration to migrate tourism in New Zealand from a model based on volume, which is a relatively short but intense peak tourist season with an intense concentration on several highly visited sites.
- 3.3 The strategy states that visitors need to get to the destination safely, timely and with an appropriate cost. This includes air, road, rail, sea, trails, and cycleways⁸. The journey is often a defining element of the visitors' experience travelling in New Zealand. This ranges from the Great Journeys of New Zealand by KiwiRail on its long-distance trains and inter island ferries to Ngā Haerenga/ NZ Cycle Trail's 22 Great Rides and connecting Heartland Rides through to Taieri Gorge train by Dunedin Railways. However, possibly the most iconic journey experience in New Zealand is the Milford Road - considered one of the world's greatest road trips and a bucket list item for many international visitors to New Zealand.
- 3.4 Managing consistent visitor growth involves planning for infrastructure and services in and around the study area. This paper explores the anticipated impacts from transport and access options that aims to address the range of current issues.

⁷ New Zealand Aotearoa Government Tourism Strategy, Ministry of Business, Innovation and Employment, May 2019, page 2

⁸ New Zealand Aotearoa Government Tourism Strategy, Ministry of Business, Innovation and Employment, May 2019, page 4

- 3.5 The Milford Road section of State Highway 94 (SH94) is considered one of the world's greatest road trips. This section forms the core scope of the Milford Opportunities Project transport and access workstream, along with SH95 connecting Te Anau to Manapōuri. However, it needs to be considered in the broader context of tourism transport in the lower South Island. This is characterised by Queenstown's significant role as base for many visits to Milford Sound Piopiotahi. This has downstream impacts on tourism flows in the lower South Island, evidenced by rest of Murihiku Southland only having 15% as many international visitors as Fiordland.

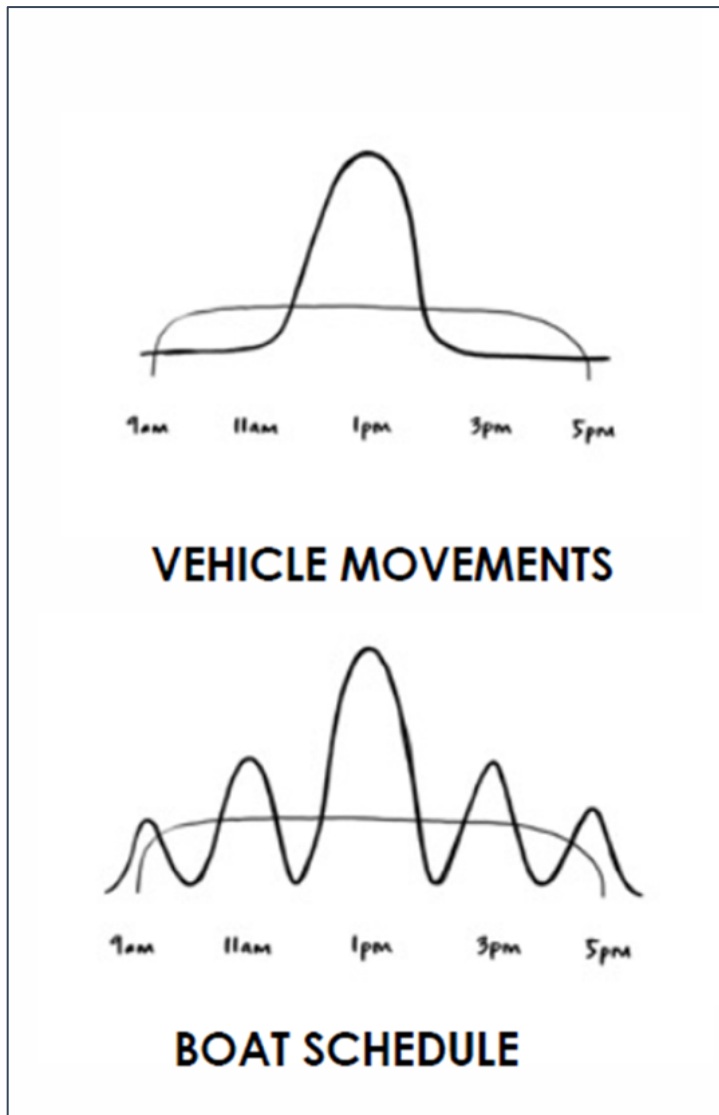


Figure 3: Vehicle movements and boat schedule

- 3.6 A consequence of the current Queenstown and daytrip focus on Milford Road and Milford Sound Piopiotahi is the compression of both the road travel experience and destination experience at Milford Sound Piopiotahi. While Milford Road cannot be considered congested in absolute numbers, the combination of increasing congestion in Queenstown; visitors underestimating travel times (including queueing for the one-lane Homer Tunnel); concentration of cruise times every other hour and lack of other activities apart from cruises in Milford Sound Piopiotahi has significant negative consequences for safety, quality of driving and visitor experience on Milford Road, with a large number of tour buses and private vehicles leaving Te Anau at the same time. The majority of coaches depart from Te Anau between 9 am and 10 am and arrive at Mirror Lakes around 10.30 am; Knobs Flat at 11 am; The Chasm at 12.30 pm and Milford Sound Piopiotahi for

the 1 pm cruises⁹. The close correlation between vehicle and boat movements can be seen in the graphic above.

- 3.7 A key feature of access to Milford Sound Piopiotahi is the peak number of visitors and time of year, with the busiest month of the year around 10 times as busy as the quietest month. The time of year demands are shown in the graphic below¹⁰:

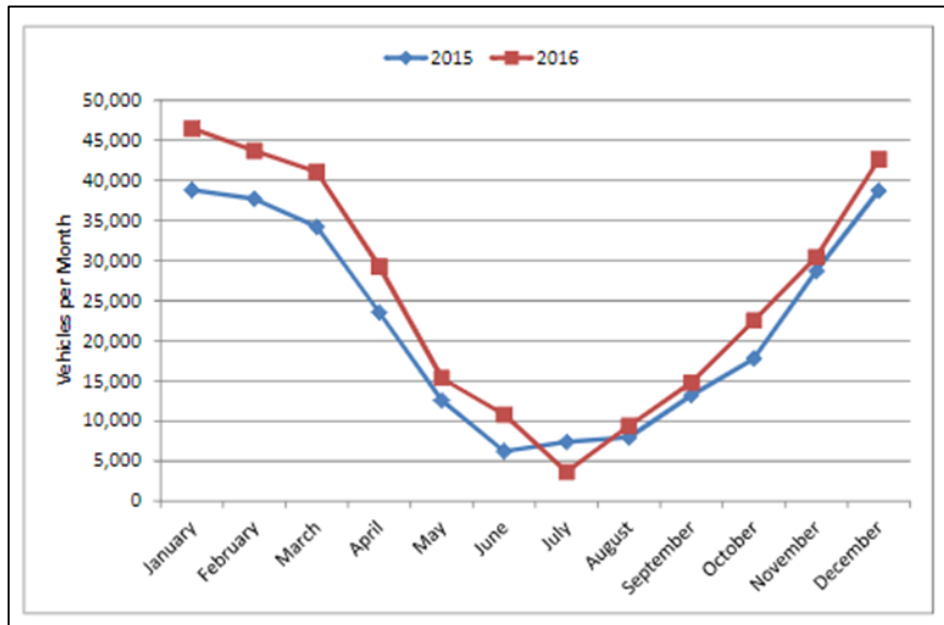


Figure 4: Seasonality of visitor flows

- 3.8 A similar pattern is seen with arrival times, peaking at around 120 vehicles per hour – or one vehicle every 30 seconds. The time-of-day demands are in the graphic below¹¹:

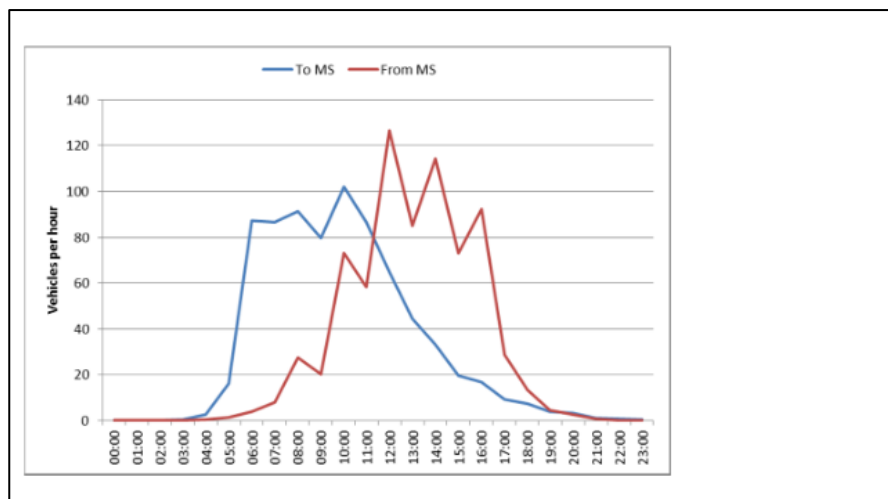


Figure 5: Vehicle arrival flow into Milford Sound Piopiotahi

⁹ <https://www.doc.govt.nz/parks-and-recreation/places-to-go/fiordland/places/fiordland-national-park/places-to-go/milford-road-milford-sound-area/milford-road-tips-for-drivers/> accessed on 4/10/20

¹⁰ Milford Sound Tourism: Transport Infrastructure Review: Traffic Management Strategy, TDG, May 2017, page 14

¹¹ Milford Sound Tourism: Transport Infrastructure Review: Traffic Management Strategy, TDG, May 2017, page 15

3.9 The existing vehicle split at Milford Sound Piopiotahi is shown in the chart below¹²:

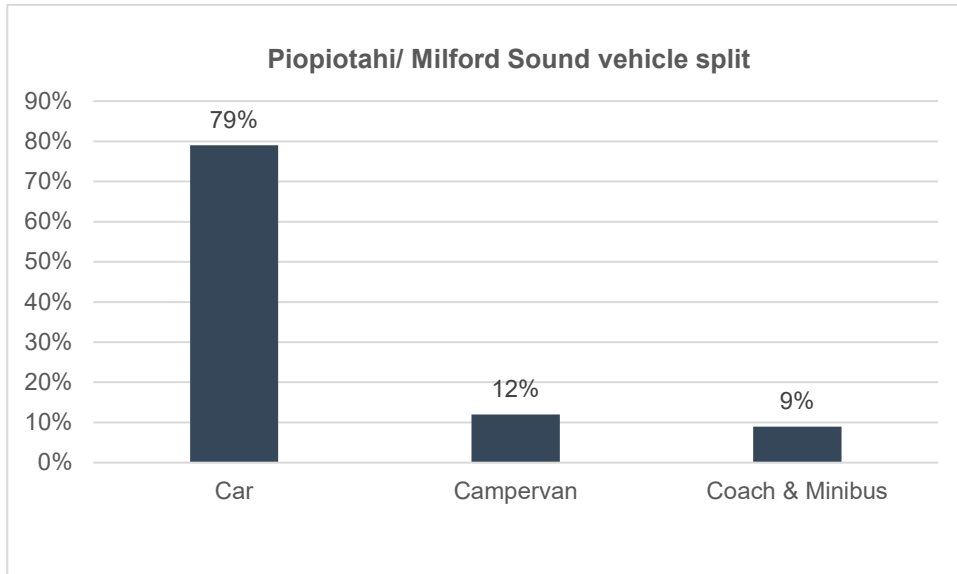


Figure 6: Mode split at Milford Sound Piopiotahi

3.10 On peak days in 2019, around 1,000 vehicles per day entered Milford Sound Piopiotahi. While tour coaches made up only 9 percent of this total, they carried half the people entering Milford Sound Piopiotahi in about 78 tour coaches and minibuses. That equates to 50 percent of people entering in 9 percent of the vehicles, while the other 91 percent of vehicles carry the other 50 percent of people¹³.

3.11 The average vehicle occupancy at Milford Sound Piopiotahi is shown in the chart below¹⁴:

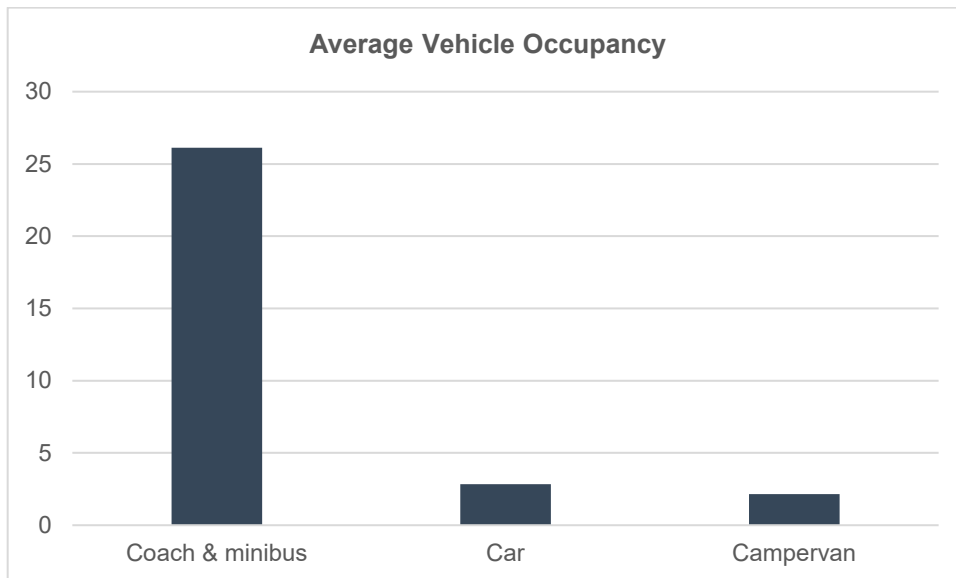


Figure 7: Average vehicle occupancy at Milford Sound Piopiotahi

¹² Milford Sound Tourism: Transport Infrastructure Review: Traffic Management Strategy, TDG, May 2017, pp39-43

¹³ Mode splits and numbers calculated from surveys carried out by TDG in December 2016 and Waka Kotahi telemetry data at the Homer Tunnel. Some assumptions were made as the light vehicle survey was incomplete so light vehicle numbers were scaled up in line with what was observed in the telemetry data.

¹⁴ Milford Sound Tourism: Transport Infrastructure Review: Traffic Management Strategy, TDG, May 2017, pp39-43

- 3.12 From the evidence above, it is clear that Milford Sound Piopiotahi suffers from a “four hour a day, four month a year” congestion issue. Spreading the demand over a wider time of day and year, along with more sustainable transport options, would enable Milford Sound Piopiotahi to accommodate significant visitor growth while providing a better experience and sustainable transport, enabling visitors to enjoy the Milford Road journey and the Milford Sound Piopiotahi experience.

MILFORD ROAD (SH94)

- 3.13 The Milford Road section of State Highway 94 starts in Te Anau and is the only road into Milford Sound Piopiotahi. The initial 29 kilometres follows the edge of Lake Te Anau to Te Anau Downs, and from there, heads up Eglinton Valley. Approximately 45 kilometres from Te Anau, Fiordland National Park begins and follows the Eglinton River for 33 kilometres to Knobs Flat. At Cascade Creek, the road follows the shorelines of Lake Gunn and Lake Fergus and passes through a saddle at The Divide at 532 metres. From there, the road descends Hollyford Valley before climbing to the head at the eastern entrance to Homer Tunnel at an altitude of 945 metres. This 1,270-metre-long tunnel is capable of two-way traffic but is traffic-signal controlled one-way operation at peak times, leading to waits of up to 10 minutes at peak times. It emerges in the U-shaped Cleddau Valley and descends through a series of hairpin bends to the floor of the valley, which follows for 16 kilometres on the descent to sea level at Milford Sound Piopiotahi.
- 3.14 The road alignment was first surveyed in 1890 by London-born engineer Robert Holmes, who later became the Engineer-in-Chief of the Public Works Department. The Milford Road section began in 1926 when a local station owner started making his own road from the Te Anau Downs Harbour south to the Te Anau Hotel. It took until 1935 to construct a rough road to the entrance of what would become the Homer Tunnel. The tunnel itself was largely built by hand with only very basic tools as a recovery project from the Great Depression in the 1930s. While breakthrough was achieved in February 1940, the labour shortage caused by World War II resulted in significant delays, and the tunnel was finally opened in 1953. The road was fully sealed in the late 1980s.
- 3.15 At Milford Sound Piopiotahi, there are approximately 325 parking spaces. Of these, 240 are in the main parking area with 85 spaces for overflow at Deepwater Basin near the aerodrome, with a free shuttle service to the cruise terminal. Around the terminal forecourt is a bus parking area that can accommodate 35 coaches or smaller buses. Parking is \$10 per hour through pay-and-display machines. While the original reason for paid parking was to promote non-car choices, the consequence has reinforced the perception (and reality) that Milford Sound Piopiotahi is a short-stay destination focused around a one-and-three-quarter-hour cruise.

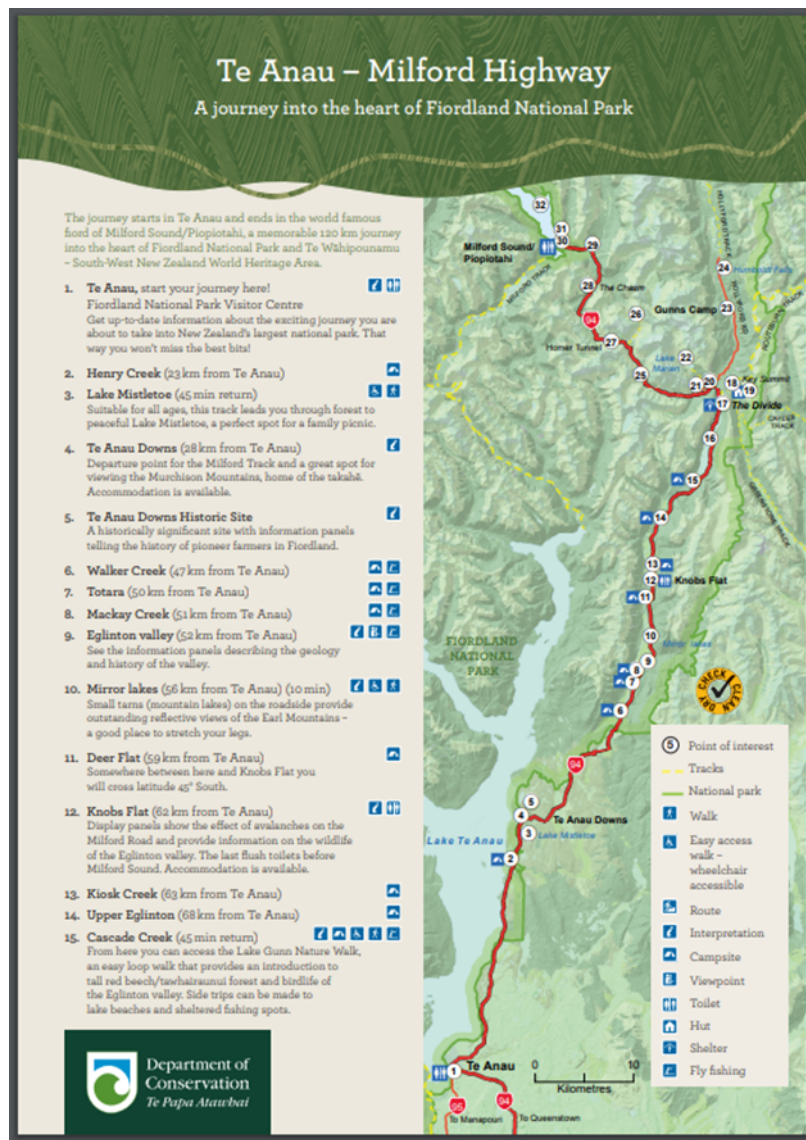


Figure 8: Front page of DoC Milford Road Map

- 3.16 Once past the urban area of Te Anau, the road becomes 100km/h open road speed limit all the way to the entrance of Milford Sound Piopiotahi, where the speed limit drops initially to 80km/h then subsequently to 30km/h. This is the only instance of a 30km/h speed limit on a New Zealand state highway network.
- 3.17 Waka Kotahi, NZ Transport Agency (Waka Kotahi) consulted in late 2019 on a proposal to reduce the speed limit from the eastern entrance of Homer Tunnel to the entrance of Milford Sound Piopiotahi from 100km/h to a variable speed limit between 30km/h and 60km/h¹⁵.
- 3.18 Users of Milford Road can be broadly classified into three categories; 1) free independent travellers who drive themselves, 2) bus passengers and 3) all others (mana whenua, trampers, hunters, boaties, fishers and service staff).
- 3.19 The majority of visitors on the road make a few stops en route – at Mirror Lakes, Eglinton Valley or The Chasm. These are all locations with stunning scenery within a short walk from a parking area. Given that Fiordland National Park is 12,607 square kilometres, it is clear that most visitors are only seeing a small portion of the national park. Stops at these locations are typically brief

¹⁵ <https://www.nzta.govt.nz/projects/sh94-homer-tunnel-to-milford-sound-speed-consultation/>, accessed on 30 January 2021

with a short walk to the site, a few photos and a return to the vehicle. As Milford Sound Piopiotahi is seen as the culmination and highlight of the journey, there is a tendency for visitors to undervalue the road trip experience to get there and back. Apart from these breaks, visitors often stop at Knobs Flat for toilet breaks and queuing at Homer Tunnel.

- 3.20 A major challenge with Milford Road is its predominant use by international visitors. The road starts with an easy section to Te Anau Downs; however, there is no signage into Fiordland National Park that notifies a change in driving environment. This leads visitors into an increasingly more challenging road environment the closer they get to Milford Sound Piopiotahi and the amount of time spent at stops along the way. This causes a combination of visitors running late to meet booked boat departures at Milford Sound Piopiotahi in exactly the same part of the road where driving conditions are most challenging, especially for drivers less familiar with typical New Zealand road conditions and average travel speeds that are often slower than in other countries.
- 3.21 In addition, typical road treatments in New Zealand may not align with driver experience. For example, in New Zealand no passing lines are largely only used to address vertical geometry issues such as where the forward view cone is obscured by a rise in the road and not for horizontal geometry where bends in the road obscure forward view. This leads to situations where the absence of no passing lines is seen as indicating that it is safe to overtake. In addition, the posted 100km/h speed limit on Milford Road does not align with the challenging road environment and could lead drivers to unrealistic expectations of achievable travel times between Te Anau and Milford Sound Piopiotahi.
- 3.22 Waka Kotahi's Visiting Drivers Project is a multi-faceted project to improve road safety for visiting drivers, while maintaining New Zealand's reputation as an attractive and safe tourist destination. It is based generally in Otago, Southland, and West Coast, but elements support improvements nationally. The project involves a range of organisations, including central and local government, tourism, and rental vehicle sectors, among others. Many of the project's initiatives (implemented in Otago, Southland and the West Coast), such as 'Keep Left' signs and road lane directional arrow signs placed every 2.5km and at exit points from rest areas and visitor attractions, have now been replicated by Waka Kotahi across the country for all visiting drivers.
- 3.23 While initiatives of the Visiting Drivers Project have made a positive difference, the road itself presents numerous challenges to even experienced drivers. Milford Sound Piopiotahi is the wettest inhabited place in New Zealand, and one of the wettest places in the world with a mean annual rainfall of 6,813mm. December and January are the two wettest months, which coincides with peak months in the tourist season¹⁶ In wet conditions, vehicle traction is much poorer than in dry conditions. The altitudes at The Divide and both sides of Homer Tunnel are where snowfall and ice are likely in winter. Rockfall is a risk around the entrance of Homer Tunnel, where prime viewpoints such as over the Cleddau Valley from the western entrance of the tunnel are no stopping zones. Avalanche risk is high in winter, with 55 points on the road where there is potential for avalanches to cross the highway. There is a world class avalanche control programme on the road, following the death of a maintenance worker in 1983, that allows the road to remain open for all but eight days each year on average¹⁷. While this programme mitigates much of the risk, there is always an element of unpredictability about the timing, direction, speed, and impact of avalanches.
- 3.24 Another risk issue is the potential distraction for drivers looking at the scenery rather than the road.
- 3.25 The visitor experience can currently be summarised as "the race to the boat", as visitors are driving poorly and making bad driving decisions due to hurried stops at key sites for a photo

¹⁶ <https://www.milford-sound.co.nz/about/milford-sound-weather/>, accessed on 30 January 2021

¹⁷ Wrigglesworth, Karen. Making the Way to Milford [online]. *Engineering Insight*, Vol. 12, No. 1, Jan/Feb 2011: 37-38.

opportunity rather than an immersive experience connected to the Māori and Pākehā history of people and place in Fiordland.

SAFETY ISSUES

- 3.26 Milford Road has low collective but high personal risk, while SH95 to Manapōuri has low collective and medium personal risk. Collective risk refers to the total amount of crashes while personal risk refers to the chance of an individual being involved in a crash. Milford Road has a two-star KiwiRAP rating, which means there are “major deficiencies in some road features such as poor roadside conditions and /or many minor deficiencies such as insufficient overtaking provision, narrow lanes, and /or poorly designed intersections at regular intervals¹⁸. According to the Corridor Management Plan¹⁹, the major issues on the road are challenging terrain requiring a high level of driver skill and concentration throughout the journey. The “journey is challenging with winding narrow formations and steep ascents and descents...narrow seal width, drop-offs, embankments and unprotected hazards along the corridor length [which] means that if a driver makes a mistake, the consequence is likely to be severe²⁰”
- 3.27 Other issues on Milford Road include limited passing lanes and passing bays leading to driver frustration and risky overtaking manoeuvres; an alpine driving environment where weather conditions can and do change rapidly with black ice forming on shaded sections and bridge decks. In addition, there is currently no cell phone coverage between north of Te Anau Downs and Milford Sound Piopiotahi, with the only phone communication being satellite phones in Milford Sound Piopiotahi; a card phone at Knobs Flat and satellite phones at Homer Tunnel entrances and near Pop’s View. The consequence is there can be lengthy response times to crashes on the road exacerbated by emergency services only being located at Te Anau with limited response capability of the Milford Emergency Response Team in Milford Sound Piopiotahi. Driver fatigue is also an issue, especially on the return trip to Queenstown for people visiting Milford Sound Piopiotahi as a day return trip from Queenstown.
- 3.28 **Crash History.** Crash Accident System (CAS) data shows there have been 233 reported crashes between 2015-2019. Of these, four were fatal, 20 were serious, 60 minor and 149 non-injury crashes. The majority of crashes (223) occurred on or near SH94 (Milford Road). According to KiwiRap, the Milford Road had, from 2012 to 2016, the third highest rate of persistent personal risk (that is, the risk of an individual being involved in a crash) of a New Zealand state highway, measured over a 15-year period, from 2002 to 2016. Comparable state highways with high personal risk frequently used by visitors are SH37 to Waitomo Caves and SH7 across the Lewis Pass²¹.

¹⁸ KiwiRAP website http://www.kiwirap.org.nz/scoring_bands.html accessed on 14/7/2020

¹⁹ 2018 – 2028 Frankton to Milford Sound Corridor Management Plan, Waka Kotahi/ NZ Transport Agency, 2018, page 21.

²⁰ 2018 – 2028 Frankton to Milford Sound Corridor Management Plan, Waka Kotahi/ NZ Transport Agency, 2018, page 21.

²¹ KiwiRap Highway Safety Ratings 2012-2016, International Road Assessment Programme, 2018, page 12

Table 4: Road links with high Personal Risk across three time periods

Site Name	Region	02-06 Crashes					07-11 Crashes					12-16 Crashes				
		F	S	F+S	Collective Risk Band	Personal Risk Band	F	S	F+S	Collective Risk Band	Personal Risk Band	F	S	F+S	Collective Risk Band	Personal Risk Band
SH 31 from Kawhia to SH 39	Waikato	1	5	6	Low	High	0	10	10	Low-Medium	High	0	4	4	Low	High
SH 37 from SH 3 to Waitomo Caves	Waikato	1	5	6	Medium-High	High	0	3	3	Medium	High	0	2	2	Low-Medium	High
SH 12 from Dargaville to Ohaeawai	Northland	8	25	33	Low-Medium	High	8	21	29	Low-Medium	High	3	31	34	Low-Medium	High
SH 7 from Hanmer Springs to Reefton	Canterbury/ West Coast	5	16	21	Low	High	3	20	23	Low	High	1	27	28	Low-Medium	High
SH 94 from Te Anau to Milford Sound	Southland	0	25	25	Low-Medium	High	3	18	21	Low	High	2	19	21	Low	High

Figure 9 KiwiRap High Persistent Risk Roads 2012-2016

3.29 The most significant locations in terms of frequency and seriousness were:

- Sinclair Road (11 crashes, including one serious crash).
- Lower Hollyford Road (10 crashes, including two serious).
- Retford Stream Bridge (9, including one fatal).
- Homer Tunnel North (9).
- Tutoko River Bridge (8).
- Dunton Creek Bridge (7, including one serious).
- Wesley Creek Bridge (4, including one fatal and one serious).
- Cleddau River Bridge (5, including one fatal).

Common themes to crashes on the road are:

- 45 percent of non-injury crashes were on flat sections of road.
- 50 percent of crashes were on hilly sections of road.
- 70 percent of crashes were in good weather.
- 19 percent of crashes were on bends with speed advisory signs.
- 61 percent of minor or non-injury crashes were at or near a bridge.

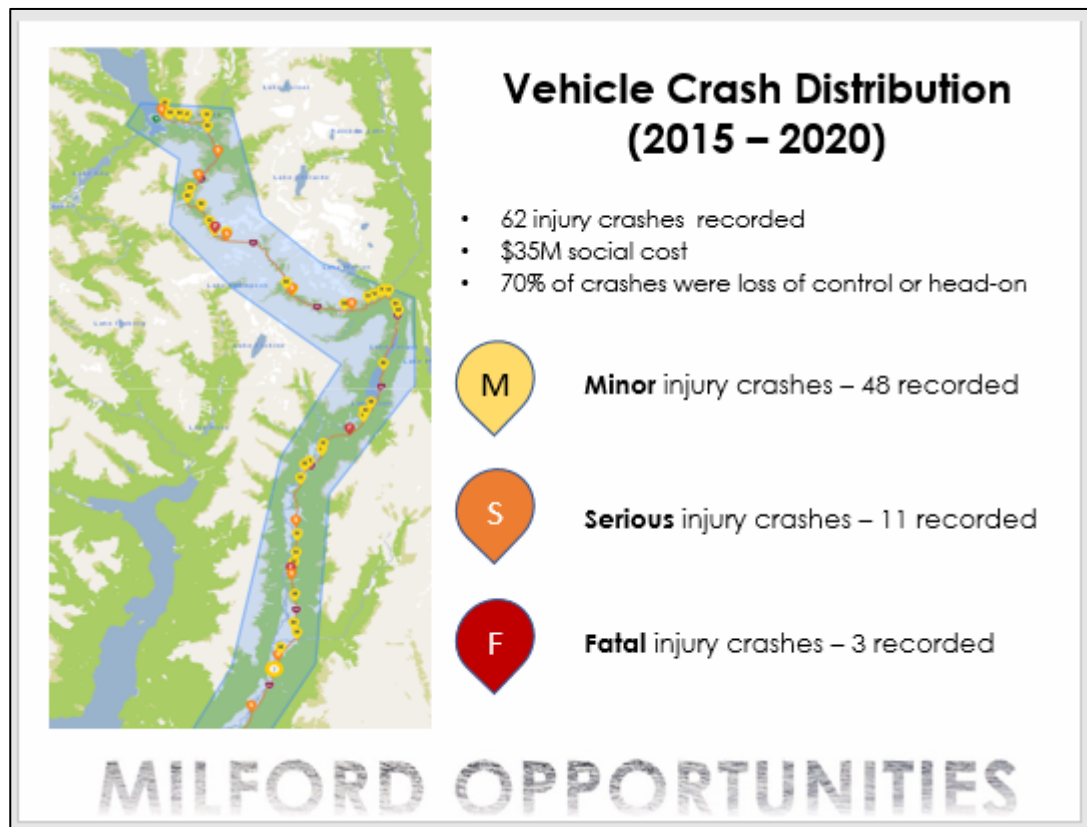


Figure 10: Milford Road Crash Summary

- 3.30 Between 2009 and 2018 there were 76 crashes on the Milford Road between the eastern entrance of the Homer Tunnel and Milford Sound Piopiotahi. Three people died and eight were seriously injured. Just over 40 percent of the 76 crashes were between 2016 to 2018²².
- 3.31 From discussions with Milford Road Alliance and Department of Conservation staff and Te Anau locals, there is significant anecdotal evidence of unreported crashes on the road. While these are often no injury or minor injury crashes, a fuller picture of the overall crash history on Milford Road would provide valuable evidence of its safety risks

MILFORD SOUND AERODROME

- 3.32 Milford Sound Aerodrome is a small but busy airport and the only remaining airport in New Zealand fully owned and operated by the New Zealand Government under the Ministry of Transport. It has a single 792-metre-long runway, taxiway, and apron area. While there is a small building on site, this is only for AFIS staff and storage of first aid and firefighting equipment. There is no passenger terminal or passenger facilities. There is intensive air transport activity generated by the scenic tour operators at the aerodrome between 10am and 4pm. In summer, the activity is more intense and can extend from 8:30am to 5:15pm, with more than 240 daily activities. There can be up to 30 aircraft and 20 helicopters operating in Milford Sound Piopiotahi on a regular basis. Aircraft parking spaces are limited, especially around key cruise arrival and departure times between 10am and 4pm.

The Milford Aerodrome provides a poor visitor experience, including the complete absence of any normal airport terminal facilities, for visitors who arrive or depart by air. People flying in and out need to be escorted to the airport entrance by their pilot as they are in a live operational environment. The aerodrome presents operational and safety challenges because of its location in

²² <https://www.nzta.govt.nz/projects/sh94-homer-tunnel-to-milford-sound-speed-consultation/> accessed on 30 January 2021

a mountainous area. In addition, the highly changeable meteorological conditions means that it cannot operate on many days of the year. It is in an environmentally sensitive area which is already prone to flooding, an issue that will only get worse over time with climate change induced sea level rise. In addition, the runway is slowly sinking and is in need of major reconstruction work to strengthen its foundations. The costs to carry out this work are unlikely to be able to be recovered from the aerodrome's users. From a place point of view, its current location is considered problematic because it splits Milford Sound Piopiotahi into two – severing Freshwater Basin from Deepwater Basin and is also considered to be contributing current somewhat underwhelming arriving experience at the destination. These challenges are canvassed in detail in the tourism and hazards workstream reports.

- 3.33 Approximately five percent of visitor access to Milford Sound Piopiotahi is through fixed and rotary wing aviation. This is based on passenger seats into Milford Sound Piopiotahi remaining stable at around 61,000 per year. No specific passenger data is recorded but assuming 75 per cent seat utilisation gives a figure of 5 per cent, with a maximum seat capacity of 6% of total visitation (if every seat on every flight were sold)²³. More details are in the tourism workstream report.
- 3.34 An initial 503-metre-long airstrip was built in 1952; to enable air operators to fly larger twin-engine aircraft, the airstrip was officially licensed in 1956 and subsequently had the runway sealed and extended to its current length. Prior to the airstrip, Milford Sound Piopiotahi was inaccessible in the winter, as the then unsealed Milford Road became impassable.



Figure 11: Milford Sound Aerodrome

- 3.35 Since Milford Sound Piopiotahi is uncontrolled airspace, and the airport does not offer control tower facilities, it is a daytime only facility that is used in good weather conditions. According to the Queenstown Milford User Group, approximately 50-55% of days are flyable into Milford Sound Piopiotahi²⁴, but this varies depending on weather conditions.
- 3.36 The airport land is owned by the Department of Conservation (DoC), and aircraft operators must have a concession from the DoC to operate from Milford Sound Aerodrome. There are three categories of concession; 1) One-off Landing Permit, 2) Irregular Landing Permit (for up to 10 landings per year) and 3) Regular Landing Permit (for more than landings 10 landings per year, currently fully allocated).
- 3.37 The following table lists the aircraft and helicopter operators at Milford Sound Piopiotahi.

²³ Annual passenger seats into Milford Sound 2008-19, Source: Ministry of Transport, Fresh Info

²⁴ Milford Sound Air Access overview, Queenstown Milford User Group PowerPoint Presentation, 2020, slide 16

Table 2: Aircraft operators at Milford Sound Aerodrome

Airlines	Destinations
Air Fiordland	Queenstown, Te Anau, Wānaka
Air Milford	Queenstown, Te Anau
Air Safaris	Lake Tekapo
Aspiring Air	Wānaka
Fly Fiordland	Glenorchy, Te Anau
Glenorchy Air	Glenorchy, Queenstown
Milford Sound Flightseeing	Queenstown
Milford Sound Helicopters	Based at Milford Sound Piopiotahi
Southern Alps Air	Wānaka
True South Flights	Queenstown

- 3.38 There is one helicopter operator, Milford Sound Helicopters, that is based in Milford Sound Piopiotahi that provides local services to tourists, hunters, trampers and the DoC. All other operators are based elsewhere, with most at Queenstown Airport.
- 3.39 The Ministry operates the aerodrome on a cost recovery basis. On a year-by-year basis, overall charges are intended only to recover the costs of owning and operating the aerodrome. Current landing charges introduced on 1 December 2011 are \$25.22 for helicopters and from \$23.47 to \$293.42 for fixed wing aircraft, depending on size (all excluding GST)²⁵. In addition, operators make concession payments to DoC.
- 3.40 The Queenstown-Milford User Group (QMUG) was formed in 1990 to promote safety for those aircraft operators within the Queenstown Flight Information Region and to represent their interests. Most operators that use the Milford Sound Piopiotahi Aerodrome are members of the QMUG. The QMUG consists of: Local Aircraft Operators; Local Sport Aviation Operators; Civil Aviation Authority of New Zealand; Airways Corporation of NZ; Queenstown Airport Corporation; the Ministry of Transport and DoC. QMUG publishes an operations handbook as a guide to pilots using the aerodrome based on accumulated knowledge over many years.
- 3.41 This guidance and the Good Aviation Practice²⁶ guide, produced by the Civil Aviation Authority, are important given that “see and be seen” visual flight rules apply in largely uncontrolled airspace. There are significant safety challenges, as the airspace around the aerodrome is constrained by precipitous terrain and often experiences unusual micro climatic conditions.
- 3.42 While the flight to and from Milford Sound Piopiotahi provides a stunning flight experience, it largely misses the Milford Road. The possibility of weather conditions turning bad in the afternoon, which is often the case, encourages short fly-cruise-fly trips to minimise the chance of weather-related disruptions (and the need to get passengers back to Queenstown by bus at the expense of the air operator).
- 3.43 Pilots flying into Milford Sound Piopiotahi must undergo mountain flying training and have a reasonable amount of mountain flying experience. Pilots who have no previous or recent (within the last six months) operating experience at Milford Sound Piopiotahi must be briefed by a pilot experienced with and current in Milford Sound Piopiotahi Aerodrome operations. The weather at Milford Sound Piopiotahi is challenging and can deteriorate rapidly even if fine initially. Even if pilots manage to fly in, this does not mean that they are able to fly out safely.
- 3.44 Apart from Hollyford Valley, most passes from the east require at least 5,000 ft-plus to enter Milford Sound Piopiotahi. Therefore, any flight to Milford Sound Piopiotahi with a cloud

²⁵ <https://www.transport.govt.nz/air/nzmf/> Accessed on 4th October 2020

²⁶ Good Aviation Practice: In, Out and Around Milford, Civil Aviation Authority, April 2019.

base around 5,000 ft is not advised, with a safety factor applied to the height of the pass being flown over.

- 3.45 Milford Sound Piopiotahi currently has an Aircraft Flight Information Service (AFIS) to provide traffic information to pilots. This service operates from 8am – 4.30pm in summer and 8am to 4pm in winter. However, this service does not issue instructions to pilots or provide separation from other flights. Pilots should rely on traffic and location reports from AFIS, other pilots, Traffic Collision Avoidance System (TCAS) and maintain situational awareness at all times. Due to declining revenue as the result of a reduction in civil aviation activity, the Airways Corporation is carrying out an aeronautical study to determine whether AFIS should be retained at Milford Sound Piopiotahi Aerodrome and other requirements to ensure safe operation at the aerodrome and surrounding airspace²⁷. This study was completed at the end of September 2020 and reaffirmed the conclusions of the two previous aeronautical studies that AFIS is required at Milford Sound Aerodrome “to aid the management of aviation safety at this unique and unusually complex location²⁸”
- 3.46 There are many challenges to flying in and out of Milford Sound Piopiotahi, including fast-changing weather and difficult topography. The proposed withdrawal of AFIS would likely further increase pilot workload with deficiencies in radio coverage; dual roles as pilots and tour guides and the heavy concentration of air traffic around key cruise boat arrival and departure times. Other issues include dealing with downdraughts and updraughts in the mountains, wind shear and sometimes the lack of a well-defined horizon.
- 3.47 Departing Milford Sound Piopiotahi presents further challenges, as downwind take-offs are generally required on the single runway. The regular tour operators do not take off from Runway 11 and accept the downwind component on Runway 29 (east to west) if performance requirements can be met. Otherwise, pilots stay on the ground. The downwind effect, plus marked wind shear after take-off, result in poor climb performance. If take-off is from Runway 11 (west to east), the normal flight path would be into the Cleddau-Tutoko Basin. Taking off from Runway 11 is not recommended; however, due to downdraughts and the deceptively rapid rising terrain.

AVIATION INCIDENT SUMMARY

- 3.48 The following section summarises aviation-related incidents of aircraft flying to or from Milford Sound Piopiotahi.
- 3.49 On 8 August 1989, a Britten-Norman BN2A Islander ZK-EVK, travelling from Wānaka to Milford Sound Piopiotahi, collided with terrain in the Upper Dart Valley. Wreckage from the aircraft was subsequently located on steep snow-covered mountainous terrain at elevations up to 5400 feet. Following initial impact, major portions of the aircraft, including the fuselage, had fallen over precipitous bluffs. The pilot and the nine overseas tourists were killed in the accident.
- 3.50 On 30 December 1989, a Cessna 207 ZK-DAX and Cessna 207 ZK-DQF, collided in mid-air over Milford Sound Piopiotahi. The two aircraft were departing from the Milford Sound Piopiotahi area for Queenstown when a collision occurred. ZK-DAX was landed safely with no injuries, but ZK-DQF fell into the Sound. The pilot and six passengers of ZK-DQF were killed in the accident.
- 3.51 On 1 March 1992, a Cessna 207A ZK-FTL had a forced landing in the Cleddau River near Milford Sound Piopiotahi Aerodrome. Due to the engine stopping, an area of dry riverbed provided the only option for a forced landing. A defective fuel control unit was the likely source of the problems experienced. The sole occupant was the pilot who was not injured.
- 3.52 On 18 April 1999, a Cessna 206 floatplane ZK-EKJ on a round trip scenic flight from Te Anau to Milford Sound Piopiotahi, struck the top of a vertical craggy mountain ridge. The pilot and four

²⁷ <https://www.airways.co.nz/media-centre/media-statements/airways-reviews-air-traffic-service-levels-at-seven-regional-aerodromes/>, accessed on 30 January 2021

²⁸ Proposal Withdrawal of AFIS from Milford Sound Piopiotahi Aerodrome: Aeronautical Study and Alternative Operational Solutions, Navigatus Consulting for Ministry of Transport, September 2020, page 6

passengers died during the impact. The pilot probably attempted to cross the ridge crest at low level and might have misjudged the height of the ridge top because of visual illusions or distraction. Some localised turbulence or downdraughts and the fast speed of the aircraft may have contributed to the accident.

- 3.53 On 23 March 2001, a Hughes 369D helicopter ZK-HMN had an in-flight engine flameout, 12.5 km northwest of Milford Sound Piopiotahi. The pilot landed the helicopter in trees on a mountain slope at about 3000 feet. The pilot and the crew member on board the helicopter were uninjured.
- 3.54 On 19 January 2002, a Cessna 207 ZK-SEV collided with terrain in the Gertrude Saddle area, 11 km southeast of Milford Sound Piopiotahi. The pilot and all five passengers on board died in the collision. The aircraft probably had not reached a suitable altitude to safely cross over Gertrude Saddle, and the pilot probably left his decision too late to turn back in the valley to gain more height. Safety issues identified included the lack of mandatory mountain flying training.
- 3.55 On 5 September 2009, a Cessna 207, ZK-DEW aircraft with five tourists on board a scenic flight to Milford Sound Piopiotahi had a starting incident resulting in a runway incursion at Queenstown Airport. Nobody was injured in the incident.
- 3.56 There is a strong safety culture among the operators and pilots who fly into Milford Sound Piopiotahi with no major incidents in the last 18 years. The skill, dedication and professionalism of the pilots and efforts of the operators, QMUG and other industry participants have contributed to this positive outcome. However, past crashes do demonstrate the safety challenges in and around Milford Sound Aerodrome.
- 3.57 The proposed withdrawal of AFIS at Milford Sound Aerodrome would take away safety in the form of personnel on the ground who are aware of the locations of all planes and helicopters to one another while not actually flying a plane or helicopter. AFIS also has a key role in the Milford Sound Aerodrome Emergency Plan²⁹ assuming initial responsibility for control and coordination of emergency response until such time as the Milford Sound Emergency Response Team (MERT) can take control of the situation. If AFIS is withdrawn, the Aerodrome Emergency Plan would need updated, and there would be a risk of a delayed response to any incidents.

EMERGENCY SERVICES IN MILFORD SOUND PIOPIOTAHİ

- 3.58 The MERT is a volunteer unit responsible to Fire and Emergency NZ. It was established in February 2009 by a Constitution between the Southern Rural Fire Authority (precursor to Fire and Emergency NZ) and MERT. The Constitution is underpinned by a Memorandum of Understanding (MOU) between Southland Emergency Services, allied services, and local contributing agencies in Milford Sound Piopiotahi. The MOU identifies how high-level coordination will operate and what each agency will contribute to MERT.
- 3.59 MERT is the only emergency service provider based at Milford Sound Piopiotahi, and there are no emergency services located at the airport. MERT is located some 350 metres from the aerodrome in Gravelpit Lane within the Cleddau Residential Area and is responsible for the provision of initial firefighting, rescue, and medical services in the Milford Sound Piopiotahi area. It is comprised of volunteers from the Milford Sound Piopiotahi area and supports emergency incidents as far as The Divide on Milford Road, almost halfway toward Te Anau.
- 3.60 Fire and Emergency NZ has a role for an Emergency Response Coordinator to coordinate MERT, who is also qualified as a pre-hospital level care paramedic. This role is challenging in Milford Sound Piopiotahi due to isolation of the location, lack of any dedicated person able to provide a higher-level medical response or first aid training to members of MERT, the constantly changing team membership due to the seasonal nature of most jobs in Milford Sound Piopiotahi and the traveling nature of staff. In addition, there are difficulties in getting staff trained, partly due to the turnover noted above, and partly because of the way work is rostered - staff are either 'on' in

²⁹ Milford Sound Piopiotahi – Aerodrome Emergency Plan, Ministry of Transport, 2015

which case they are at Milford Sound Piopiotahi, but working 12-hour days, or they are 'off', in which case they are away from Milford Sound Piopiotahi.

- 3.61 All other emergency services, including St John Ambulance and the New Zealand Police, are located 120km away in Te Anau, but this is counterbalanced by the experience of MERT and the Milford Sound Piopiotahi communities in being able to manage significant events on their own, even in the event that the Homer Tunnel is closed, which would further delay help arriving. In this case, the aerodrome is the only remaining lifeline. In an emergency situation, such as those demonstrated in the February 2020 flood events, helicopters do not necessarily have to rely on the aerodrome, but still require a suitable operational space to be provided.
- 3.62 The aerodrome itself provides for the ability to evacuate people in the event of a natural disaster leading to the closure of the Milford Road, assuming that the aerodrome itself is not impacted by a natural disaster or meteorological conditions that render it inoperable.
- 3.63 The future of the aerodrome is considered in the tourism workstream report including a proposal to discontinue fixed wing flights after a suitable transition period while retaining rotary wing flights and the ability for fixed wing operators to overfly Milford Sound Piopiotahi. This change is expected to still adequately provide for access to Milford Sound Piopiotahi by high net worth but time poor visitors and to provide for a suitable level of resilience, including the ability to evacuate by air, in the event that a natural disaster or meteorological conditions cause the Milford Road to be closed. As noted in the following section, Te Anau Airport has ample capacity to accommodate growth without the significant safety and operational challenges of the Milford Aerodrome which means that there are additional options available to existing fixed wing aircraft operators to develop their business in the absence of the ability to land at Milford Sound/ Piopiotahi. This would provide the opportunity for a different model of scenic flights, increase the utilisation of Te Anau airport, including making it a more attractive proposition for some form of scheduled air service from Queenstown or elsewhere, and would drive significant economic benefits to Te Anau and the wider Fiordland and Southland regions.

TE ANAU AIRPORT

- 3.64 Te Anau Airport is located 15 kilometres from Te Anau and 5 kilometres from Manapōuri with access off State Highway 95. The airport was originally constructed by Mount Cook Airline as a base for the large Manapōuri Power station project created in the 1960s. The airport was sold to the Southland District Council (SDC) in 2002 who rebuilt the airport facilities with a new passenger terminal completed in 2009, replacing a building that is now a maintenance building. SDC widened and lengthened the sealed main runway out to 1,594 metres to encourage a return of scheduled services.



Figure 12:Te Anau Airport

- 3.65 The airport is also used by several scenic and charter flight operators, including Fly Fiordland, Air Fiordland and Milford Air which provide flights in and around Fiordland National Park and into Milford Sound Piopiotahi. It is the base for Te Anau Helicopters and the airport also receives private chartered flights. In addition, the airport terminal hosts community functions and hangar space is available for leasing.

3.66 Landing fees range from \$17.50 for helicopters and aircraft <2,000kg through to \$322 for aircraft > 20,000kg (inclusive of GST). Payment by deposit in the mailboxes by the brown shed on the north side of the fuel station. Ground handling services and ground power are available at a fee.

Table 3: Comparison of Te Anau and Milford Sound Aerodromes

Element	Te Anau Airport	Milford Sound Aerodrome
Runway	1,594 metres sealed	782 metres sealed
Aircraft	All Air NZ domestic turboprops (ATR-72 with “hot and high” take-off)	Small fixed wing aircraft and helicopters
Approach/ Departure	Straightforward (minor turn required after take-off)	Challenging. Minimum altitude 5,000 feet – if cloud below this level, flying not safe. 8,000 feet around Homer Tunnel due to avalanche operations. Downwind take off often required.
Aircraft parking	No issue	Often limited and congested
Terminal	Yes	No
Weather	Very limited impact on operations. Fog on five days a generally year in May ³⁰ .	Significant impact. Can change very quickly. Often turbulence crossing the main divide. Quite possible for flights to arrive from Queenstown not to be able to return due to deteriorating weather conditions in the afternoon. Airways is suspending AFIS at Milford Sound Piopiotahi. Reliance on Met Service aviation forecasts. Wind problematic for helicopters.
Traffic	Very limited traffic. 1,905 passengers total in 2019. From 423 landings (= 1.15 landings per day) ³¹	Up to 240 movements per day in summer, including helicopters. Peak 10am to 4pm but busy from 8:30am to 5:15pm
Fuel on site	Yes	No. Except for Milford Helicopters.
Emergency Services	Fire and Emergency NZ 5.2km in Manapōuri, St John Ambulance and NZ Police 15 km.	MERT 350 metres. St John Ambulance & Police 120 km.
Other risks	Bird strike (September to April) Fog (5 days a year in May)	Weather; other traffic; challenging topography; updraughts; downdraughts; wind shear. Bird strike.
Airspace	Uncontrolled (visual flight rules – common frequency zone)	Uncontrolled (visual flight rules – common frequency zone but so much traffic at peak times that not all movements are reported to other pilots). Radio communication black spots. Intense workload pressure on pilots on take-off and approach. Proposal to withdraw AFIS.

³⁰ Information supplied by Lee MacGillivray, Te Anau/ Manapouri Airport Operations Manager, Southland District Council, 18th June 2020

³¹ Information supplied by Lee MacGillivray, Te Anau/ Manapouri Airport Operations Manager, Southland District Council, 18th June 2020

PUBLIC TRANSPORT

- 3.67 Unlike virtually every other element of tourism in Aotearoa/ New Zealand, public transport (generally in the form of coach-based day trips starting and finishing in Queenstown and to a lesser extent Te Anau), plays a significant role as an access mode to Milford Sound Piopiotahi.
- 3.68 Numerous operators, generally part of one of the Milford Sound Piopiotahi cruise operations, offer day return trips from Queenstown and Te Anau. The quoted travel return times from Queenstown are 12 hours 15 minutes through to 13 hours return. In reality, the return trip can end up being closer to 13 hours to 13 and a half hours. Departure times are generally very early out of Queenstown to meet the 1pm cruise departures from Milford Sound Piopiotahi.

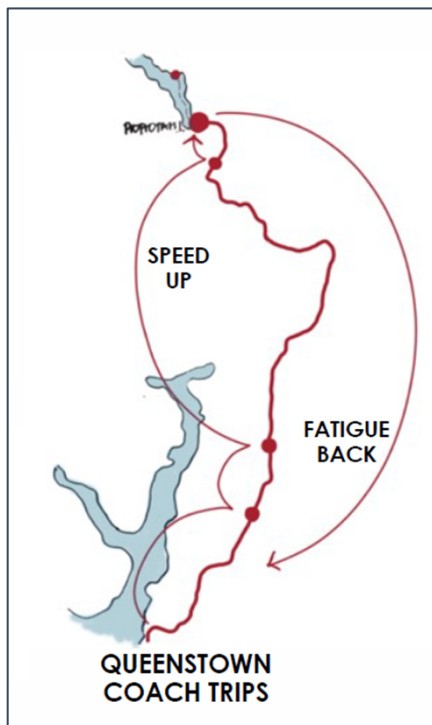


Figure 13: Current Queenstown Coach Trip Model

- 3.69 A typical day trip from Queenstown would involve a very early start for visitors in Queenstown, leaving before 7am to avoid congestion, travelling along the Kingston Arm of Lake Wakatipu and through northern Southland, paralleling the Round the Mountains Cycle Trail as far as Five Rivers, before turning right on to State Highway 97 to Mossburn and then State Highway 94 to Te Anau for a rest break. From there, it is about two and a half hours to Milford Sound Piopiotahi with stops at one or two of Mirror Lakes, Monkey Creek and The Chasm along with a toilet break at Knobs Flat. Arrival in Milford Sound Piopiotahi is just in time for the 1pm, cruise returning at 2:45pm and departing Milford around 3pm. Around 5:15pm there is a half-hour rest break in Te Anau and a return to Queenstown around 8pm in the evening.
- 3.70 By contrast, exactly the same experience out of Te Anau is a seven-hour trip, leaving Te Anau at 10am and arriving back in Te Anau at 5pm. Alternatively, longer day trips are available out of Te Anau which enable more and longer stops on the Milford Road; a longer cruise in Milford Sound Piopiotahi and overall a more immersive and less rushed visitor experience.
- 3.71 Key challenges from an operational point of view include the following.
- Congestion in Queenstown.
 - Slow circulation to do hotel pick-ups in Queenstown Town Centre.

- Pick-ups at the bus stops on Frankton Road (negatively impacting Queenstown urban bus service).
- Congestion at the Frankton Hub where urban bus services; Milford Sound tours; long-distance buses; Ubers; taxis and drop-offs and pick-ups jostle for limited space).
- Awkward exit from the Frankton Hub generally requiring a U-turn at the BP Roundabout.
- The reverse of the above in the evening with drop-off en route to Queenstown Town Centre.

3.72 Driver hour rules and break requirements³² heavily influence how the bus journey is structured – which is why rest breaks take place in Te Anau to meet legislated requirements about the timing and length of driver rest breaks. Bus driver hours are capped at 14 hours with a nine-hour break before the next shift and the requirement for rest breaks every two hours or so. Given the impact of the issues listed above, there is very little margin for delay in the return trip from Milford Sound Piopiotahi. Issues such as crashes on the road; issues with the Homer Tunnel or just general traffic delays means that it is very easy for bus drivers to exceed their maximum working hours. While the bus drivers are professional and very familiar with the route, driver fatigue can become an issue towards the end of a very long working day, especially if following previous days of doing the same trip.

3.73 There are significant visitor experience impacts from the lengthy day trip experience. For one thing, it means a very long day of travelling. On the trip to Milford Sound Piopiotahi, there are great views on the journey along the Kingston Arm of Lake Wakatipu, but the viewing points are on the other side of the road and not able to be used by buses. The scenery between Kingston and Te Anau is relatively uninteresting by the standards of New Zealand’s frequently stunning scenery. The breaks in Te Anau are a function of meeting bus driver requirements as well as customer needs. The consequence of this is very short and hurried stops at the key scenic lookouts on the Milford Road as the pressure of meeting the boats growing by this point. By the time they get to Milford Sound Piopiotahi, visitors have already been on the road for over five hours, which means that they could be less engaged with the cruise element of the journey. The lengthy return trip to Queenstown is often a time to sleep for large part of this journey. Anecdotal evidence from bus drivers is that they turn up the heat on the buses to help customers sleep on this journey. The rest break in Te Anau is again to give drivers a needed break and is less useful for customers who are often keen to get back to Queenstown at this stage. The final arrival in Queenstown is often slow and punctuated with numerous stops to let customers off at the Frankton Hub, at bus stops along Frankton Road and drop off at hotels in the town centre.

3.74 Finally, the operating model of Queenstown based day trips is more beneficial to the Queenstown visitor economy than to Milford Sound Piopiotahi as it requires accommodation in Queenstown at both ends. All the operators are Queenstown-based, and their drivers live in Queenstown. Often the only money that gets spent in Milford Sound Piopiotahi is for the cruise itself; any food or beverage purchased on the cruise and the Milford Sound Levy. While Te Anau makes a more logical leaping off point for exploring Fiordland National Park and Milford Sound Piopiotahi, it is undermined by perceptions of a weaker visitor offering and no options available for domestic and international flight connections with the consequence of a relatively small proportion of international visitor flows being to Te Anau and onwards from there via the Southern Scenic Route to Invercargill.

THE OPERATING MODEL FOR THE MILFORD ROAD

3.75 As the Milford Road in its entirety is part of the New Zealand state highway network, it is 100 percent funded by the National Land Transport Fund. It is managed by the Milford Road Alliance, an alliance between Downers New Zealand and Waka Kotahi. Operational costs of the road are

³² <https://www.nzta.govt.nz/commercial-driving/law-changes-what-you-need-to-know/land-transport-rule-work-time-in-large-passenger-service-vehicles-2019> accessed on 30 January 2021

estimated at around \$9 million per year, excluding any capital improvements apart from minor maintenance projects.

- 3.76 For a 240-kilometre round trip from Te Anau to Milford Sound Piopiotahi, assuming 10l/ 100km fuel use would generate \$15.96 for the National Land Transport Fund. Annual average daily traffic in 2016 was 957 multiplied by 365 days = 349,305 vehicle trips per year of which 95% were light vehicles (5% buses) or 331,840. This is estimated at \$4,977,596.25 in the fuel tax element going to the National Land Transport Fund, which is far below the cost of operating the road. Given the severe crash history on the Milford Road and the high cost of often having to helicopter car crash victims substantial distances, the \$1.44 per trip in ACC motor vehicle levy would generate \$477,849.60 to the Accident Compensation Corporation to cover treatment and rehabilitation of the victims of transport crashes. Note that road policing and emergency services costs are not included in the operating costs of the road.
- 3.77 Fuel excise and RUC (Road User Charges) revenue for the 240-kilometre round-trip between Te Anau and Milford Sound Piopiotahi is estimated at \$4,977,596.25, around 55% of the road's annual operating costs. There shows poor alignment between funding and beneficiaries. New Zealanders pay 100% of the cost of the road but are only 23% of the users. International visitors are 77% of the users of the road but make only a partial contribution to its operating costs (and none at all to any capital improvements). The international visitor share of the estimated fuel excise revenue is \$3,832,749.11 or 43% of the cost of operating the road.
- 3.78 On top of the operating costs are any capital cost improvements such as the current \$25 million investment in upgrading the Homer Tunnel to modern safety standards. This upgrade includes fire and life safety systems, including the installation of radar and incident detection cameras, remote tunnel monitoring from Te Anau, active lighting, barrier arms, and a power systems upgrade; the construction of new emergency refuges inside the tunnel for people potentially caught during an emergency (a fire or an earthquake); the installation of a new forced ventilation system; a deluge system to control/limit a fire and an upgrade to the Eastern tunnel portal area, a new viewing area, an avalanche mitigation system and rockfall protection above the tunnel portal, and dual-laning for winter traffic management³³.
- 3.79 The Milford Road Alliance is a partnership between Waka Kotahi and Downer NZ to ensure the safe and efficient management of activities on State highway 94 between Te Anau and Milford Sound Piopiotahi. This includes avalanche control, incident response, managing the Homer Tunnel and general maintenance for the route. The Alliance team is based in Te Anau. This ensures local ownership and decision making around the day-to-day operation of the highway, timely responses to issues and opportunities, and that the needs of customers using this key tourist route are met³⁴.

³³ <https://www.beehive.govt.nz/release/homer-tunnel-upgrade-jobs-and-improved-safety>, accessed on 30 January 2021

³⁴ <https://www.nzta.govt.nz/projects/sh94-milford-road/road-management/>, accessed on 30 January 2021



Figure 14: Alpine Traffic Control Centre by Homer Tunnel

- 3.80 In addition, it operates the Alpine Traffic Operations Centre near the eastern portal of the Homer Tunnel which is focused on the safe operation of the tunnel and monitoring weather conditions with a particular focus on avalanche risk.
- 3.81 The Milford Road Alliance is generally the first responder to crashes in the Homer tunnel and to the southeast towards Te Anau (noting an overlap of responsibilities between MERT and the Milford Road Alliance between the Homer Tunnel and The Divide). This is due to the fact that their staff are on the road and are often the first people to come across a crash or other incident, or members of the public report the incident to the Milford Road Alliance directly.

FINDINGS AND CONCLUSION

- 3.82 The “race to the boat” is driving many other issues by all modes to Milford Sound Piopiotahi. The focus on cruise as the primary visitor experience means that Milford Sound Piopiotahi and the Milford Road suffer from a “four hours a day, four months a year” issue. This leads to significant tidal flows into and out of Milford Sound Piopiotahi by bus, plane and private vehicles timed around key cruise boat departure times which detracts from the quality of the visitor and driving experience and leads to potentially significant safety issues.
- 3.83 While Milford Sound Piopiotahi and the Milford Road have a “four hour a day, four month a year” issue, but they are by no means congested overall. This is evidenced by the arrival of up to 2,000 visitors around the 1pm cruise departure times at Milford Sound Piopiotahi with the large majority of these visitors leaving again around 3pm for the return trip to Te Anau, when compared to the overall traffic volumes across the day.
- 3.84 By spreading the demand over a wider time of day and year along with a move to more sustainable transport would enable Milford Sound Piopiotahi to accommodate significant growth in the number of visitors while providing a much better visitor experience and a more sustainable transport experience enabling visitors to engage more with the Milford Road and with Milford Sound Piopiotahi itself.
- 3.85 Changing the destination and the Milford Road to a richer range of experiences over a broader time of day and time of year span are key to addressing the transport challenges as well a more even flow of visitors across a broader span of the time of day and year.
- 3.86 Visitor experience is a key element of transport and access, but the quality of the transport experience has not received as much attention as it may deserve. As such, improving the visitor experience on the Milford Road and at the destination is key to improving the transport and access experience.

- 3.87 On the face of it, an increased role for public transport could be key for both improving the Milford Road experience for visitors “eyes on the scenery, professional driver with eyes on the road” but would need to be delivered with better destination management to overcome all of the challenges presented by the status quo.
- 3.88 Also, key to this is filtering the flow of vehicles into and out of Milford Sound Piopiotahi in such a way as to provide a safer, less hurried, and more pleasant visitor experience both on the Milford Road and in Milford Sound Piopiotahi itself.

4 LONG LIST: POSSIBLE OPTIONS

4.1 The summary of findings at the end of the baseline report section clearly makes a case for change to transport and access to Milford Sound Piopiotahi. In essence, these are:

- i. The “race to the boat” is the primary issue, driving many other issues by all modes to Milford Sound Piopiotahi.
- ii. Milford Sound Piopiotahi and the Milford Road suffer from a “four hour a day, four month a year” congestion issue but they are by no means congested overall. By spreading the demand over a wider time of day and year along with a move to more sustainable transport options would enable Milford Sound Piopiotahi to accommodate growth.
- iii. Changing the destination and the Milford Road to a richer range of experiences over a broader time of day and time of year span key to addressing the transport challenges
- iv. Improving the visitor experience on the Milford Road and at Milford Sound Piopiotahi is key to improving the transport and access experience, remembering that the journey itself is a key part of the visitor experience.
- v. An increased role for public transport could be key for both improving the Milford Road experience for visitors “eyes on the scenery, professional driver with eyes on the road”.
- vi. Key to this is filtering the flow of vehicles into and out of Milford Sound Piopiotahi in such a way as to provide a safer, less hurried, and more pleasant visitor experience both on the Milford Road and in Milford Sound Piopiotahi itself.

4.2 The long list main ideas were as follows:

- i. Develop new transport models to manage visitor flows.
- ii. Develop a compelling suite of experiences in Milford Sound Piopiotahi to encourage visitors to stay longer and contribute to the local economy.
- iii. Redesign Milford Village to lift the quality of the built environment and reflect its world-class status.
- iv. Enhance the Milford corridor experience to expand the options available to visitors.
- v. Develop Te Anau as a sub-regional visitor hub to encourage more visitors to stay overnight.
- vi. Strengthen the visitor offering around Te Anau to extend the visitor network.
- vii. Use tourism to improve conservation and environmental outcomes.
- viii. Establish new governance and management structures to support implementation of the master plan.

4.3 We have identified the following potential access solutions:

The long list items for transport and access were developed through an iterative process with inputs from the phase 1 work; meetings with reference groups; ideas from Mana Whenua; ideas generated within the team and the input of the project working group and the project governance.

Table 4: Long List Transport and Access Elements

Item	Description	Rationale	Project and stakeholder feedback	Shortlist	Preferred option
<p>Main idea 1: Develop new transport models to manage visitor flows. (Ref ID 31, 57)</p>	<p>Filter vehicles based on actual needs. Travel between Te Anau to Milford Sound Piopiotahi is delivered by public transport for visitors and permitted self-drivers.</p>	<p>. The current “race to the boat” delivers a poor visitor experiencing for people arriving by all modes and turns Te Anau into a stop and the corridor into a couple of quick stops.</p>	<p>Broad support to a more managed approach to transport and access to Milford Sound Piopiotahi via the Milford Road, especially for international visitors. Strong concern from Mana Whenua about treaty rights to access to taonga and mahinga kai. Te Tangi o Taurira (section 3.314) refers to customary use is the on-going access to, and sustainable use of, mahinga kai resources and that for Ngāi Tahu ki Murihiku, customary use is consistent with conservation of species. The concept of kaitiakitanga is an integral component of resource use.</p>	<p>Yes</p>	<p>Yes</p>
<p>Sub-idea 1.1: Implement access model differential pricing or ballot/ quantity-based system (Ref ID 40, 41, 52, 66, 151, 153, 154, 155, 159)</p>	<p>Provide corridor passes for locals, workers, non-tourists. Provide hop-on, hop-off or tour bus options for visitors. Electronic pass access to Milford Sound Piopiotahi for hunters and fishers (including trailer boats)</p>	<p>Either a mixed access (car and public transport) or managed access (visitors by public transport) model with a range of variants.</p>	<p>Strong desire to have a strong and robust rules framework around any managed access model, especially as to who should be subject to it; how much it would cost and who would be the beneficiaries of any money collected. Some self-drive access would need to be retained for hunting, fishing, back country tramping.</p>	<p>Yes</p>	<p>Yes</p>
<p>Sub-idea 1.2: Carbon neutral vehicles – hydrogen or electric bus fleet</p>	<p>Linked to sub-idea 1.1 above. Develop green travel options such as electric or hydrogen propelled buses for the corridors.</p>	<p>The Fiordland National Park is part of Te Wāhipounamu World Heritage Area. It is status as pristine environment would best be served by transport options that maintain its unspoiled essence.</p>	<p>General support for a more sustainable access model but concerns about practicalities such as technical feasibility and whether this project should be a leader or a fast follower, given how quickly the technology is developing in this space.</p>	<p>Yes</p>	<p>Yes</p>

Item	Description	Rationale	Project and stakeholder feedback	Shortlist	Preferred option
Sub-idea 1.3: Develop transport infrastructure to enable managed access models – new park & ride at Te Anau, new bus terminal and bus layovers on Milford Road	Linked to Sub-idea 1.1 above. The transport infrastructure to support implementation of Sub-idea 1.1.	Supporting infrastructure to sub-idea 1.1. Could include a park and ride and a bus terminal (integrated with a visitor centre) in Te Anau; bus stops along the Milford Road and a drop-off/pick-up point in Milford Sound Piopiotahi. Would require supporting infrastructure such as a bus depot and staff accommodation in Te Anau and some bus lay-up discreetly placed back-of-house in Milford Sound Piopiotahi.	General support but... Strong desire that bus should be a discreet presence in Milford Sound Piopiotahi, and bus layup should be limited and back of house. Desire that any bus stop infrastructure on the Milford Road be discreet and fit well with its pristine context.	Yes	Yes
Sub-idea 1.4: Decrease parking supply and improve parking management at Milford Sound Piopiotahi Ref ID 152	Reduce parking capacity at Milford Sound Piopiotahi by 60% and ballot, price or otherwise ration access to this parking. Link to sub-idea 2.7 to move parking away from the foreshore.	Self-drive restricted during peak demand periods or year-round. Reduce the visual dominance of parking close to the foreshore and make it a more discreet presence in Milford Sound Piopiotahi	General support but a range of detailed issues to be worked through in a mixed access model where some drive-in vehicle access is retained (e.g., equity, price and how to fairly ration access to a very limited resource)	Yes	Yes
Sub-idea 1.5: Queenstown - Te Anau feeder connection	Queenstown is a key source point for visitors to Milford Sound Piopiotahi so a strong feeder connection to Te Anau is an ongoing requirement.	At present, a significant proportion of Milford Sound Piopiotahi visitors do this as a day trip from Queenstown, which has strong domestic and international air connections.	General support but concern about how to manage the transition from a Milford day trip out of Queenstown approach to one that feeds into Te Anau.	Yes	Yes
Sub-idea 1.6: Lake Wakatipu ferry linking Kingston Flyer to Lumsden and then bus to Te Anau	Reinvention of the early ways to travel between Queenstown and Lumsden via a combination of boat on Lake Wakatipu to Kingston, train to Lumsden, then bus to Te Anau.	Creation of a new visitor experience and tapping into a resurgence of rail tourism.	Significant concerns around economic viability and feasibility of the rail element, given that much of the track no longer exists, replaced by the Round the Mountains cycleway. Would create a slow, awkward trip involving two modal transfers for a journey that currently takes two hours to drive.	No	No

Item	Description	Rationale	Project and stakeholder feedback	Shortlist	Preferred option
Sub-idea 1.7: Additional safety infrastructure focusing on upgrades to avalanche protection and road safety	Targeted improvements to the Milford Road to address its high crash history and resilience.	Significant safety and resilience issues on the Milford Road as identified in the baseline reports.	General support but if mixed or managed access is introduced, most travel will have professional bus drivers or other drivers already familiar with the area. Most crucial to address resilience issues from rockfall, snow/ice and avalanches.	Yes	Yes
Sub-idea 1.8: Use ITS to provide information and help manage parking, traffic and driving conditions	Real-time information and traffic management on the Milford Road and to support the proposed managed access model.	Leverages the Milford Fibre project to provide the IT backbone to improved road management and to the managed or mixed access models if adopted. Currently no cell phone coverage on the Milford Road	General support but questions about how to power the infrastructure in the absence of reticulated electricity and in an area with some of the world's highest rainfall, limiting the potential of solar power.	Yes	Yes
Sub-idea 1.9: Increase cycling infrastructure in the Te Anau Basin	Build on the existing Lakes2Lake cycleway between Te Anau and Manapouri; extend it towards Te Anau Downs and to, but not within, the national park. Also, connections to Round the Mountains cycleway at Mavora Lakes.	Build on New Zealand's growing reputation for cycle tourism which has strongly supported the growth of domestic tourism (e.g., Central Otago Rail Trail) by connecting Te Anau to the Ngā Haerenga/ NZ Cycle Trail Great Rides network.	Concerns about the impact of cycling infrastructure within the national park. Support for expanded cycling opportunities elsewhere.	Yes	Yes (but primarily for tourism)
Sub-idea 1.10: Consider major infrastructure upgrade – West Coast to Milford connection. Queenstown to Milford via alternative route (Wakatipu + rail)	Various proposals such as Haast to Hollyford; bus tunnel to the Dart Valley and light rail.	To create new routes into Milford Sound Piopiotahi from either Queenstown or from the West Coast.	Concern that such options had been raised and rejected by the government in the past. Concerns that such proposals would change tourism flows in a manner not supportive of the objectives of the masterplan. Questions of technical feasibility (such as the lack of reticulated electricity). Concerns about significant environmental impacts in a world heritage area.	No	No

Item	Description	Rationale	Project and stakeholder feedback	Shortlist	Preferred option
Sub-idea 1.11: Add a two-way tunnel adjacent to Homer Tunnel	Duplicate existing Homer Tunnel to enable uninterrupted two-way traffic flow.	Existing traffic-signal controlled one-way tunnel acts as a constraint on access to and from Milford Sound Piopiotahi.	Concerns about cost, feasibility and need. If mixed or managed access model introduced, traffic volumes likely to significantly decrease.	No	No
Sub-idea 1.12: Enhance Te Anau airport – including scheduled air service e.g., to Queenstown	Te Anau Airport has potential to have a bigger role in supporting Te Anau and as a base for tourism flights to Fiordland National Park with the potential for scheduled flights to Queenstown and elsewhere.	Significantly increasing the use of the underutilised Te Anau Airport is key to significantly enhancing Te Anau as the base to explore Fiordland National Park including the Milford Road.	Strong support in principle as Te Anau Airport is currently over capitalised and underutilised. But would need concerted effort to attract scheduled and tour aircraft operators to the airport. Significant work needed to test viability of scheduled services which would be most likely by a smaller operator.	Yes	Yes, noting significant challenges
Sub-idea 1.13: Enhance southern scenic route to Invercargill – make it a state highway	Strengthen the Southern Scenic Route to Invercargill	This would help make it a primary route as a state highway with a single route number. For example, State Highway 94 (or SH 99) could extend from Milford Sound Piopiotahi to Invercargill with SH95 being the route from Te Anau to Gore.	Important move to support more visitors to Murihiku/ Southland but requires all of the other pieces of the puzzles, especially around Te Anau to help create this pivot in visitor flows. Requires more than just signage, incorporation into the state highway network and a rebrand.	Yes	Yes (but largely advocacy driven by a stronger Te Anau)
Sub-idea 1.14: Sound to Sound connection – coastal sea connection	A coastal sea journey, for example from the West Coast to Milford Sound Piopiotahi or one of the other sounds.	While Milford Sound Piopiotahi and Pātea/ Doubtful Sound are well established, there is no option (apart from cruise ships) to explore the coast.	Questions about the viability of small boat operation in the rough water of the Tasman Sea. Desire to protect the special nature of Pātea/ Doubtful Sound.	No	No
Sub-idea 1.15: Strengthen connections from Te Anau east and south	Stronger linkages towards Tuatapere and Lumsden Related to sub idea 1.13above but extended east to Lumsden	To encourage visitors to spend more time and money in Murihiku/ Southland instead of most visitors coming from and returning to Queenstown.	Support but risk of diluting the message of the Southern Scenic Route via Tuatapere. Eastern route to Lumsden has less scenic value than the southern route and could lead visitors to bypass Invercargill.	Yes	Yes (but largely advocacy)

Item	Description	Rationale	Project and stakeholder feedback	Shortlist	Preferred option
Sub-idea 1.16: Lake Te Anau ferry connection to Te Anau Downs	Ferry connection between Te Anau and Te Anau Downs which could be the first stage of the journey to Milford Sound Piopiotahi in sub-idea 1.1.	To partly replicate the Milford Track experience which starts with a boat ride on Lake Te Anau.	Concerns about how viable this idea would be given the lake conditions (W and NW winds making the trip unpleasant at times) and the high cost of ferry operation. Would also require significant sea and land side infrastructure at Te Anau Downs if there were to be the transfer point to a tour or hop on hop off bus trip to Milford Sound Piopiotahi	No	No
Sub-idea 1.17: Improved parking management at Milford Sound Piopiotahi - move from water edge	Parking managed by ballot/ pricing/ quota or other mechanism and moved away from the water's edge. Pre-reservation and pre-payment required.	Parking is currently on a first-come, first-served basis at some distance from the cruise terminal. Demand exceeds supply in the middle of the day in the middle of the tourist season but significantly underutilised at all other times. Parking management is a demand management tool to ensure that parking is available when required through a mixture of pricing and supply management tools.	Strong support for improved parking management but very careful consideration would be needed about how this is rolled out in practice, given that demand is likely to significantly outstrip supply.	Yes	Yes
Sub-idea 1.18: New parking structure at Milford Sound Piopiotahi	New multi-deck parking structure at Milford Sound Piopiotahi to accommodate growth in travel.	Assumes a continuation of the status quo of unmanaged access. As the peak boat trips are close to capacity at the peak of the tourism season, adding parking capacity would add very little value.	No support for additional parking at Milford Sound Piopiotahi. In particular, a structured parking solution is highly incompatible with its location in an area of great scenic beauty in a world heritage area.	No	No

5 RECOMMENDED OPTION

LONG LIST TO SHORT LIST FILTERING

- 5.1 The filtered long-list items were presented to the Governance Group's fifth meeting. The transport and access related move was entitled "Develop new transport models to manage visitor flows." The long list items for transport and access, listed above, were evaluated according to the following criteria:
1. A moving experience where the journey to Milford Sound Piopiotahi is as exciting as getting there.
 2. Manages access that supports the quality of place and environment.
 3. Contributes to funding conservation.
 4. Supports authentic expression of mana whenua values.
 5. Uses technology to enhance the visitor experience with the incorporation of climate change (reducing carbon footprint) mitigation measures.
 6. Helps manage resilience and risk on Milford Road and in Milford Sound Piopiotahi.
- 5.2 Additional context information was provided about the safety performance of the State Highway 94/ the Milford Road in relation to other rural state highways in New Zealand. This found the following:
- The Milford Road has the third highest rate of persistent personal crash risk on a rural state highway in New Zealand. The highest persistent high personal risk roads are SH 12 from Dargaville to Ohaeawai (1st place); SH7 across the Lewis Pass (2nd place); SH31 to Kāwhia (4th place) and SH37 to Waitomo Caves (5th place)³⁵.
 - The road has a two-star (out of five) KiwiRap rating, meaning it has "many major deficiencies such as poor alignment and poor roadside condition..."
 - It has persistent high personal risk due to challenging terrain, constrained and steep road geometry and unforgiving driving conditions.
 - Milford Road is one of the highest risk roads for an individual being in a crash in New Zealand.
 - Risk is accentuated by a high ratio of international drivers, lack of cell phone coverage, long distances, and response times to emergencies.
- 5.3 An intensive long list filtering process involving workstream review of the long list options, detailed in the Long List Transport and Access Elements table above, took place with the results of this were presented to the project working and governance groups for their input, review, and endorsement.
- 5.4 The following ideas were dropped from consideration or modified at the Governance Group meeting on 14th August 2020 as follows:
- 5.5 Sub-idea 1.6: Lake Wakatipu ferry linking Kingston Flyer to Lumsden and then bus to Te Anau. This would need to be a commercial operation transformed from past and current systems. Likely not feasible, noting that there is discussion of a limited revival of the Kingston Flyer. An alternative

³⁵ KiwiRAP website http://www.kiwirap.org.nz/scoring_bands.html accessed on 14/7/2020

could be multi-modal linkages via Walter Peak Station, Mavora Lakes and Te Anau, including bike/ hike, and ferry.

- 5.6 Sub-idea 1.9 was changed to read “Increase cycling infrastructure in Te Anau basin”. Milford Village was removed as a destination due to topographical and other constraints. This is further considered in the tourism workstream report, but the focus is on cycling for tourism and support for extensions to the Lake2Lake cycleway, completing gaps to Manapōuri and extending it to Te Anau Downs
- 5.7 Sub-idea 1.10 Consider major infrastructure upgrade – West Coast to Milford connection. Queenstown to Milford via alternative route (Wakatipu + rail) was dropped from further consideration due to concern that such options had been raised and dismissed by central government in the past; that they would change tourism flows in a manner not supportive of the objectives of the masterplan; are not currently technically feasible and would have significant environmental impacts in a world heritage area.
- 5.8 Sub-idea 1.11 “Add a two-way tunnel adjacent to Homer Tunnel” was dropped due to concerns about cost, feasibility and need. If the mixed or managed access model introduced, traffic volumes likely to significantly decrease which would obviate the need for additional roading infrastructure.
- 5.9 Sub-idea 1.14 was updated to read “Explore coastal sea connection”. There were concerns about the impact on the Southland Coastal Plan and on the tranquil qualities of Pātea/ Doubtful Sound.
- 5.10 Sub-idea 1.16: “Lake Te Anau ferry connection to Te Anau Downs” There were concerns about how viable this idea would be given the wind conditions in this part of Lake Te Anau and the high cost of ferry operation. It would also require significant sea and land side infrastructure at Te Anau Downs if there were to be the transfer point to a tour or hop on hop off bus trip there.
- 5.11 Sub-idea 1.18: “New parking structure at Milford Sound Piopiotahi”. This was included in as a comparator of what would be required if the business-as-usual business model at Milford Sound Piopiotahi were to continue as parking areas are at capacity in the middle of the day at the peak of the tourist season. Previous work by TDG (now Stantec) proposed a three-level multi-storey parking building at the rear of the existing at-grade car parking area able to accommodate about 280 vehicles. With the changes to the existing car parking areas, it is expected that there would be capacity for another 200 vehicles giving a total capacity in the main parking area for 480 vehicles. The existing overflow car park at Deepwater Basin would not be required in the short term but will be required in the medium to long term during the busiest weeks of the year. The estimated cost was \$14 million³⁶. This was dropped from the long list as it would in effect exacerbate existing issues and had very poor alignment with the Milford Opportunities Project pillars and objectives.

SHORT LISTED ELEMENTS

- 5.12 The long list main idea of “Develop new transport models to manage visitor flows” was carried through to the short list. The principal choice at the long-listing to short-listing stage was whether some private vehicle access would be retained to Milford Sound Piopiotahi (known as the mixed access model) or whether a purer model requiring all visitors to Milford Sound Piopiotahi to use a public transport option (known as the managed access model). The long list items that were carried through to the short list as part of this were:
- 5.13 Sub-idea 1.4: **Decrease parking supply and improve parking management at Milford Sound Piopiotahi.** This is very similar to sub-idea 1.17 **Improved parking management at Milford Sound Piopiotahi - move from water edge** as the intention of both is to reduce the visual impact of parking and to better manage any remaining parking.

³⁶ Parking Supply, Milford Sound Tourism, October 2018, page 18

- 5.14 Sub-idea 1.5: **Queenstown - Te Anau feeder connection.** There is likely to lengthy transition to a situation where most trips to Milford Sound Piopiotahi start in Te Anau. The day trip option from Queenstown will remain attractive for some customers and can be accommodated within the slot system with a stop at the visitor hub or park and ride in Te Anau, which is also required for driver rest break requirements.
- 5.15 Sub-idea 1.7: **Additional safety infrastructure focusing on upgrades to avalanche protection and road safety** is a core element as, even with reduced traffic volumes, the Milford Road presents numerous resilience, safety, and infrastructure challenges, attested to by its significant crash history.

Sub-idea 1.8 updated to read **“Use ITS to provide real time information, personal booking opportunities and management of parking, traffic and driving conditions”**.

- 5.16 A number of items were carried through to the short list with an emphasis on an advocacy or a market delivery approach. These items are:
- 5.17 Sub-idea 1.12: **Enhance Te Anau airport – including scheduled air service e.g., to Queenstown.** Te Anau Airport clearly has spare capacity and was once on the Mount Cook Airline tourist circuit (noting that this was primarily supported by the demand generated by the Manapouri power scheme workforce) of key visitor destinations. The re-establishment of a scheduled air service to at least Queenstown would be a key move to cement a stronger role for Te Anau as a destination in its own right. While Te Anau’s transition to a stronger role in the lower South Island’s tourism ecosystem would make the economics stronger for a scheduled service, some incentivisation by the airport’s operator, Southland District Council, might be needed to seed such a service. There is a significant amount of subsidisation of this asset currently both in cash terms and non-cash depreciation accounting. There also needs to be consideration given to the value of a scheduled service versus the costs that might be associated with it such as upgrades to fire, security, baggage handling capabilities particularly if they are needed even for a very limited scheduled service. A phasing approach would be warranted - the first phase being small aircraft running a service i.e., from the existing Milford aircraft fleet, with a second phase being larger aircraft if demand warrants.
- 5.18 Sub-idea 1.13: **Enhance southern scenic route to Invercargill – make it a state highway.** At present, only part of the Southern Scenic Route is a state highway, fully funded by Waka Kotahi. This is State Highway 95 from Te Anau to Manapōuri and State Highway 99 from Clifden to the Lorneville Roundabout on the northern outskirts of Invercargill, leaving a 66 km gap as a Southland District Council local road. As tourism is, in normal circumstances, New Zealand’s biggest employer and top foreign exchange earner, there would be significant benefit to both Southland / Murihiku and New Zealand as a whole through the likely increase in visitor flows caused by the higher profile of the whole route having state highway status.
- 5.19 Sub idea 1.15: **Strengthen connections from Te Anau east and south** is related to the previous item but expands this to the east towards Lumsden.

ACCESS MODEL

- 5.20 The features of the two Access Models are:

Table 5: Mixed access compared to Managed Access Model

Mixed Access Model	Managed Access Model
Most visitor access by bus	All visitor access by bus (some limited exceptions apply)
130 visitor priced and rationed parking spaces at Milford Sound Piopiotahi	No visitor parking at Milford Sound Piopiotahi (very limited exceptions apply)
Carbon neutral vehicles – electric bus fleet	
Te Anau transportation terminal part of visitor hub	

Mixed Access Model	Managed Access Model
	Series of hop-on, hop-off and tour bus stops along the way
	Discreet Milford Sound Piopiotahi terminal integrated with visitor hub
	Use ITS to provide real time information, personal booking opportunities and management of parking, traffic and driving conditions
	Queenstown - Te Anau feeder connection.
	Additional safety infrastructure focusing on upgrades to avalanche protection and road safety
	Enhance Te Anau airport as connected support to Te Anau visitor hub (e.g., link Queenstown to Te Anau for time poor visitors)
	Enhance southern scenic route to Invercargill – make it a complete state highway Strengthen connections to the south and east.

- 5.21 As is apparent from the table above, the only real difference between the two models is whether or not some visitor parking is retained in Milford Sound Piopiotahi. It is important to note that, similar to aviation, the retention of some private vehicle access makes very little difference to the number being moved by public transport. Assuming an average of 2.5 people per car (as per past visitor surveys), they would provide for a maximum of 650 people per day, assuming the parking spaces turn over twice per day. The peak capacity – indoor and outdoor – of the current cruise boat fleet is estimated at 2,500 and these boats are able to run multiple trips per day.
- 5.22 In addition, a number of other items from the long list were bundled into both of these options. These options were:
- Develop transport infrastructure to enable managed access models – new park & ride at Te Anau, new bus terminal and bus layovers on Milford Highway, new facilities for walking and cycling at stopping places and pinch points.
 - Decrease parking supply at Milford Sound Piopiotahi and moving it away from the water’s edge.
 - Additional safety infrastructure focusing on upgrades to avalanche protection and road safety.
- 5.23 The remaining long-list options were not included in the short list as they were not considered to deliver either on the specific workstream evaluation criteria nor the pillars and objectives of the Milford Opportunities Project. At the same time, some of the items that were retained were seen as items for public sector advocacy efforts, such as enhancing Te Anau Airport and the Southern Scenic Route to Invercargill.

SHORT LIST TO PREFERRED OPTION

- 5.24 It was agreed at the Governance Group meeting 5 to progress with the Mixed Access Model, allowing the retention of some carparking at Milford Sound Piopiotahi which would be available to New Zealand drivers licence holders, requiring pre-payment and pre-booking. This would involve a 60% reduction in current carparking numbers to 130 parking spaces with the parking moved away from the waterfront.
- 5.25 A key driver of the transport and access model formulation and decision-making was that transport and access is there to serve the place and therefore is not an end in itself. To achieve this, the transport and access workstream collaborated closely with the other project workstreams – principally conservation, tourism, with Mana Whenua (through the Mana Whenua workstream), infrastructure and resilience – with the view that transport and access would be shaped by delivering the transport and access element of the broader desired outcomes for the Milford Opportunity Project.
- 5.26 It is important to understand that similarly to how the transport and access package fits tightly with the broader project outcomes; the elements that make up the transport and access package also

work together internally to deliver the transport and access elements. As a package, their strength comes from the whole package mutually reinforcing each other, not the individual elements.

PREFERRED OPTION DETAIL

- 5.27 At the Governance Group meeting on 17 November 2020, further detail of the preferred transport and access model were communicated.
- 5.28 The objective of this model, in alignment with the pillars and objectives of the project as a whole are to create a better visitor experience; improve visitor safety and improve conservation values while moving towards Zero Carbon.

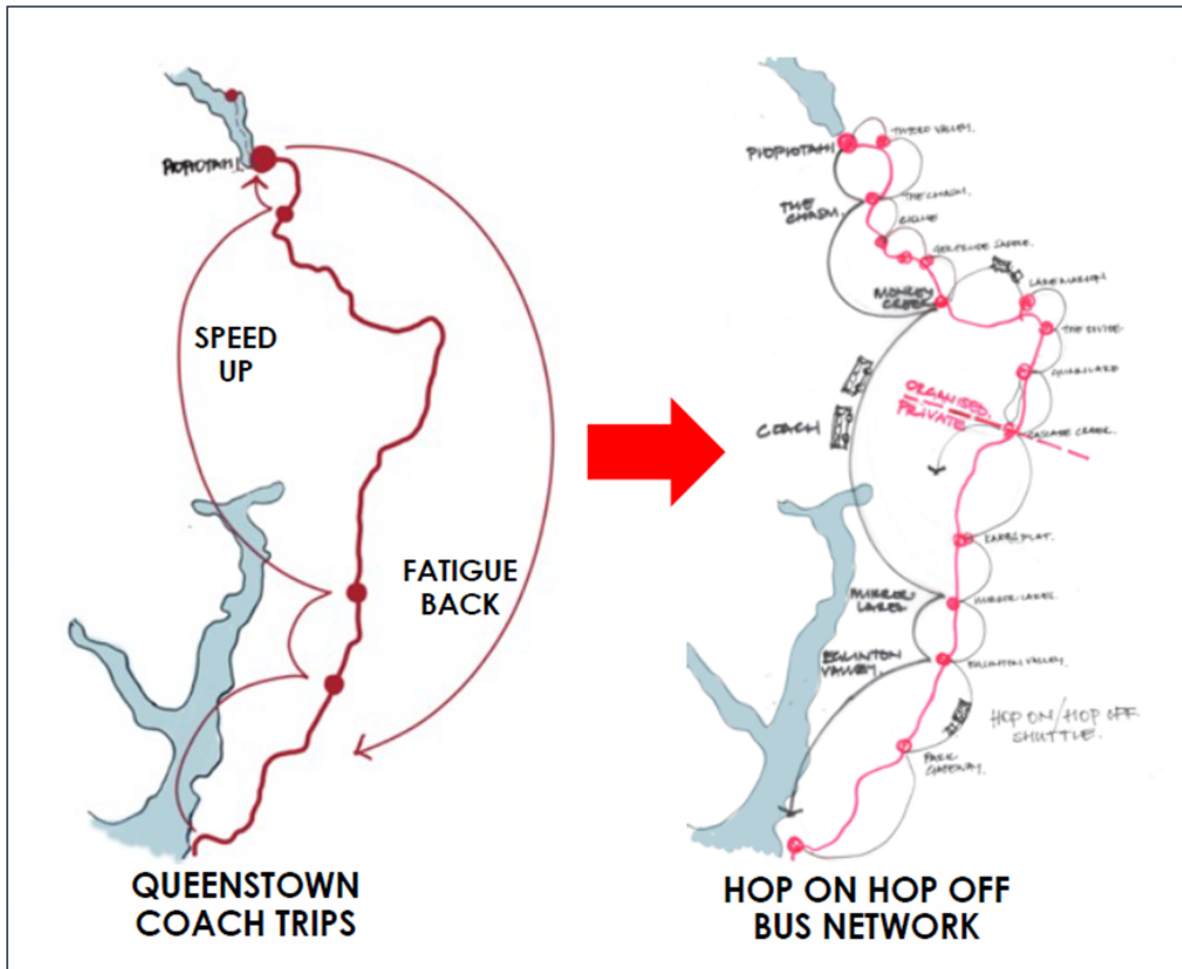


Figure 15: Current versus proposed public transport model

- 5.29 It achieves this by filtering people into Milford Sound Piopiotahi at a flow rate that supports the destination and improves the visitor experience with a public transport first model that reduces the number of private vehicles entering Milford Sound Piopiotahi and transitioning the current commercial coach fleet as it gets renewed to zero carbon buses. Under current technologies we have explored hydrogen and electric bus options. Currently available electric tour coach bus technology enables a range of 350-400 kilometres between charges, enabling the vast majority of the bus fleet to be charged overnight in Te Anau at low electricity demand times. The coach fleet is anticipated to be equipped with technology to support narration in an immersive way that would include the ability for the visitor to view the landscape through a Ngāi Tahu cultural lens.
- 5.30 Connection to a backbone fibre optic line in the corridor with cellular stations will be required which can be achieved through the Milford Fibre Project, due for completion in 2022, noting the possible need for additional tie-in points. This is important to provide on-road real-time information about bus arrivals and capacities, especially at the hop-on, hop-off bus stops. Vehicles would be

GPS located and dispatched centrally based on monitored demand. A centralised coordination centre located in Te Anau would be instrumental for slot management to optimise service efficiency.

- 5.31 Important to this is the distinction between access to Milford Sound Piopiotahi where there are significant issues around congestion at peak times and the Milford Road corridor itself (outside of the predominant flows to and from Milford Sound Piopiotahi) where there are currently fewer issues.
- 5.32 Also, important to note is that all components of the access model will need to be phased in over time, considering existing operator arrangements and investments, with appropriate transitional arrangements put in place (and subject to detailed technical and commercial feasibility studies).

CORRIDOR ACCESS

Access to the corridor is to be managed with the point of entry being either the National Park boundary or Eglinton reveal. The Te Anau Hub will be used to collect payment if this has not been previously done online. Monitoring will be considered through a number plate recognition system with pre-paid entry with monitoring at the park boundary with a barrier and turn around at Eglinton. There would be specific arrangements in place for people accessing the corridor who are not going to Milford Sound Piopiotahi, including for mana whenua, hunters, trampers, and people with pre-booked accommodation.

- 5.33 The Hop-on, Hop-off Bus Model provides access to the corridor and from the corridor to Te Anau / Milford Sound Piopiotahi with the following features:
- Stops are by request, only simple stop infrastructure required.
 - Allows for access to short, day and longer walks and accommodation.
 - Initially with 25-30 seater smaller buses at frequency dictated by demand (but not >30 minutes).
 - Will build up in frequency as demand requires.
- 5.34 Parking priority will be given to tour coaches and hop-on/hop-off buses on the Milford Road. Monitoring will be required on all corridor carparks and restrictions may be required if car park demand on the corridor cannot be managed effectively.
- 5.35 The objectives for corridor access are for:
- A quieter and more immersive experience than at present.
 - Reduced traffic volumes and without the intense peak flows of the current “race to the boat”.
 - More opportunities to experience the Milford Road, including more in-depth interpretation and authentic experience of Mana Whenua narratives.

MILFORD SOUND PIOPIOTAHU ACCESS

- 5.36 Access restricted to permitted users via:
- Tour coach (priority).
 - Hop-on/hop-off bus service (as described above in corridor access).
 - Concessionaires.
 - Private vehicles who have booked a car park (capped at 130 spaces turning over twice per day).

5.37 The proposed mature state future tour coach access model (Assuming 1,000 tour coach pax capacity per hour) has the following features:

- Approximately 200 return bus trips per day during peak season, spread across the day (Te Anau-Milford Sound Piopiotahi-Te Anau).
- Bus sizes – standard bus size a 40-seater electric bus.
- Travel modes – 90 percent of visitors arriving by bus with 10 percent by private vehicle.

5.38 There is more detail about the model in the following table, which shows how the coach access model would build up over time:

Table 6: Development of Mixed Access Bus Model

Scenarios	600 pax hour	700 pax hour	800 pax hour	900 pax hour	1,000 pax hour
Bus Fleet Size (total)	92	100	115	134	148
Bus arrivals per hour	15	18	20	22	24
Number of bus bays required in Milford Sound Piopiotahi (incl. tour and hop-on/hop-off)	8	8	9	9	9
Number of bus parks in Milford Sound Piopiotahi	11	12	15	22	26
Average daily pax in peak season	3,700	4,300	4,900	5,500	6,100
Peak day pax in peak season	4,700	5,500	6,300	7,100	7,900
Annual pax estimate (considering seasonality)	1.12m	1.27m	1.41m	1.52m	1.63m

5.39 The more direct tour bus model is estimated to take 90 per cent of visitors, providing multiple short stop opportunities along the corridor whereas at present coach tours are only able to stop at Eglinton Valley, Mirror Lakes, Knobs Flat (for a toilet break) and the Chasm. Examples of additional stop opportunities are at Lake Gunn, Monkey Creek, Homer Tunnel, Falls Creek, Tutoko Creek, and the Hollyford Valley Lookout.

5.40 The journey time from Te Anau to Milford Sound Piopiotahi in either direction is estimated at just under three hours with likely demand in the late afternoon for faster non-stop (except Knobs Flat for a toilet break) trips to Te Anau.

- 5.41 The working assumptions for the tour coach model are for 40-seater electric coaches, based on currently available electric bus technology, able to operate for 350 kilometres between charges and to be able to be recharged in two hours. Most charging would take place in Te Anau overnight, but a small number of buses would need to be based overnight in Milford Sound Piopiotahi and be charged up there. In both cases, charging would take place after 10pm when demand for electricity use is lower.
- 5.42 For the limited remaining parking in Milford Sound Piopiotahi, 130 pre-booked visitor parking spaces with priority given to New Zealanders with limited other parking for hunters, fishers and boaties. It would be expected that servicing, accommodation, and camping sites would provide for their own parking needs.

6 SUMMARY AND CONCLUSION

- 6.1 For around four hours a day for four months a year, Milford Sound Piopiotahi experiences significant congestion on the Milford Road and in Milford Sound Piopiotahi itself. Part of this is the “race to the boat” outlined in the baseline section of the report. The cause of this is that most current visitors do a day trip to Milford Sound Piopiotahi from Queenstown which requires a very early start and a very long day with a concentration of buses arriving in Te Anau; moving along the corridor and arriving at Milford Sound Piopiotahi at much the same time, focused on 1pm boat departures designed to serve the day-trip market from Queenstown. The “race to the boat” has safety consequences where visitors underestimating their travel times are tempted to drive too fast on one of the most challenging state highways in New Zealand with a broad range of safety and resilience issues.
- 6.2 The consequence of this is that the intense tidal flow of visitors creates an intense feeling of congestion and overcrowding at traffic volumes typical of a minor local road in a conventional context. Another consequence of this is that Te Anau’s role is largely one of a pitstop en route to and from Queenstown rather than being a destination in its own right and the perceived gateway to Fiordland National Park and Milford Sound Piopiotahi. An access model will centre Te Anau as the logical start and end point of visits to Milford Sound Piopiotahi
- 6.3 There is a need to provide for a better visitor experience on both the corridor and the destination and one that supports a stronger role for Te Anau as a destination and gateway. As well as one that addresses the significant safety and resilience issues on the Milford Road; improves conservation values in a world heritage area; and moves towards Carbon Zero through a transport model that better aligns with New Zealand’s clean green image.
- 6.4 The preferred option of a managed access model to Milford Sound Piopiotahi provides a development pathway that works to support projected future growth in visitor numbers in a more sustainable way that provides both a better visitor experience on the road and at the destination itself which working within the ecological and other limits of the Te Wāhipounamu World Heritage Area and Milford Sound Piopiotahi itself.
- 6.5 The preferred options works to weave mana whenua values through the corridor and the destination and to enable visitors to see through a Ngāi Tahu lens, enabling the authentic expression of cultural narratives while enabling mana whenua customary access for mahinga kai and other taonga. It has a lighter touch environmental footprint, and it provides a deeper, more immersive, and more moving experience on the road, enabling visitors to engage more deeply with the landscape and with a hop-on, hop-off bus element that enables easy exploration of all that the corridor offers. It enables visitors to make a bigger contribution to the place, both fiscally and in terms of their experience in the space while being resilient to climate, supporting conservation values and leveraging the Milford Fibre Project and emerging vehicle technologies to deliver better travel and visitor experiences.

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