Public and Active Transport Committee
7 February 2024

Meeting will be held in the Council Chamber at Level 2, Philip Laing House
144 Rattray Street, Dunedin
ORC Official YouTube Livestream

Members:
Cr Alexa Forbes (Co-Chair)
Cr Andrew Noone (Co-Chair)
Cr Gary Kelliher
Cr Michael Laws
Cr Lloyd McCall
Cr Kevin Malcolm
Cr Tim Mepham
Cr Gretchen Robertson
Cr Bryan Scott
Cr Alan Somerville
Cr Elliot Weir
Cr Kate Wilson

Senior Officer: Richard Saunders, Chief Executive

Meeting Support: Trudi McLaren, Governance Support Officer

07 February 2024 03:00 PM

Agenda Topic Page

Otago Regional Council

Public and Active Transport Committee
MINUTES

Minutes of an ordinary meeting of the Public Transport Committee held in the Council Chamber, Level 2 Philip Laing House, 144 Rattray Street, Dunedin on Thursday 9 November 2023, commencing at 9:00 AM.

PRESENT

Cr Andrew Noone *(Co-Chairperson)*
Cr Alexa Forbes *(Co-Chairperson)*
Cr Gary Kelliher
Cr Michael Laws (online)
Cr Lloyd McCall
Cr Gretchen Robertson
Cr Bryan Scott (online)
Cr Alan Somerville
Cr Elliot Weir (from 9.15am)
Cr Kate Wilson

APOLOGY

Cr Kevin Malcolm
Cr Tim Mepham

1. WELCOME

Chairperson Noone welcomed Councillors, members of the public and staff to the meeting at 9:02 am and opened with a karakia. Staff present included Richard Saunders, (Chief Executive), Pim Borren (GM Transport) - online, Amanda Vercoe (GM Governance, Culture and Customer), Lorraine Cheyne (Manager Transport), Julian Phillips (Implementation Lead Transport), Varghese Thomas (Senior Transport Planner), Jack Cowie (Transport Planner) and Trudi McLaren (Governance Support).

2. APOLOGIES

Resolution: Cr Noone Moved, Cr Wilson Seconded:

That the apologies for Cr Mepham and Cr Malcolm, and Cr Weir for lateness be accepted.

MOTION CARRIED

3. PUBLIC FORUM

Joanna Perry, Community Development Coordinator, Link Upper Clutha was present to speak to the Upper Clutha Community Shuttle Trial. Cr Noone thanked Ms Perry for her input and good work.

Cr Weir joined the meeting at 9.15am.

Dave Macpherson and Alenna McLean were present for Save our Trains Ōtepoti-Dunedin and spoke to a PowerPoint presentation. Following questions, they were thanked for their input.

4. CONFIRMATION OF AGENDA

The agenda was confirmed as published with the addition of the item 'Security for Dunedin Public Transport' which is to be included as 8.5.

Resolution: Cr Noone Moved, Cr Wilson Seconded

That the public agenda now incorporate additional item at 8.5 'Security for Dunedin Public Transport'.

MOTION CARRIED

5. DECLARATIONS OF INTERESTS

No changes to Councillor Declarations of Interests were noted.

6. CONFIRMATION OF MINUTES

Resolution: Cr Forbes Moved, Cr Wilson Seconded

That the minutes of the (public portion of the) Council meeting held on 9 August 2023 be received and confirmed as a true and accurate record.

MOTION CARRIED

7. ACTIONS FROM RESOLUTIONS OF THE COMMITTEE

There were no open actions from resolutions of the Committee to be reviewed.

8. MATTERS FOR CONSIDERATION

8.1. Transport Operating Environment

This report highlighted and/or summarised recent activities including legislative and policy changes impacting on Council's transport operating environment. The report also updated the Committee on recent and upcoming public and active transport workstreams. Lorraine Cheyne (Manager Transport) was present to speak to the paper and answer questions.

Cr Robertson left the meeting at 9.59am

Resolution PAT23-118: Cr Forbes Moved, Cr Noone Seconded

That the Committee:

1. ***Notes** this report.*

MOTION CARRIED

8.2. Public Transport Network Performance Report

The purpose of this paper was to update the Committee on the performance of its Public Transport (bus and ferry) and Total Mobility services for the first quarter of the 2023/24 financial year, being the months July to September 2023. Lorraine Cheyne (Manager Transport), Julian Phillips (Implementation Lead Transport), and Jack Cowie (Transport Planner) were present to speak to this paper and respond to questions.

Resolution PAT23-119: Cr Weir Moved, Cr Kelliher Seconded

That the Council:

1. ***Notes** the report summarising public transport activity in Otago for the first quarter of the 2023/2024 year.*

MOTION CARRIED

8.3. Queenstown Public Transport Business Case Update

The purpose of this paper was to provide the Committee with an update on the Queenstown Public Transport Business Case (QPTBC). It summarises work undertaken in the last three months, works anticipated in the next three months, and outlines key project risks. Pim Borren (GM Transport), Lorraine Cheyne (Transport Manager) and Varghese Thomas (Senior Transport Planner) were present to speak to the paper and present a PowerPoint.

Cr Robertson returned to the meeting at 10.21am.

Resolution PAT23-120: Cr Forbes Moved, Cr Robertson Seconded

That the Committee:

1. ***Notes** this report.*
2. ***Notes** the key consultation results.*
3. ***Notes** the strategic case document.*
4. ***Notes** that the content of the business case will inform decisions on options for consultation as part of the upcoming Long Term Plan process.*

5. ***Notes*** *that the full Queenstown Public Transport Business Case will be presented for consideration at the next Committee meeting.*

MOTION CARRIED

8.4. Dunedin Fares and Frequency Business Case

This paper was to present the Fares and Frequency Business Case (FFBC) which outlined the preferred package of Fares and Frequency to promote increased patronage on the Dunedin network, and reduce the impacts of transport (light vehicle fleet emissions) on the environment. The business case provides the basis of building the Dunedin network component of the Transport programme for consultation and subsequent investment in the Long-Term Plan. Pim Borren (GM Transport) - online, Doug Weir (Stantec) and Lorraine Cheyne (Manager Transport) were present to speak to the paper and present a PowerPoint.

Following questions and discussion, Mr Weir and Stantec were acknowledged for their contribution, and also for the contribution of the rest of the team.

Cr Laws left the meeting at 10.30am.

Resolution PAT23-121: Cr Weir Moved, Cr Forbes Seconded

That the Committee:

1. ***Notes*** *this report.*
2. ***Recommends that Council Endorses*** *the Shaping Future Dunedin Transport Fares and Frequencies Single Stage Business Case, October 2023 preferred option 16(b) 50c fares, as the basis for staff to prepare the Dunedin Public Transport network improvements investment programme for the Regional Land Transport Plan 2024-2034.*
3. ***Notes*** *that subject to decisions of Council the preferred option will be included in formal consultation alongside other options as part of the upcoming Long Term plan process.*
4. ***Notes*** *that the final business case will be presented to the next Public and Active Transport Committee meeting for consideration.*

MOTION CARRIED

8.5. Security for Dunedin Public Transport

The purpose of this paper was to seek approval for the continuation of the Dunedin bus network security trial for the remaining eight months of the 2023/24 financial year. Pim Borren (GM Transport) (online), Lorraine Cheyne (Manager Transport) and Julian Phillips (Implementation Lead Transport) were present to speak to the paper and respond to questions.

The Chief Executive noted that this paper, as with any contract paper, was originally proposed to be considered in public excluded based on provisions in the Local Government and Official Information Act. Acknowledging that there had been some public interest generated in this paper, the sensitive information had been removed to enable it to be considered on the public agenda, without undermining any future tendering process or contract information.

Resolution PAT23-122: Cr Weir Moved, Cr Forbes Seconded

That the Public and Active Transport Committee:

1. ***Notes** this report.*
2. ***Recommends to Council the approval** to the extension of the Bus Hub and On-bus security trial to 30 June 2024 at a cost of ~$126,000 (OPTIONS, [29] a.)*

MOTION CARRIED

9. CLOSURE

There was no further business and Chairperson Noone declared the meeting closed with a karakia at 11:38 am.

_____ _____

Chairperson Date

7.1. Transport Operating Environment

Prepared for:	Public and Active Transport Committee
Report No.	PPT2404
Activity:	Transport Planning and PT Operations
Author:	Varghese Thomas, Acting Planning Lead
Endorsed by:	Richard Saunders – Chief Executive
Date:	15 January 2024

PURPOSE

[1] This report highlights and/or summarises recent activities including legislative and policy changes impacting on Council's transport operating environment.

[2] The report also updates the Committee on recent and upcoming public and active transport workstreams.

EXECUTIVE SUMMARY

[3] Recent national level changes in the transport operating environment include:

- Community Connect changes.
- Transport Choice funding changes
- Land Transport Rule: Setting of Speed Limits 2022
- Government announcement that electric vehicles will pay Road User charges (RUC)

[4] Activities in the operating environment of particular interest to the public or specialist transport interest groups across the Otago regional community include:

- Programme for the review of the Otago-Southland Regional Land Transport Plan 2024/2034 (RLTP).
- Electric buses roll out in Dunedin.
- Initial instalment of e-signage.

RECOMMENDATION

That the Committee:

*1) **Notes** this report.*

DISCUSSION

[5] **Community Connect changes –** The Government is making changes to the funding package for the Community Connect program. The half-price fares for individuals aged 13-24 and free fares for those aged 5-12 will be discontinued, but there will be no change to the existing funding for half-price public transport fares for Community Services Card holders or Total Mobility users. According to the Community Connect Programme implementation agreement, the Ministry of Transport is giving NZTA (New Zealand Transport Agency) a 90-day notice, starting on January 31, 2024, to terminate the funding supporting these subsidised services, with the conclusion on April 30, 2024. The government is looking to ensure a smooth transition, acknowledging the investment

PTAs (Public transport authorities) have made in their ticketing systems and the need for increased communication and customer support during this period of change.

[6] **Transport Choice funding changes –** late last year the Transport Minister directed NZTA to stop work on transport programmes designed to provide alternatives to private cars. NZTA immediately put on hold its work on vehicle kilometres travelled (VKT) reduction programmes (beyond existing contractual obligations), using funding from the Climate Emergency Response Fund, for projects designed to reduce emissions through encouraging walking, cycling and use of public transport.

[7] The nationwide implementation of NZTA's Transport Choices programme is currently on hold, pending clear directives from the government on the priorities for transport investments. ORCs "Union Street Super Stop" project, currently in the construction phase, is unaffected.

[8] **Amendments to the Land Transport Rule: Setting of Speed Limits 2022**- the Government has made the changes mentioned below to the Land Transport Rule: Setting of Speed Limits 2022 (the Rule).

[9] The requirement to develop speed management plans is now discretionary rather than mandatory.

[10] The Minister of Transport, rather than the NZ Transport Agency Waka Kotahi (NZTA), now has the authority to set a deadline for any of the steps involved in developing, varying, or replacing Speed Management Plans (SMPs)

[11] The Rule has been amended to revoke the deadlines set by the NZTA, including the 29 March 2024 deadline for submitting the final draft speed management plans for certification. Regional Transport Committees (RTCs) and Road Controlling Authorities (RCAs) no longer need to meet the previous deadlines associated with setting speed limits outside schools as set out in the Rule.

[12] The Minister intends to replace the Rule and has therefore encouraged RTCs and RCAs to wait until the new Rule is in place before developing or submitting SMPs.

[13] The proposed new Rule intends to take account of economic impacts – including travel times – and the views of road users and local communities, alongside safety when speed limits are set. It would also implement requirements for variable speed limits on roads approaching schools during pick up and drop off times, rather than permanent reductions, to keep young New Zealanders safe when they are arriving at, or leaving, school.

[14] RTCs and RCAs retain the ability to target harm reduction through safety management responses including SMPs and infrastructure improvements and speed limits which have migrated into the National Speed Limit Register remain valid.

[15] **Electric Vehicles to pay RUC –** On 16 January, the Ministry of Transport announced that current Government agreement will bring all vehicles into the RUC system. The transition for light electric vehicles (3500kg or less) will apply from 1 April 2024. Heavy electric vehicles, greater than 3500kg, such as the buses in the PT fleet, remain exempt until December 2025.

[16] At this point staff do not anticipate any impact on its current EV contract, but will report back as and when any implications of the new RUC charges present.

[17] **Otago-Southland Regional Land Transport Plan 2024/2034** - Following the General Election on 16 October, the Waka Kotahi Board delayed the adoption of the National Land Transport Programme (NLTP), which the Regional Land Transport Plans (RLTPs) support, (from 30 June to 31 August 2024), with the NLTP being released early September.

[18] Consequent to this change of timing, the date when RLTPs must be submitted has also been extended from 30 April to 14 June 2024.

[19] On the 20th of November, the combined Otago-Southland RTCs discussed the projects and their priorities, as recommended by the staff for inclusion in the Regional Land Transport Plan (RLTP). The minutes of this meeting are included as attachment 1.

[20] The combined Otago-Southland RTCs are scheduled to meet on 2nd of February to approve the updated RLTP and consultation material for the consultation process.

[21] Consultation on the draft RLTP is scheduled from February 9th to March 15th. This has changed from previously, when to meet the 30 April deadline, consultation had been proposed to begin pre-Christmas. The public hearings will be conducted on a day between 25 to 28 March 2024 (TBC) if required.

[22] The staff note that the final GPS is not released yet, and this might lead to some changes in the RLTP document.

[23] **Electric buses roll out in Dunedin –** A fleet of 11 electric buses are expected to operate in Dunedin bus network by the end of February. These buses will operate on routes 5, 6, 10, 11, and 15 (unit 3). The Unit 3 Contract is currently held by Ritchies, which has installed six charging stations at its Depot. Each charging station has the capacity to charge two buses simultaneously.

[24] The deployment of these buses represents the Council's commitment towards a more sustainable and environmentally friendly public transportation system.

[25] **E-signage Installation** – In AP 23/24 Council allocated $500k (49% local share funding and 51% FAR) for Real Time Information (RTI) improvements. We are expecting the arrival of 30 solar-powered electronic bus stop signs (e-stops) imminently for a planned installation in March 2024. From this initial order, 10 will be allocated to the Queenstown network and 20 to Dunedin.

[26] Installation of an estop at Queenstown Airport is already underway and is additional to this number.

[27] An order for a further ~90 units has been placed and the prioritisation of the placement of these units will be agreed with the relevant Territorial Authorities (TAs). The Bus Stop Audit project will help determine locations for the units in Dunedin.

CONSIDERATIONS

Strategic Framework and Policy Considerations

[28] The Otago Southland RTCs have placed the Speed Management Plans process on hold until there is clarity on the direction of rule changes. Meanwhile, if a TA wishes to modify speed limits, they are able to using the previous rule which does not incorporate input from the RTC.

[29] If Council wishes to continue free fares for 5 – 12-year-olds and/or subsided fares for 5 to 12 and 13 to 24 years old other than a straight Adult and Child fare, alternate sources of funding will need to be identified. A further report will be provided to Council in February.

Financial Considerations

[30] There are no direct financial considerations as this report is for information only. The developments on RLTP could have financial implications. These will be reported to Council as these become known.

[31] The community connect funding changes could have financial implications if the Council wish to subside the transport fares.

Significance and Engagement

[32] The report does not raise issues of significance or engagement as it is only for noting. The RLTP will address significance and engagement issues in the programme of the development of the Plan.

Legislative and Risk Considerations

[33] The report does not raise legislative and risk considerations.

Climate Change Considerations

[34] Public Transport supports the achievement of climate change aspirations across Otago.

Communications Considerations

[35] Details about the RLTP public consultation will be provided to both the public and stakeholders.

[36] The fare changes related to community connect changes raise the need for an increased communications and customer support.

NEXT STEPS

[37] Further reporting to Council and the Committees on:

- Updates to the Government Policy Statement on Land Transport;
- Updates on RLTP;
- Update to Council on Community Connect fare changes;
- Complete of the Union Street Super-Stop in conjunction with Dunedin City Council; and
- Continue procurement and installation of e-signage.

ATTACHMENTS

1. Otago Southland Regional Transport Committee Minutes 2023.11.20 - DRAFT [**7.1.1** - 7 pages]

Minutes of the Otago and Southland Regional Transport Committees Meeting held in Gore District Council Chambers, Gore, on Monday 20 November 2023 at 1:15 pm

Otago:
Cr Kate Wilson (ORC, RTC Co-Chairperson)
Cr Alexa Forbes (ORC, RTC Deputy Chairperson)
Cr Bruce Graham (CDC)
Cr Jim O'Malley (DCC)
Cr Jim Thomson (WDC)
Cr Stuart Duncan (CODC)
James Caygill (Waka Kotahi)

Southland:
Cr Jeremy McPhail (ES, RTC Co-Chairperson)
Cr Christine Menzies (SDC) (until 2.20pm)
Cr Ria Bond (ICC)
Cr Joe Stringer (GDC)
James Caygill (Waka Kotahi)

In attendance:
Jim Crouchley (Transporting New Zealand, from 2.03pm)
Russell Hawkes (ES)
Lorraine Cheyne (ORC)
Chad Barker (Waka Kotahi) (online)
Varghese Thomas (ORC)
Jack Cowie (ORC)
Trudi McLaren (ORC – Governance Support)

1 Welcome | Haere mai

The Chairperson welcomed everyone to the meeting, including those attending via zoom and opened with a karakia.

2 Apologies | Nga Pa Pouri

Resolved:

Moved by Cr Graham, seconded by Cr Wilson that apologies be received from: Cr Phil Morrison, Cr Christine Menzies (for leaving at 2.20pm), Joe Stringer (GDC) and Cr Quentin Smith.

Motion Carried

3 Public Forum, Petitions and Deputations | He Huinga Tuku Korero

There were no requests to speak at public forum.

4 Confirmation of Minutes | Whakau Korero – 4 August 2023

Resolved:

Moved by Cr Forbes, seconded by Cr Graham that with minor amendments, the minutes of the Regional Transport Committees meeting held on 4 August 2023, be confirmed as a true and correct record.

Motion Carried

5 Actions from Minutes of 4 August 2023

5.1 Item 10: Extraordinary and Urgent Business - Rural School Bus Safety Concerns

The letter to the Minister of Transport was signed by Co-Chairs, Cr McPhail and Cr Wilson and is to be sent to the Minister once the new Minister of Transport has been announced.

6 Notification of Extraordinary and Urgent Business l He Panui Autaia hei Totoia Pakihi

6.1 Supplementary Reports

There were no supplementary reports tabled for inclusion in the agenda.

6.2 Other

No other items were raised for discussion.

7 Questions | Patai

No questions were asked at this time.

8 Chairman's and Councillors' Reports | Nga Purongo-a-Tumuaki me nga Kaunihera

Cr Wilson reported that the Chairs will be asking to meet with the new Minister with concerns and priorities.

In the future, Minutes are also to be distributed to NZTA Waka Kotahi.

9 Staff Report – 23/RTC/63

9.1 – RLTP 2021/31 – Variation Request Otago

The purpose of this item was to seek the Otago Regional Transport Committee approval to vary the Otago Regional Land Transport Plan 2021-31 (RLTP). The variation is to include a new project in the RLTP, enabling Waka Kotahi to give it funding consideration through the National Land Transport Plan 2021-24. Russell Hawkes spoke to the paper and James Caygill of NZTA Waka Kotahi was present to answer questions.

The report notes the work being proposed by Waka Kotahi in the next three years and how the projects will be implemented.

Questions from the Committee to Waka Kotahi:

- When safety widening work is being undertaken on State Highways, is thought given to the usability of roads by cyclists wherever possible, as there are very few options in the South Island for people who are cycling?
  Response: that the safety of vulnerable road users has been considered in planning, but a strengthened and wider shoulder enables cyclists to be in that space with width on the inside for larger vehicles to pass them safely.

- Whether there is a standard that roads must now be built to.
  Response: there is and details on this section of the road can be provided.

- Deaths and serious injuries are listed as some of the overlying drivers. Is there a number, as this was important to track?
  Response: the statistics will be provided.

- That if barriers are installed that the effected parties are fully cognisant of this.
  Response: this will be part of the process.

Resolved:

Moved Cr Wilson, seconded Cr O'Malley, that the Regional Transport Committees resolve to:

(1) Note the report;

(2) Approve the variation as submitted.

Motion Carried

9.2 – RLTP 2021/31 – Variation Request Southland

This item was to seek the Southland Regional Transport Committee's approval to vary the Southland Regional Land Transport Plan 2021-31 (RLTP). The variation was to include a new project in the RLTP, enabling Waka Kotahi to give it funding consideration through the National Land Transport Plan 2021-24.

Russell Hawkes spoke to the paper and James Caygill of NZTA Waka Kotahi was present to answer questions.

There was a comment that when the road works are happening, there should be communication to those at Lochiel. It was confirmed that this is best practice and will occur.

Resolved:

Moved Cr Menzies, seconded Cr Bond, that the Regional Transport Committees:

(1) Note the report;

(2) Approve the variation as submitted.

Motion Carried

9.3 – RLTP 2021/31 – Mid-term Review Project Prioritisation

The purpose of this report was to provide the Otago Southland Regional Transport Committees with the opportunity to confirm priorities for the over $2m improvement projects submitted for funding from the National Land Transport Fund through the Otago Southland Regional Land Transport Plan.

Russell Hawkes spoke to this item.

Items discussed:

- There was a comment asking to confirm the process that we use and the priorities that have been assigned for the mid-term review, taking into account the discussion this morning.
- Projects were run through the Climate Assessment Tool (CAT), and Otago comes out in the green. Southland doesn't come out quite so well, but the issue with Southland is that the Southland programme is heavily maintenance-renewal based, and the Homer Tunnel impacts on this as well. The CAT results will be included in the response.

Resolved:

Moved Cr Wilson, seconded Cr O'Malley, that the Regional Transport Committees:

(1) Note the report;

(2) Confirm the evaluation criteria used for the project assessments.

(3) Confirm the Regional Priorities to be assigned to projects for use in the mid-term review of the Otago Southland Regional Land Transport Plan 2021/31.

Motion Carried

9.4 – RLTP 2021/31 – Med-term Review Next Steps

The purpose of this report was to brief the Otago Southland Regional Transport Committees on the next steps and timeline for completion of the Mid-term review of the Otago Southland Regional Land Transport Plan 2021/31.

Russell Hawkes spoke to the item and advised that hearing panel dates are still to be set .

Items discussed:

- A hearing panel would need to be created with the two Committee Chairs, a representative from each region or Council and NZTA.
- Dates for these panels are unable to be set as yet, but in the past there has been one in each of Dunedin, Queenstown and Invercargill. The locations may be reduced, but that decision will be addressed closer to the time.
- The panel was decided as follows:
  - Cr McPhail (Co-Chair) (Cr Morrison alternate)
  - Cr Wilson (Co-Chair) (Cr Forbes alternate)
  - Cr Graham
  - Cr Menzies
  - Cr O'Malley.
- There was a comment that three days may be too short to deal with unexpected issues from the community and it was important to allow enough time for everyone to be heard. Important to decide the rules in advance (e.g., allow 10 minutes per hearing followed by questions and answers).

Resolved:

Moved Cr Thompson, seconded Cr Duncan, that the Regional Transport Committees:

(1) Note the report;

(2) Approve the revised timeline for completion of the mid-term review.

(3) Confirm members of the hearings panel to consider submissions received following consultation.

Motion Carried

9.5 – Waka Kotahi General Update

The purpose of this report was to provide Waka Kotahi NZ (the Transport Agency) with the opportunity to provide the Committees with a verbal update on its activities.

James Caygill of Waka Kotahi/NZTA was present to provide an update and answer questions.

Items discussed:

- Mr Caygill noted that it was a difficult time to give an update, awaiting direction from the incoming government. However, he provided the following:
  Beaumont Bridge project: almost finished.
  Homer Tunnel: work had been started on the new rockfall shelter and removed the old shelter on the landward side of the tunnel. This was being replaced with a pre-cast concrete structure being fabricated in Ashburton to be installed over Christmas. Very difficult location to be working.
  Transport choices: Due to the change in government, work on this was paused until there is clarity from them.
  Speed Management: Acknowledged that Councils are going through their own speed management plans. The interim plan has been completed and awaiting government direction before proceeding. The consistency of speed limit changes through small towns was noted as a problem, with motorists getting caught out for speeding when they genuinely miss a change in speed limit. Mr Caygill noted one of the intentions behind the regulatory package is to try to drive towards that consistency.
- The issue of road cones left on highways, and a 'slow' sign left out when there is no work happening or constant repairs was raised. Mr Caygill responded that he would arrange for the expert on this area to come to the Committee and present on the changes to traffic management that are coming and when the changes will be rolled out. Trialling first in North Canterbury over the 2023/24 summer period.

Resolved:

Moved Cr Duncan, seconded Cr Menzies, that Regional Transport Committees:

(1) Note the report;

(2) Provide any feedback to Waka Kotahi (the NZ Transport Agency) on the topics included in the presentation.

Motion Carried

9.6 – Next Meeting

By Consensus:

That the next meeting of the Regional Transport committees be held on 2 February 2023, with a venue to be confirmed.

Motion Carried

10 Extraordinary and Urgent Business | Panui Autaia hei Totoia Pakihi

Road User Safety When Using Detours

Concerns were expressed around the safe use of detours during the event of an accident or incident that requires closing of the road. It was commented that in some instances, it may be safer to allow the traffic to back up rather than direct traffic on a detour that isn't fit for purpose. The response from James Caygill was that Waka Kotahi hold a debrief with police after a major traffic incident. There was also comment that while detours are sometimes shown as available, the fitness for use of these detours requires checking on the ground.

Inviting MPs to Meetings

It was suggested that it would be useful to arrange for local MPs to be invited to a future meeting of the Committee. It was agreed that this would be useful, and the sooner the better. It was agreed that the Co-Chairs would investigate this.

11 Public Excluded Business | He hui Pakihi e hara mo te iwi

There were no public excluded business items raised.

12 Closure

There being no further business, the meeting closed with a karakia at 2.23 pm.

7.2. Public Transport Network Performance Report Q1-Q2 2023/24

Prepared for:	Public and Active Transport Committee
Report No.	OPS2353
Activity:	Transport: Public Passenger Transport
Author:	Julian Phillips, Implementation Lead - Transport Gemma Wilson, Senior Operations Analyst - Public Transport (data) Jack Cowie - Transport Planner (Total Mobility)
Endorsed by:	Richard Saunders, Chief Executive
Date:	7th February, 2024

PURPOSE

[1] To update the Committee on the performance of its Public Transport (bus and ferry) and Total Mobility services for the first half, Q1 and Q2, of the 2023/24 financial year, being 1 July to 31 December 2023.

[2] This report also presents a review of customer feedback for the same period, together with the results of the recent Mosgiel (route 77) passenger survey.

EXECUTIVE SUMMARY

[3] Dunedin bus patronage for Q1/2 2023/24 is 1,670,619 - an increase of 28% from 2022/23.

[4] Queenstown bus patronage for Q1/2 2023/24 is 928,348 - an increase of 44% from 2022/23.

[5] Queenstown Ferry patronage for Q1/2 2023/24 is 26,400 - a decrease of 23% from 2022/23.

[6] Total Mobility patronage for Q1/2 2023/24 is 116,017 - an increase of 18% from 2022/23.

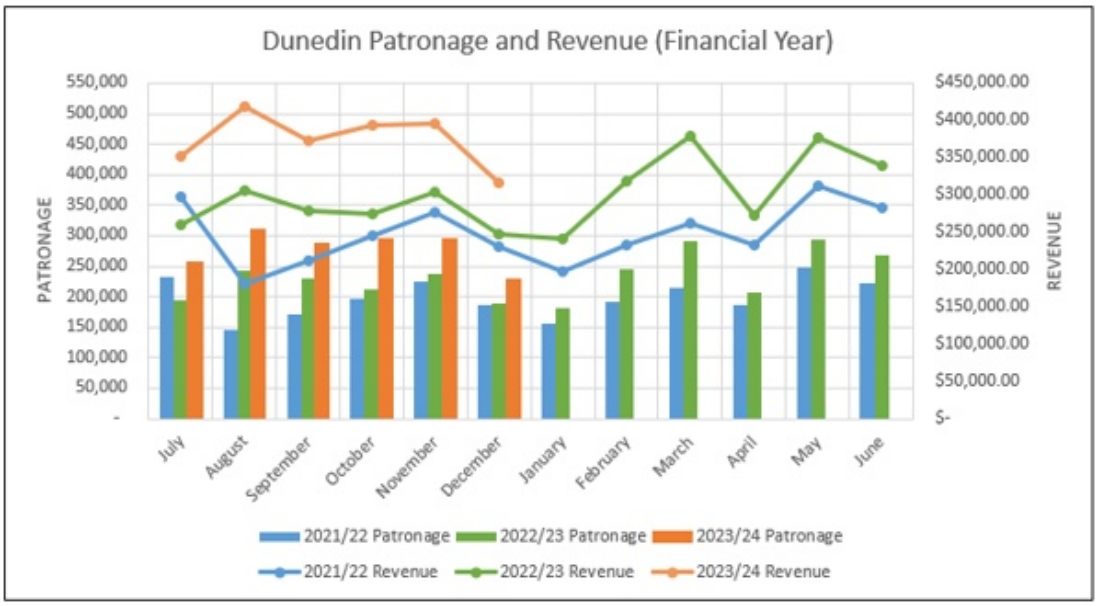
RECOMMENDATION

That the Committee:

1) ***Notes** the report summarising public transport activity in Otago for the first two quarters of the 2023/2024 year.*

DISCUSSION - DUNEDIN

[7] Figure 1 details patronage and revenue for Q1/2 of the 2023/24 financial year.



Dunedin	July	August	Septembe	October	November	December	January	February	March	April	May	June	Totals
2018/19 Patronage	195,272	235,930	221,438	212,965	223,894	177,520	172,142	213,992	246,593	198,745	245,477	204,362	**2,548,330**
2019/20 Patronage	220,652	235,666	230,329	224,285	226,692	182,910	181,525	228,477	175,526	26,802	68,709	197,681	**2,199,254**
2020/21 Patronage	293,294	278,162	209,278	224,799	223,263	190,821	160,848	201,611	250,266	195,795	243,550	234,783	**2,706,470**
2021/22 Patronage	231,082	144,505	170,397	196,538	223,952	185,219	156,857	190,746	213,639	185,831	246,438	221,895	**2,367,099**
2022/23 Patronage	194,544	242,825	229,954	213,011	237,385	189,812	181,899	244,977	291,825	208,030	294,188	268,850	**2,797,300**
2023/24 Patronage	256,596	310,050	285,998	293,805	294,909	229,261							**1,670,619**

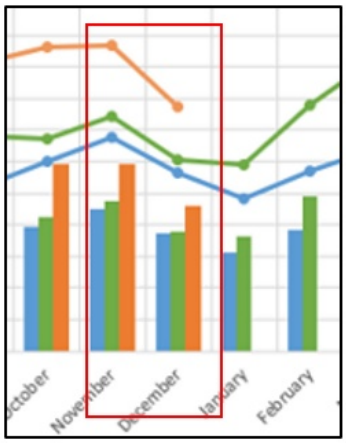
Figure 1: Dunedin 2023/24 Patronage and Revenue

[8] Total Dunedin bus patronage for Q1/2 2023/24 is 1,670,619.

[9] This is a 28% increase from 2022/23, noting that full timetables were re-introduced to Dunedin in February 2023.

[10] This also represents a 32% increase from the 2018/19 financial year, which is the last full year period where patronage was not disrupted by COVID restrictions and driver shortages.

[11] Note that the November to December decline in patronage and revenue is purely seasonal and a result of the Christmas/New Year period and school holidays. This pattern is repeated in previous years:



[12] Q1 (July 2023) saw the introduction of Community Connect fare concessions.

[13] The fare table for Dunedin is set out in Figure 2, and includes three new fare concessions: Youth (13-18yrs), Youth Plus (19-24 years) and Community Connect (For Community Service Card Holders).

Bus fares		
Infant (under 5 years)	Free	
Child (5–12 years)	Free when you tag on with your registered Bee Card	
	Cash Fare	**Card Fare (Bee Card must be registered)**
Youth (13–18 years)	$3	60c
Youth Plus (19–24 years)	$3	$1
Adult (25 +)	$3	$2
Community Connect	$3	$1
SuperGold (65 +)	$3	$2 peak, free off-peak

Figure 2: Dunedin Fare Table

[14] At the end of 2023, the most noticeable impact of the concessions is on the Adult category, which is 44% of fares taken.

[15] Prior to the introduction of Community Connect, Adult fares in Dunedin would represent c.56% of all fare types, but the Youth Plus category now accounts for 13% of fares taken, approximately corresponding to the drop in Adult fares. This is because passengers

benefitting from the Youth Plus concession would previously have paid the full Adult fare.

[16] Community Service Card concessions represent 10% of fares taken, noting that it is possible for a passenger to have both a CSC concession and a Supergold concession, utilising the former at peak times and the latter off-peak to maximise the value of the concession benefit.

[17] On 20th December 2023 the Government announced that whilst it will continue with Crown funding support for half price public transport concessions for Community Services Card holders and half price concessions for Total Mobility services (75% discount), Crown funding for free fares for 5-12 year olds and half price fares for 13-24 year olds will end on 30 April 2024.

[18] In summary, Dunedin patronage has significantly recovered from recent periods of disruption. For Q1/2 2023/24, patronage across the network is comfortably exceeding the previous six years, noting that new concessions have been in place since 1st July 2023.

[19] Figure 3 provides individual PTOM Unit information.

[20] All Units have experienced patronage increases, ranging from 9% to 29%.

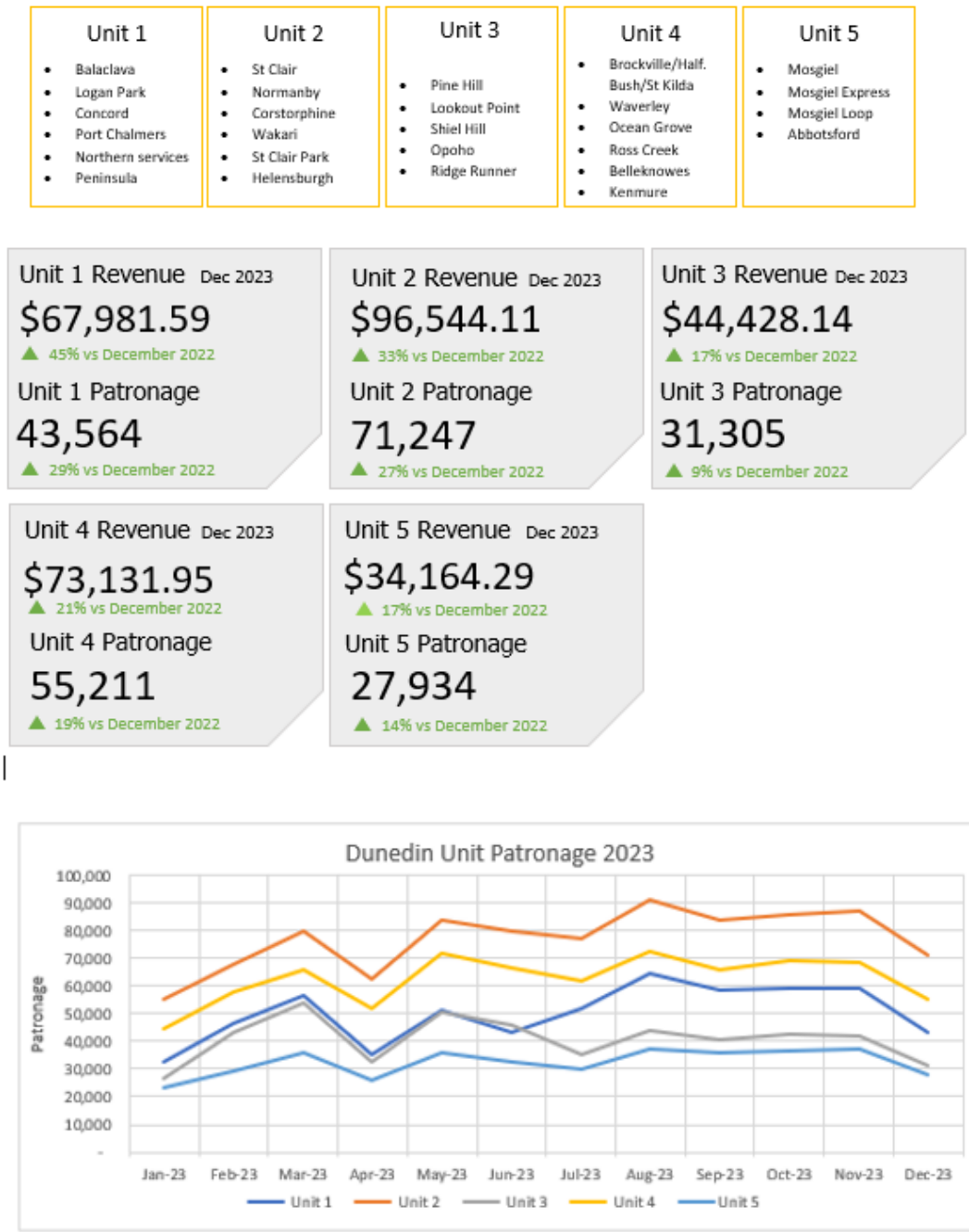
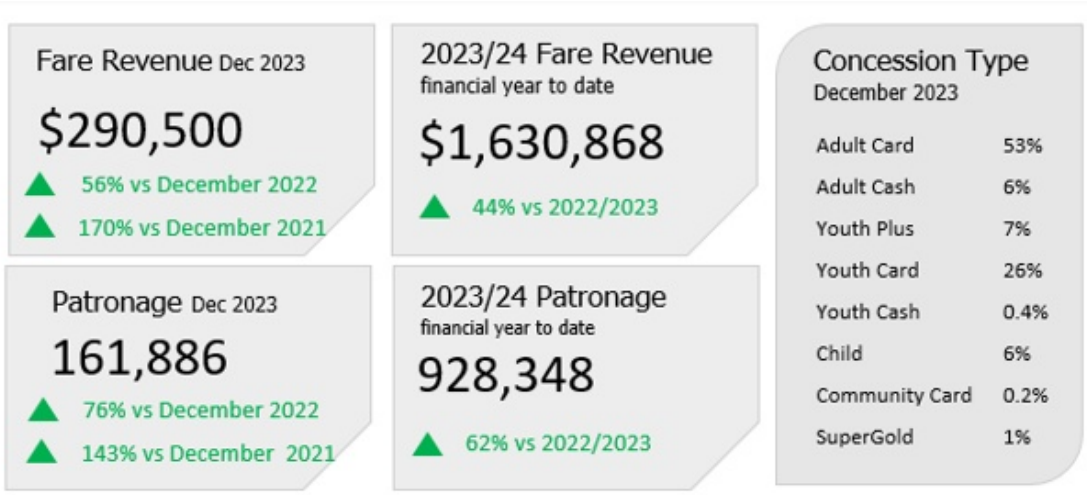
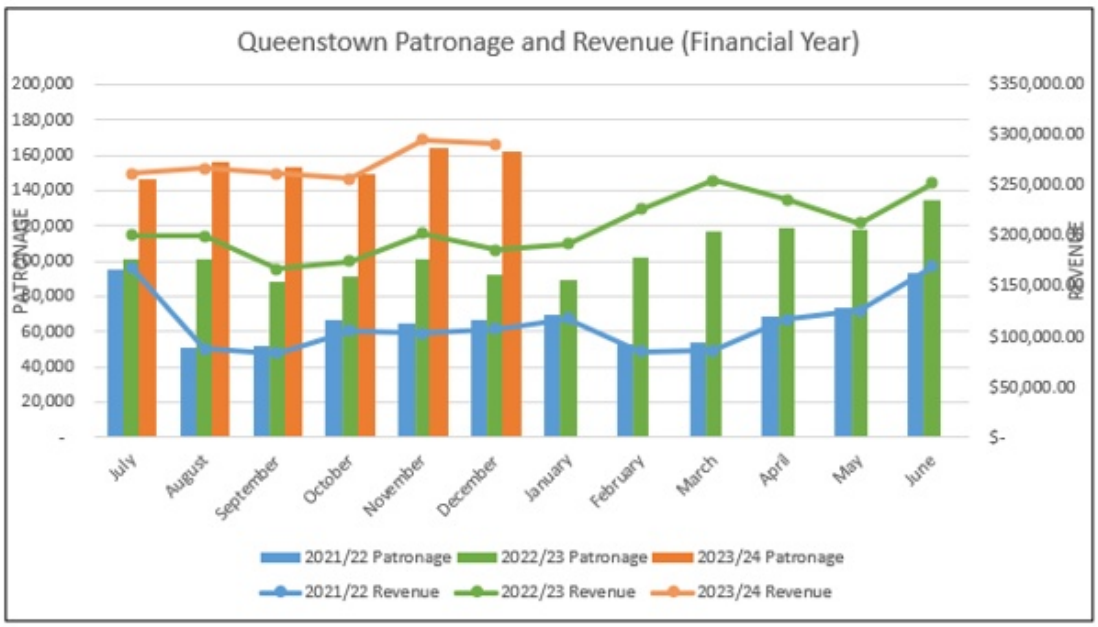


Figure 3: Dunedin 2023/24 PTOM Unit performance

DISCUSSION - QUEENSTOWN

[21] Figure 4 details patronage and revenue for Q1/Q2 of the 2023/24 financial year.





Queenstown	July	August	September	October	November	December	January	February	March	April	May	June	Totals
2018/19 Patronage	122,752	117,442	103,974	111,657	125,600	118,997	136,055	129,439	134,084	125,244	118,077	124,736	**1,468,057**
2019/20 Patronage	136,766	129,011	121,416	120,662	128,440	128,282	136,985	131,102	90,746	9,919	42,577	73,597	**1,249,503**
2020/21 Patronage	100,951	98,102	72,143	73,385	71,464	69,096	68,550	60,717	62,613	65,928	66,863	79,251	**889,063**
2021/22 Patronage	95,248	51,010	51,987	66,690	64,895	66,507	69,147	52,471	53,524	68,158	73,786	93,367	**806,820**
2022/23 Patronage	100,966	100,668	88,268	91,277	100,579	91,940	89,306	102,118	116,667	118,955	117,645	134,593	**1,252,982**
2023/24 Patronage	145,759	155,936	152,621	148,964	163,182	161,886							**928,348**

Figure 4: Queenstown 2023/24 Patronage and Revenue

[22] Total Queenstown bus patronage for Q1/2 2023/24 is 928,348.

[23] This is an 62% increase from 2022/23, noting that full timetables were re-introduced to Queenstown in June 2023.

[24] Patronage to date exceeds the full year patronage for both the 2020/21 and 2021/22 financial years.

[25] This also represents a 33% increase from the 2018/19 financial year, which is the last full year period where patronage was not disrupted by COVID restrictions and driver shortages.

[26] Patronage has continued to exceed pre-COVID levels since June 2023, demonstrating the immediate impact of the resumption of full timetables in that month.

[27] Q1 (July 2023) saw the introduction of Community Connect fare concessions.

[28] The fare table for Queenstown is set out in Figure 2, and includes three new fare concessions: Youth (13-18yrs), Youth Plus (19-24 years) and Community Connect (For Community Service Card Holders).

Bus fares		
Infant (under 5 years)	Free	
Child (5–12 years)	Free when you tag on with your registered Bee Card	
	Cash Fare	**Card Fare (Bee Card must be registered)**
Youth (13–18 years)	$4	75c
Youth Plus (19–24 years)	$4	$1
Adult (25 +)	$4	$2
Community Connect	$4	$1
SuperGold (65 +)	$4	$2 peak, free off-peak
Queenstown Airport		
Adults	$10	$2
SuperGold (65+)	$10	$2 peak, free off-peak
Child (5-12 years)	$8	Free when you tag on with your registered Bee Card
Youth (13-18 years	$8	75c
Youth Plus (19-24 years)	$10	$1

Figure 5: Queenstown Fare Table

[29] It is difficult to assess the impact of the new concessions in Queenstown to date, with the share of concession types being quite different to Dunedin.

[30] This could be due to the large proportion of tourists using the service and general awareness of the new concession types. Note that concessions require a Bee Card to be

registered (usually on-line) to receive the reduced fare, otherwise the full $2 fare applies.

[31] Community Service Card holders represent just 0.2% of fares compared to 8% in Dunedin. However, the Youth Plus concession has been well adopted at 7% of fares.

[32] On 20th December 2023 the Government announced that whilst it will continue with Crown funding support for half price public transport concessions for Community Services Card holders and half price concessions for Total Mobility services (75% discount), Crown funding for free fares for 5-12 year olds and half price fares for 13-24 year olds will end on 30 April 2024.

[33] In summary, Queenstown patronage has recovered exceptionally well from the past couple of years of disruption. For Q1/2 2023/24, patronage across the network is comfortably exceeding the previous six years and indicates a recovery to levels well in-excess of pre-COVID patronage.

[34] Figure 6 provides individual PTOM Unit information. Both Units 6 and 7 have increased in patronage by 106% and 13% respectively when compared to September 2022.

[35] Whilst Unit 7 patronage is following a relatively flat trend, Unit 6 - which includes Airport services - has continued a significant upward trend since January 2023, which accelerated greatly after the resumption of full timetables in June 2023.

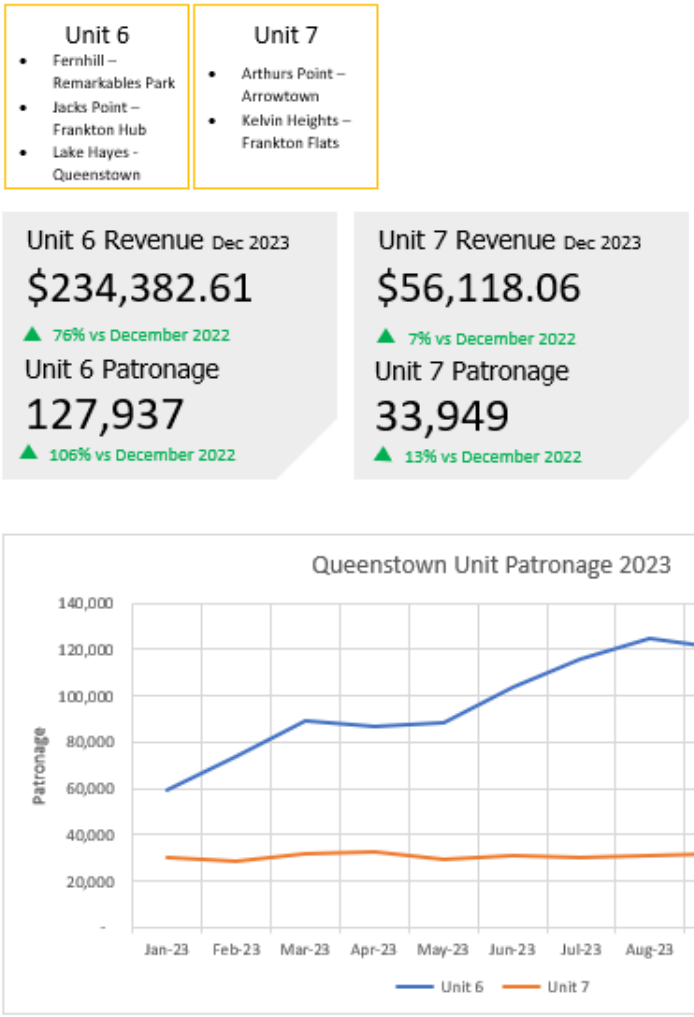
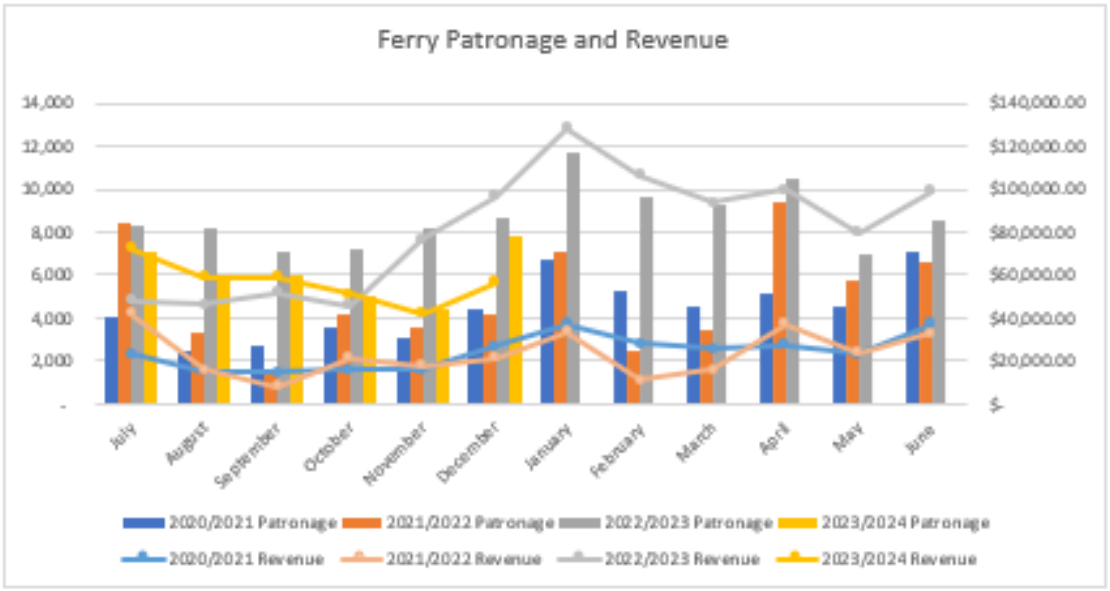


Figure 6: Queenstown 2023/24 PTOM Unit performance

DISCUSSION – QUEENSTOWN FERRY

[36] Figure 7 details Queenstown Ferry patronage and revenue for the 2023/24 financial year.

Transport staff have identified a reporting error generated by a Ferry retail device, affecting November and December data; figures are provisional until this error is resolved.



Queenstown Ferry	July	August	September	October	November	December	January	February	March	April	May	June	Totals
2020/21 Patronage	4,048	2,483	2,675	3,600	3,075	4,439	6,688	5,219	4,489	5,101	4,598	7,056	**53,471**
2021/22 Patronage	8,449	3,336	1,630	4,200	3,533	4,134	7,123	2,453	3,448	9,456	5,728	6,564	**60,054**
2022/23 Patronage	8,259	8,135	7,119	7,203	8,164	8,644	11,721	9,586	9,329	10,538	7,016	8,526	**104,240**
2023/24 Patronage	7,147	5,987	5,997	5,073	4,391	7,805							**36,400**

Figure 7: Queenstown Ferry 2023/24 Patronage and Revenue

[37] Transport staff have identified a reporting error generated by a Ferry retail device, affecting November and December data; figures are provisional until this error is resolved.

[38] Total Queenstown Ferry patronage for Q1/2 2023/24 is 36,400.

[39] This is a 23% decrease from the same period in 2022/23.

[40] The reasons for this result are likely the resumption of full priced fares in July 2023, together with Community Connect fare concessions not being applicable to Ferry services.

[41] Bee Card fares on the Ferry have been fixed at $10 since July, following most of the previous financial year at the 50% reduced price of $5. Cash fares are $14, having previously been $7. Therefore the impact of the return to full fares is more keenly felt in dollar terms on the ferry service than the bus service.

[42] A notable 78% uplift in patronage occurred in December. Whilst this may be seasonal, the uplift is significantly higher than previous years.

DISCUSSION – TOTAL MOBILITY

[43] Patronage for the Total Mobility scheme continues to track ahead of previous years.

[44] Figure 8, below, shows patronage over the past 12 months. 'Hoist' refers to trips that require a wheelchair accessible vehicle to travel, for which suppliers receive a separate reimbursement.

[45] For the 12 months to December 2023, the total number of trips was 116,017 (9668 per month, a 17.9% increase on the previous year) and 16,954 required a hoist (1412 per month, a 24.6% increase).

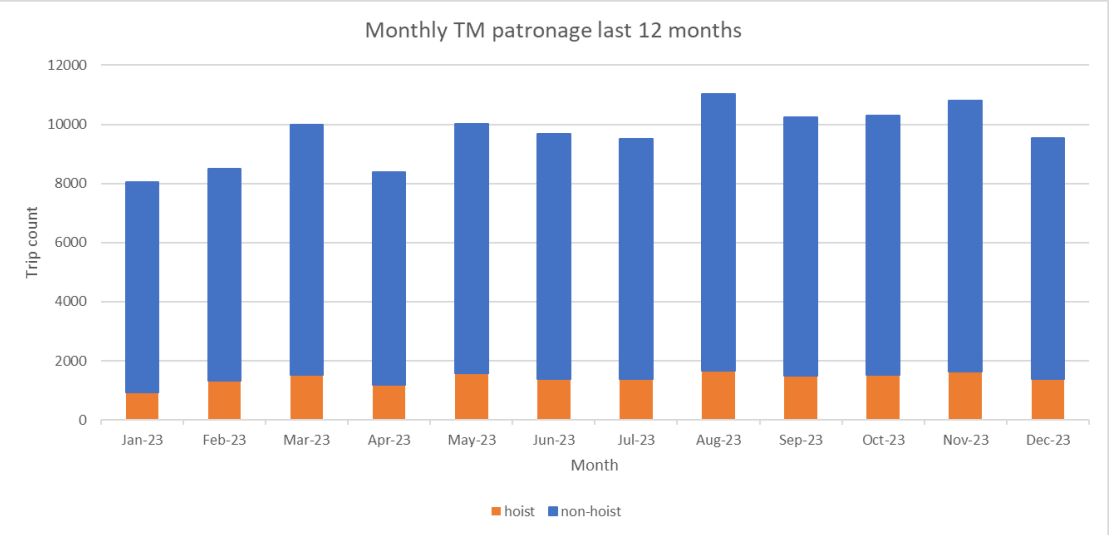


Figure 8: Total Mobility patronage, 12 months to December 2023.

[46] Figure 9 tracks 2023/24 patronage alongside previous financial years

[47] Total Mobility patronage through Q1/Q2 2023/24 is 61,413.

[48] This is a 12.2% increase from Q2 2022/23.

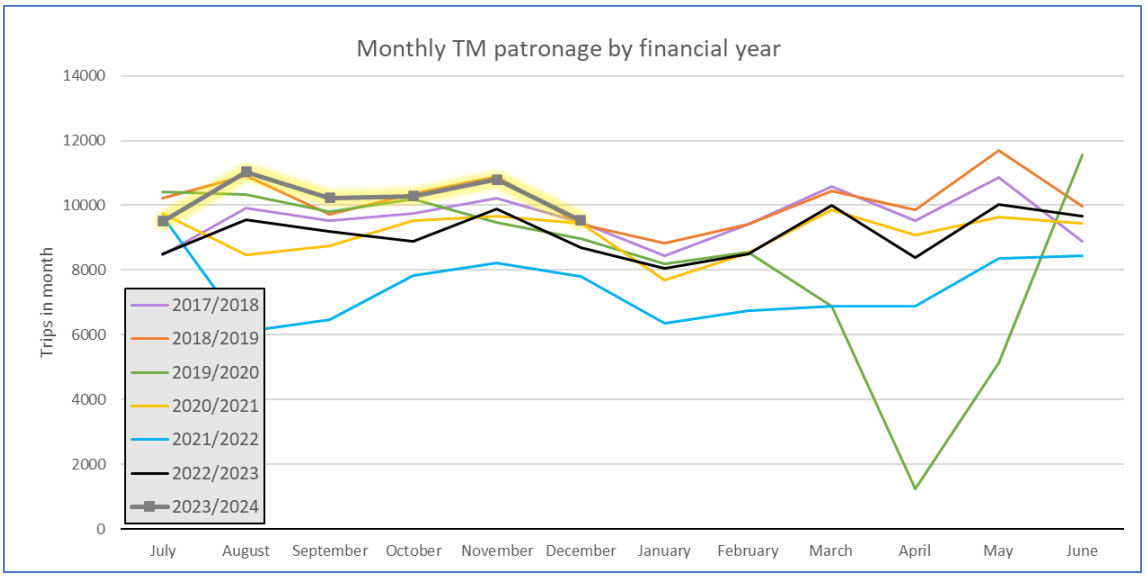


Figure 9: Total Mobility patronage, 2018/19 to 2023/24

[49] In addition to the patronage increase, the average length of trips, and hence average fares, continues an upward trend. This is shown in figure 10 below, comparing a time series of average fares and average trip distances:

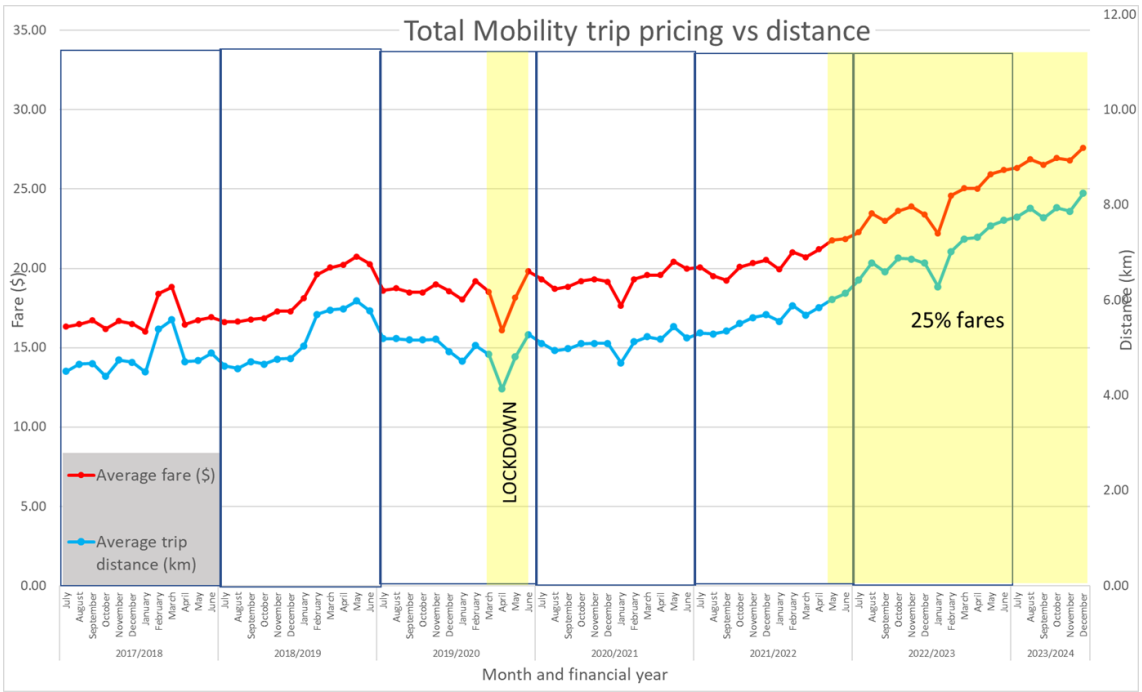
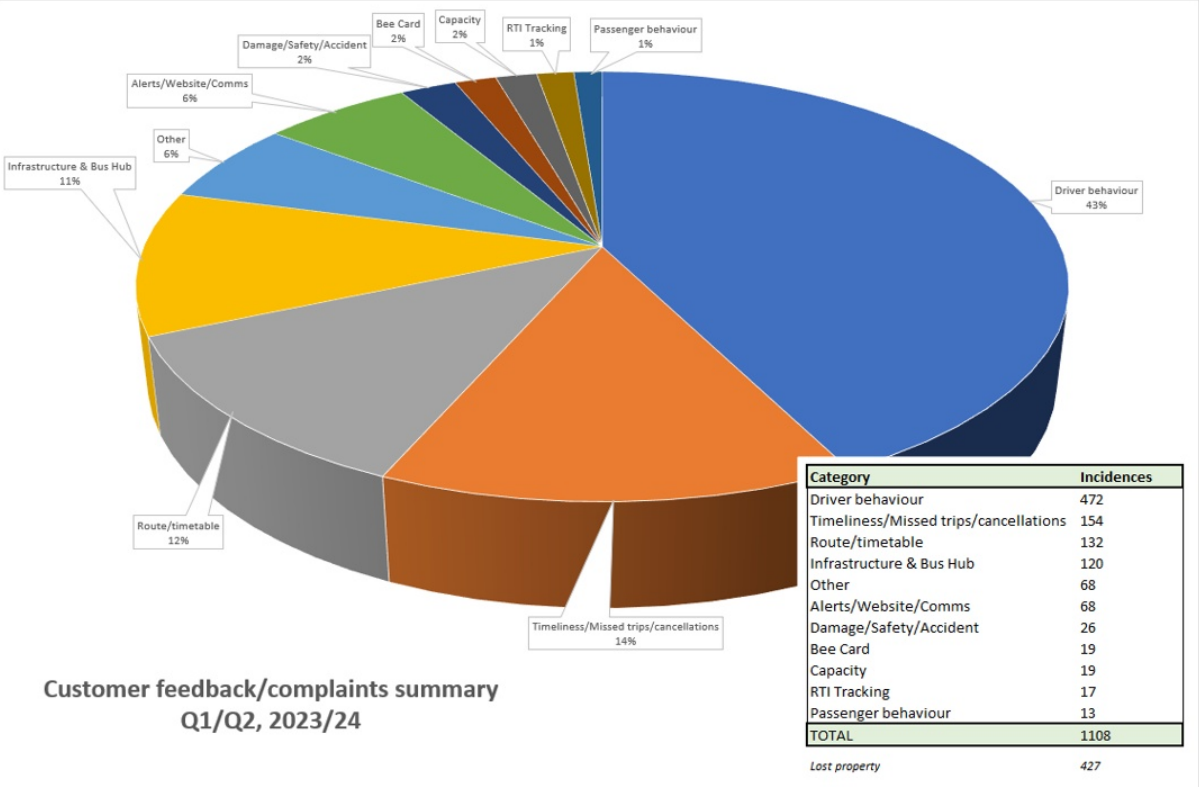


Figure 10: Total Mobility – pricing vs distance travelled

DISCUSSION – CUSTOMER FEEDBACK

[50] The following chart provides an overview of customer feedback received by the Transport team through Q1 and Q2 2023/24.



Category	Incidences
Driver behaviour	472
Timeliness/Missed trips/cancellations	154
Route/timetable	132
Infrastructure & Bus Hub	120
Other	68
Alerts/Website/Comms	68
Damage/Safety/Accident	26
Bee Card	19
Capacity	19
RTI Tracking	17
Passenger behaviour	13
TOTAL	1108
Lost property	*427*

Figure 11: Customer feedback by category

[51] The total number of enquiries through this 6-month period is 1,108, which equates to ~6 per day.

[52] Lost property is not represented on the chart and accounts for 427 additional enquiries. Most lost property enquiries are able to be resolved promptly with assistance from the transport operator depot local to the enquiry.

[53] The predominant categories, all with greater than 100 pieces of feedback over the period are: Driver Behaviour (472), Timeliness/Missed Trips/Cancellations (154), Route/Timetables (132), and Infrastructure/Bus Hub (120).

[54] The **Driver Behaviour** category comprises matters such as customer service (e.g. a driver's interaction with a passenger) and on-road conduct (e.g. manoeuvring intersections or missing a bus stop).

[55] All incidents are investigated thoroughly with the relevant transport operator. Most buses are equipped with several CCTV cameras, from which footage can be retained to validate enquiries.

[56] Staff are working proactively with one Orbus operator which has a renewed focus on customer service. Through a national training position, in Otago the operator is

providing additional de-escalation training, cycle-awareness training and SAFED (safe and fuel-efficient driving), focusing on customer experience and comfort.

[57] Complaints related to on-road conduct are often due to a misunderstanding of road rules. For example, in certain circumstances buses and other heavy vehicles are allowed to straddle an adjacent lane in order to make a turn at an intersection.

[58] **Timeliness/Missed Trips/Cancelations** refers to feedback, enquiries and complaints about the reliability of the service.

[59] The volume of enquiries related to timeliness generally increases during periods of significant works or ongoing congestion, which has been the case for both Queenstown and Dunedin during this period.

[60] Complaints about non-running trips are cross-checked with real time tracking software to enable staff to establish whether a trip operated or was early/late, following up with the transport operator as required.

[61] **Routes/Timetables** refers to feedback, enquiries and complaints about existing routes and timetables (e.g. variations to routes, amendments to timetables) and suggestions for new routes.

[62] Ongoing feedback related to the same issue may be used to support or develop service improvements; examples of this are additional services to schools in Queenstown and Dunedin, together with the recent introduction of new and express services to Mosgiel.

[63] **Infrastructure/Bus Hub** relates to matters concerning the provision of new infrastructure (bus stops and their associated infrastructure such as seating, lighting and timetables) and also feedback related to existing infrastructure (maintenance/repairs/improvement suggestions), including the Bus Hub.

DISCUSSION – MOSGIEL PASSENGER SURVEY & ROUTE REVISION PERFORMANCE

[64] In September 2023, additional services were added to the Mosgiel route to add capacity and alternative options for what was becoming, at peak times, an exceptionally popular service with little room for growth. The improvements were influenced by the Shaping Future Dunedin Strategy.

[65] These services were intended to be introduced in mid-2022 but were delayed due to the national driver shortage.

[66] The new services comprise of:

a. 7 additional peak services between Mosgiel and Dunedin, in both directions, at peak morning times (route 77).
b. 8 additional peak services between Mosgiel and Dunedin, in both directions, at peak afternoon/evening times (route 77).

c. 3 new Express peak services from Mosgiel to Dunedin, at peak morning times. After leaving Mosgiel these services terminate at the Bus Hub with no stops along the route (route 78).
d. 6 new Express peak services from Dunedin to Mosgiel, at peak afternoon/evening times. After leaving Dunedin these services terminate in Mosgiel with no stops along the route (route 78).

[67] The table below shows Q1/Q2 patronage for route 77 Mosgiel services in 2023, compared with the same period in 2022 – including patronage data for the route 78 Express and additional peak route 77 services from September 2023.

PATRONAGE		
	Route 77	
Jul-22	21,230	
Aug-22	27,232	
Sep-22	26,400	
Oct-22	23,883	
Nov-22	27,055	
Dec-22	20,750	
Total	**146,550**	
	Route 77	**Route 78 Express**
Jul-23	26,428	n/a
Aug-23	32,200	n/a
Sep-23	29,426	1,939
Oct-23	29,854	1,993
Nov-23	30,396	1,798
Dec-23	23,452	1,200
Total	**171,756**	**6,930**
Grand Total	**178,686 (+22%)**	

Figure 12: Mosgiel route performance, Q1/2 2022 vs 2023

[68] Patronage has increased by 22% comparing Q1/2 2023 with the same period in 2022.

[69] Nearly 7,000 passenger trips have been taken on the 78 service since launch, indicating ~25% of available seating capacity is being utilised.

[70] In isolation, this is a positive result; noting, however, that it should be viewed in the context of a network that is in growth.

[71] Much of the capacity at peak times has been driven by school pupils accessing multiple schools across Dunedin via Mosgiel and Green Island. A new cohort will be starting in February and the 77/78 services should now have capacity to cater for this intake. A more complete view on the performance of the route should be achievable by Q3 2023/24, by which time the initial impact of the new school intake will be evident.

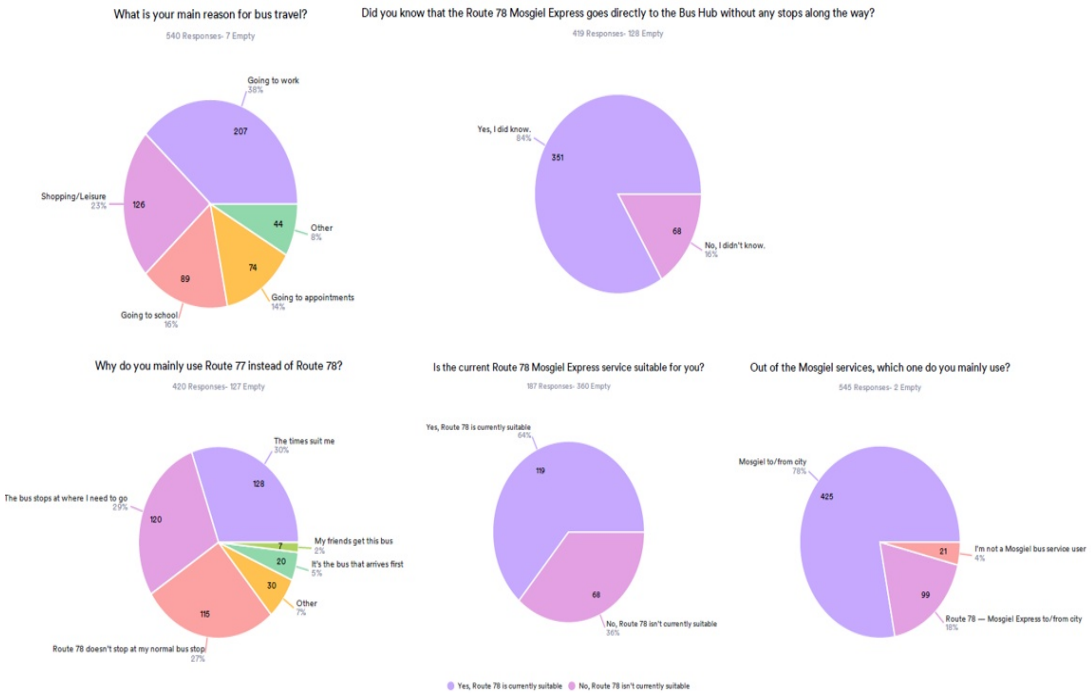
[72] A passenger survey was undertaken in mid-November for ~4 weeks to obtain feedback on the reception for these new services, passenger views on Mosgiel bus services in general, and school travel information.

[73] The results from this survey will be used by Transport staff to assist in shaping future service planning.

[74] Survey highlights include:

a. 182 respondents responded to the question "How satisfied are you with the new Route 78 Mosgiel Express service," with an average rating of 7.20 / 10.
b. 414 respondents responded to the question "How satisfied are you with the Route 77 Mosgiel service," with an average rating of 7.19 / 10.
c. 514 respondents responded to the question "How satisfied are you with our general bus service," with an average rating of 7.32 / 10.

[75] Further selected highlights are noted in the charts below:



OPTIONS

[76] Note this report.

CONSIDERATIONS

Strategic Framework and Policy Considerations

[77] The provision of public transport services in Otago is consistent with the vision to provide safe, sustainable and inclusive transport.

Financial Considerations

[78] Detailed public transport financial performance information will be reported to the Finance Committee.

Significance and Engagement

[79] Not applicable.

Legislative and Risk Considerations

[80] Not applicable.

Climate Change Considerations

[81] Public Transport supports climate change aspirations within Otago.

Communications Considerations

[82] Not applicable.

NEXT STEPS

[83] A further update will be provided to the next Public and Active Transport Committee.

ATTACHMENTS

Nil

7.3. Dunedin Fares and Frequency Business Case

Prepared for:	Public and Active Transport Committee
Report No.	PPT2401
Activity:	Transport: Public Passenger Transport
Author:	Lorraine Cheyne, Manger Transport
Endorsed by:	Richard Saunders, Chief Executive
Date:	7 February 2024

PURPOSE

[1] This paper presents the Dunedin Fares and Frequency Business Case to the Committee and recommends it is sent to full Council for endorsement.

EXECUTIVE SUMMARY

[2] The Dunedin Fares and Frequency single Stage Business Case (FFBC) was completed in late 2023.

[3] The FFBC came from the Shaping Dunedin Future Transport Programme Business Case (SFDT) and adopted a target outcome from the programme business case of 8% public transport mode share for the journey to work and education. The mode share target is a proxy measure for the accessibility and emissions reduction benefits that the FFBC delivers.

[4] FFBC identified a preferred option package of service spans and frequencies with a 50c fare. Council subsequently resolved to consult on the same service spans and frequencies, with a $2.00 Adult Bee Card fare, retaining other fare product relativities, in its LTP.

[5] While the increased service frequencies and operating hours with the $2.00 fare were not shown to deliver the target mode share, it is considered that with the right approach to the supply and price of parking in central Dunedin, 8% mode share would be achieved.

[6] It is recommended that the FFBC is endorsed by Council, with the $2.00 fare, to progress the approval process with the NZ Transport Agency, while ORC continues to work with its Connecting Dunedin partners to promote significant mode shift to PT.

RECOMMENDATION

That the Council:

1) ***Notes*** *this report.*
2) ***Receives*** *the Dunedin Fares and Frequency Business Case.*
3) ***Recommends*** *to Council that it endorses the Dunedin Fares and Frequency Business Case, noting that while the Business Case recommends a 50c fare, a $2.00 Adult Bee Card fare, retaining other fare product relativities, provides a more affordable investment proposal for the community.*

BACKGROUND

[7] The FFBC stems from the Shaping Future Dunedin Transport Programme Business Case (SFDT), and it was prepared under the Connecting Dunedin partnership.

[8] The SFDT itself followed the Ministry of Health (MOH) asking the NZ Transport Agency (NZTA) and Dunedin City Council (DCC) to look at a change to the roads to improve access and integration between the new Dunedin Hospital (NDH) and the city. Six of the seven NDH frontages are on state highways, including St Andrew Street, which is part of the SH88 route to Port Otago. MOH asked that consideration be given to changing the configuration of SH1 through Dunedin.

[9] Transport issues with the location of the NDH identified in the SDTF include:

- The severing effect of the SH1 one way system, with 15,000 vehicles per day in each direction (of which 500-600 are trucks) and long delays at signals, will reduce the ability for the Ministry of Health (MoH) to integrate the hospital with the city and tertiary area, and is likely to create issues for safe and easy pedestrian access to the hospital.
- The pedestrian environment around the hospital rates low for quality of environment and permeability, with noise and air pollution reducing amenity.
- There is low public satisfaction with the flow of traffic through Dunedin's central city at peak times and increasing concerns about congestion on the one-way system.
- The DCC's Central City Plan and University's Masterplan recognise that severance caused by the one-way system is a challenge to fully realising aspirations for placemaking and accessibility to enable economic growth/regeneration and a quality experience for visitors and residents.
- Car trips make up 74% of the journey to work or education (2018), which reduces efficiency, amenity, parking availability, and the potential to achieve carbon reduction targets. Construction of the new hospital in 2022 will cause disruption and delays for people driving on SH1, and there is an opportunity to encourage people to change to a different mode during this period

[10] The FFBC supports the SFDT outcome of improving multimodal access to and within the city centre. To this this end the FFBC adopts a single Outcome Statement *"To increase bus patronage for journeys to work/education by delivering an affordable service that incentivises use."* The FFBC identifies the problem that "*public transport is not attractive enough compared to other travel options, particularly in growth areas, leading to low utilisation and mode share".* The issue of attractiveness was further explained as the multiple barriers for people who might want to use the bus more often – such as; inadequate service span, long journey times, unreliability, inadequate infrastructure and some lack of frequency.

[11] Also derived from the SFDT, the FFBC adopted a target outcome of 8% public transport mode share for the journey to work and education. The 8% mode share for trips to work and education target is not for the "benefit" of patronage growth in and of itself. Mode shift "buys" improved access which reduces the cost of travel to individuals, and benefits businesses which gain access to more potential employees. It also buys some 42t CO2e per year of light vehicle emissions savings.

[12] The FFBC was completed as a comprehensive single stage business case. It is provided in full in Attachment 1. The key steps in the business case were:

- Problem Definition and Investment Logic Mapping;
- Evidence gathering including public survey and willingness to pay analysis;

- Long List Interventions to Long List packages using NZTA Early Assessment Shifting Tool, (EAST);
- Long List Packages to Medium List evaluation using Levers Tool evaluation and a Stakeholder Workshop;
- Medium List to Short List evaluation using Level Tool, Multi-criteria analysis including sensitivity testing, initial modelling;
- Short List Evaluation to emerging preferred package using Levers Tool, modelling and a stakeholder workshop.

[13] A summary of the FFBC was reported to the Committee at its meeting in November 2023. In that report the FFBC identified a preferred option package of service spans and frequencies (as set out in Table 1) with a 50c fare.

Table 1: Preferred Service Spans and Frequencies for Dunedin Bus Network

Type of Service	Frequency	Times	Span
Primary Services	15-minute headway	7am – 7pm (seven days)	6am – 11.30
	30-minute headway	Other times	
Secondary Services	15-minute headway	Weekday peak	
	30-minute headway	All other times	
Targeted Services	Current service levels		

- Proposed Primary Service Routes include: 5 Pine Hill - City - Calton Hill; 6 Calton Hill - City - Pine Hill; 8 St Clair - City – Normanby, Normanby - City - St Clair; 10 Opoho - City - Shiel Hill; 11 Shiel Hill - City – Opoho; 63 Balaclava - City - Logan Park, Logan Park - City – Balaclava.
- Proposed Secondary Services Routes include: 3 Ross Creek - City - Ocean Grove; Ocean Grove - City - Ross Creek; 14 Port Chalmers – City - Port Chalmers; 15 Ridge Runner Northbound, Ridge Runner Southbound; 18 Portobello (Harington Point) – City - Portobello (Harington Point); 19 Waverley - City – Belleknowes. Belleknowes - City – Waverley; 33 Corstorphine - Caversham - City – Wakari, Wakari - City - Caversham – Corstorphine; 37 Concord - City – University; 38 University - City – Concord; 44 St Kilda - City - Halfway Bush, Halfway Bush - City – St Kilda; 50 St Clair Park - City – Helensburgh, Helensburgh - City - St Clair Park; 55 St Kilda - City – Brockville, Brockville - City - St Kilda; 61 City – Kenmure, Kenmure – City; 70 Brighton - Abbotsford and Green Island, Green Island - Abbotsford and Brighton; 77 Mosgiel, Fairfield, Green Island – City, City – Green Island, Fairfield, Mosgiel.
- Targeted Services Routes include Route 1 Palmerston –City, 80 Mosgiel East circuit.

[14] In November 2023, Councillors directed staff to prepare a Dunedin Public Transport network improvements programme for the Regional Land Transport Plan based on the FFBC, 3 preferred option 16(b) of services spans and frequencies with a 50c fare.

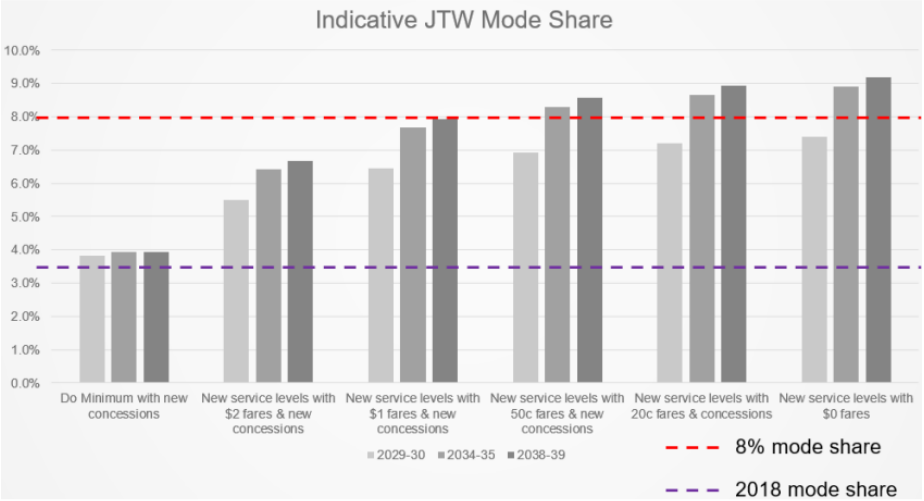
[15] In December, as part of its Long-Term Plan (LTP) development Council has resolved to consult on the preferred option 16(b) increased service frequencies and operating hours, and $2.00 Adult Bee Card fare, retaining other fare product relativities.

DISCUSSION

[16] An evaluation of projected mode share rates in 2029-30 (two LTP cycles), 2034/35 and 2038/39 in the FFBC shows when/if new service spans and frequencies are likely to attract mode share. When compared to the 2018 mode share percentage, the graph shows that by 2035, three of the five fare options (0.50, 0.20 and a free fare) achieve the

8% mode share target. It takes an additional 5 years (by 2038/39) to achieve 8% mode share with the $1.00 fare option.

Table 2 Projected Journey to Work Mode Share



[17] While the FFBC did not demonstrate that the $2.00 fare would achieve the target mode share, Council's decision on the investment proposal for the LTP takes account of the affordability of the network improvements to Dunedin ratepayers, and any concern that a low fare in Dunedin could set a precedent for fares in the Region.

[18] Staff advice for the LTP noted that at the time the FFBC was being finalised, the strong patronage growth post-COVID in Dunedin was not yet evident. It was noted that it was too early to assess what combination of factors including fare subsidies, Community Connect fares, or the return to full-timetables and high reliability (with better and more reliable Real Time Information) was driving the patronage growth.

[19] Further, there are "levers" which we know do influence mode shift, but which were not evaluated in the FFBC. The key one is the availability and cost of parking. Management of the supply and cost of parking was not within the scope of the FFBC because it is a DCC function. However, DCC is a Connecting Dunedin partner, and parking management in and around the CBD is a DCC deliverable from the SFDT programme. It is considered that with the right approach to the supply and price of parking in central Dunedin that target 8% mode share would be achieved.

[20] Managing the supply and cost of parking can be a more effective lever than fare price to achieve mode shift from single occupancy vehicles (SOVs). This is because low fares are as likely to be attractive to walkers and cyclists as they are to car drivers, whereas walkers and cyclists are not affected by parking cost or lack of available parking spaces.

[21] Over the 10-year LTP period the investment proposal of increased service spans and frequencies for the Dunedin network is significant irrespective of the farebox recovery. Council's preference for the $2.00 as the more affordable investment for ratepayers is still contingent on co-investment from NZTA at ORC's standard funding assistance ratio of 51%. The FFBC, and ORC's investment proposal for consultation (not being the FFBC preferred combination of fare and frequencies) has not yet been considered by the NZTA Board for endorsement.

[22] While NZTA staff were part of the FFBC project team, the change of government in October 2023 as the FFBC was being finalised means we have less surety than usual at this stage of the process.

[23] Even if the NZTA Board endorses the FFBC, due to the timing of the change of government and the extended timeframe for the Government Policy Statement on Land Transport (GPS), it is also unclear if there will be sufficient funding available in the Public Transport Services activity class.

[24] Council's directions on the investment proposal for the RLTP and the LTP ultimately need to be aligned. However, due to the significant uncertainty around funding, we propose that the alignment be done after LTP consultation, when the (new) draft GPS should be available and NZTA will have given consideration to the FFBC.

OPTIONS

[25] Option 1- Council endorses the FFBC:

- While $2.00 is not in the preferred fare and frequency package, the FFBC none-the-less provides a comprehensive assessment of the scope of the levers available to ORC to influence PT mode share in Dunedin. PT mode share buys CO2 emissions reductions, travel choice and wider economic benefits. The economic case of the FFBC assesses the impact different fares have on achieving these benefits, being outcomes which are jointly agreed with the Connecting Dunedin Partners. It is therefore recommended that Council endorses the FFBC and continue to work with our Connecting Dunedin partners to fund and implement measures to drive PT mode share as affordably as possible.

[26] Option 2 – Council does not endorse the FFBC

- Given Council's preference for retaining a $2.00 fare, Council could elect not to endorse the FFBC. However, the FFBC has provided a rationale for a significant investment proposal to transform the Dunedin Bus network to support the objectives the SDFT programme. It is appropriate that an equitable and more affordable proposal is put to the Dunedin public for feedback as part of the current LTP. As noted in the report, any PT investment is contingent on co-investment from NZTA. In the absence of the FFBC, there is no case for ORC to seek co-investment from NZTA for improvements to the network in the current National Land Transport Programme (NLTP), that is 2024 to 2027. Therefore, Option 2, to not endorse the FFBC is not a recommended.

CONSIDERATIONS

Strategic Framework and Policy Considerations

[27] The Regional Public Transport Plan 2021-31 (RPTP) outlines Council's aspiration to increase the share of people travelling by public transport, and in turn reduce emissions of greenhouse gases, other particulates and noise; reduce congestion; and make our towns and cities more liveable. The service spans and frequencies proposed in the FFBC align with this policy direction but, at other points, are inconsistent with the service levels in the RPTP. Implementation of the FFBC will require the levels of service for bus network operations to be reviewed, this can be done in the upcoming RPTP review.

Financial Considerations

[28] The Fares & Frequencies Business Case – Preferred Option of increased service frequencies and operating hour with the $2.00 Adult Bee Card fare (other fare products

retaining present relativities) requires $461.74M investment over 10 years; with a total impact on the Targeted Rate of $214.677M.

Significance and Engagement

[29] The investment programmes for public transport in Dunedin other than the Status Quo are deemed to be significant with reference to the Local Government Act 2002, and Council's own significance policy as they significantly alter PT levels of service across the Dunedin network. The investment proposal is to be consulted on as part of the LTP.

[30] To FFBC was informed by the community's needs/wants for bus services through a public feedback survey undertaken in November 2022. The survey garnered a total of 1795 responses, considered to be a remarkably high level of engagement.

Legislative and Risk Considerations

[31] There are a number of risks associated with the FFBC. A key risk being that the GPS has not been finalised. It is not clear that the FFBC will be sufficiently aligned to (new) government priorities for Transport investment.

[32] A further risk is the ability for NZTA to provide grant funding. This will be limited by the upper limit of the PT Services Work Category. This funding band will not be confirmed until the GPS is finalised.

[33] Other key risks associated with the proposed increase in frequencies include the public (ratepayer) appetite for significant rates increases to cover the cost of these services.

[34] A key risk of not implementing the FFBC is that citywide emissions reductions targets, such as those in DCC's Zero Carbon Plan 2030, and any proposed for ORC's Climate Strategy will not be achieved.

[35] The procurement of all public transport services is required to be in accordance with the Land Transport Management Act 2003 and conform to the Sustainable Public Transport Framework.

Climate Change Considerations

[36] Increasing PT mode share will reduce CO2 emissions. While the FFBC showed that lower fares are required to achieve an estimated 42t CO2e per year of light vehicle emissions savings within 10 years, 8% mode shift and the consequential CO2 reduction can still be achieved it supporting measures such as parking management are implemented.

Communications Considerations

[37] Changes to service spans and frequencies will need to be communicated as they are implemented.

NEXT STEPS

[38] Consultation on the investment proposal for increased service spans and frequencies with a $2.00 Adult Bee Card fare (retaining concession relativities) as part of the LTP.

ATTACHMENTS

1. rpt Dunedin Fares and Frequencies SSBC Updated Final 20231013 (1) [**7.3.1** - 225 pages]

Shaping Future Dunedin Transport
Fares and Frequencies
Single Stage Business Case

PREPARED FOR OTAGO REGIONAL COUNCIL | OCTOBER 2023

Stantec

Revision schedule

Rev No	Date	Description	Signature of Typed Name (documentation on file)			
			Prepared by	**Checked by**	**Reviewed by**	**Approved by**
1	20/1/23	Draft Strategic Case	C-L Lee, S Lilley	S Connolly	S Connolly	S Lilley
2	12/9/23	SSBC Working Draft	C-L Lee, S Lilley, S Connolly	K Huard	D Weir	S Lilley
3	18/9/23	SSBC Final Draft	C-L Lee, S Lilley, S Connolly	S Connolly	D Weir	S Connolly
4	10/10/23	Final SSBC	C-L Lee, S Connolly	S Connolly	D Weir	S Connolly
5	13/10/23	Updated Final SSBC	D Weir	S Connolly	D Weir	S Connolly

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Abbreviations

Abbreviation	Full Name
2GP	Dunedin Second Generation District Plan
BCR	Benefit Cost Ratio
CBD	Central Business District
COVID-19	Coronavirus disease (2019)
DCC	Dunedin City Council
ERP	Emissions Reduction Plan
EAST	Early Assessment Sifting Tool
FFBC	Fares and Frequency Single Stage Business Case
GETS	Government Electronic Tender Service
GHG	Greenhouse Gas (also referred to as carbon emissions)
GPS	Government Policy Statement on Land Transport 2021/22 – 2030/31
HCV	Heavy Commercial Vehicle
IPM	Investment Prioritisation Method
KPI	Key Performance Indicator
LTP	Long-term Plan
MBCM	Monetised Benefits and Costs Manual
MCA	Multi-Criteria Analysis
NDH	New Dunedin Hospital
NLTF	National Land Transport Fund
NLTP	National Land Transport Programme
NPS-UD	National Policy Statement on Urban Development 2020
ONF	One Network Framework
ORC	Otago Regional Council
OUSA	Otago University Students' Association
PBC	Programme Business Case
PT	Public Transport
PTOM	Public Transport Operating Model
RLTP	Otago-Southland Regional Land Transport Plan
RPS	Partially Operative Otago Regional Policy Statement June 2019

Abbreviation	Full Name
RPTP	Regional Public Transport Plan
RTC	Otago Regional Transport Committee
SFDT	Shaping Future Dunedin Transport
SH	State Highway
SSBC	Single Stage Business Case
Te Whatu Ora	Te Whatu Ora Health New Zealand
TOF	Transport Outcomes Framework
2GP	Second Generation District Plan
VKT	Vehicle Kilometres Travelled
VOS	Value, Outcome and Standards
Waka Kotahi	Waka Kotahi NZ Transport Agency
ZCA	Zero Carbon Alliance

Executive Summary

Overview

Otago Regional Council (ORC) has developed this Fares and Frequency Single Stage Business Case (FFBC) to identify a realistic and cost-effective public transport improvement programme that will increase use of public transport in Dunedin, especially for journeys to work and education. The FFBC was developed in collaboration with ORC's Connecting Dunedin partners, Dunedin City Council (DCC) and Waka Kotahi NZ Transport Agency (Waka Kotahi).

The Shaping Future Dunedin Transport Programme Business Case (SFDT PBC) demonstrated that investment in public transport was a priority to achieve the programme outcomes relating to multi-modal access and liveability. Urgency is required due to the construction of the new Dunedin hospital, which began in 2023 and is expected to lead to travel delays for vehicles using State Highway (SH) 1 and SH88 within the central city. Travel disruption during construction and operation presents a compelling opportunity for people to change mode.

The SFDT PBC identified that a target of 8% public transport mode share for the journey to work was feasible by 2030, with this FFBC expected to enable the majority of this mode shift. Based on experience in Dunedin and elsewhere in the country, it was identified that the quickest way to achieve this growth would be by combination of changes to frequencies and fares.

Context

The Dunedin estimated resident population for 2020 was 132,800. Post pandemic growth projections show the population is expected to reach 142,000 in 2048. Population growth is driving demand for housing, with most current residential growth occurring in the outer west and south-west suburbs such as Mosgiel, where land is flat. These areas are connected to the main Dunedin urban area by SH1, with around 30,000 vehicles per day entering the city from the south, with 80% of these accessing the CBD, University and Harbourside. DCC envisages that much of the future growth will be through intensification within the existing urban area.

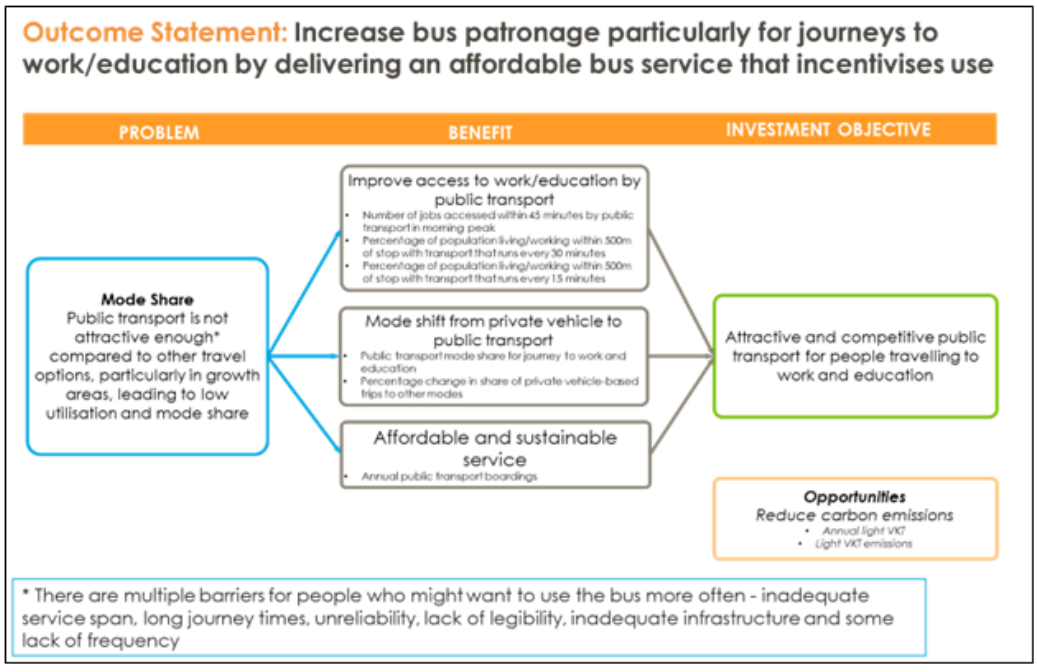
There have been substantial improvements to public transport in Dunedin since 2015, such as more direct routes, improved frequency, clockface timetabling, new bus hub and, in 2020, replacement of the five-zone fare structure with a trial of a $2 flat fare. Patronage has increased significantly as a result of these initiatives, but many people remain hesitant to use the bus, and only 3.4% of people used public transport for the journey to work in 2018. Private vehicle trips are preferred, and this is one of the reasons why the transport sector produces 39% of the city's GHG emissions.

Problems and Benefits

This single stage business case (SSBC) aims to respond to one key problem:

- Public transport is not attractive enough compared to other travel options, particularly in growth areas, leading to low utilisation and mode share.

The following investment logic map shows this problem and the three benefits that the SSBC aims to realise, along with the resulting single investment objective and the overarching outcome statement.



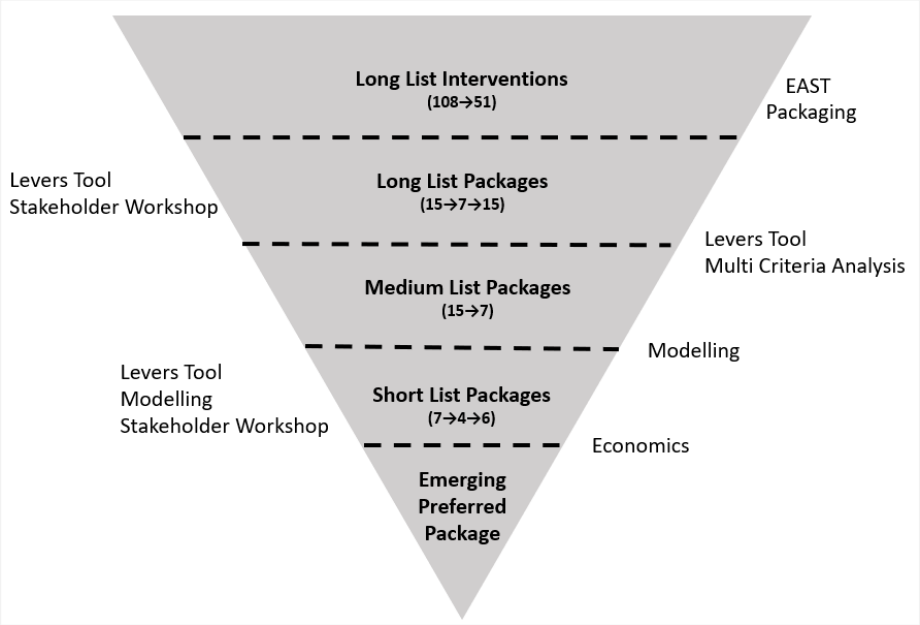
Investigation of the problems found:

- Higher frequency services are more attractive to customers, and improved frequencies in the peak and during the day are identified as the top ranked improvement that would encourage survey participants to use the bus more often. Currently, only 6 out of 23 bus routes have frequencies above 30 minutes.
- Differing frequencies during peak and off peak, and between weekdays and weekends make it difficult for customers to plan trips and adds complexity.
- Low frequencies on some routes make transfers time consuming, which can lead to long wait times for customers, particularly if some services are cancelled.
- Current service spans do not meet the needs of hospital shift workers or many in the retail and hospitality sector, where availability and frequency of early morning and late evening services on all days of the week is important.
- 72% of survey respondents are happy with current bus fares, 27% said they should be cheaper.
- Free fares were ranked top of options that would encourage survey respondents to travel more by bus.
- 75% of survey respondents said they could use the bus, or use it more, if improvements were made, showing strong latent demand.
- Patronage is growing slowly at an annual average rate of 3.9% per year (2016/17 – 2022/23), although Dunedin has outperformed most other cities in the COVID and post-COVID period.
- 40% of Dunedin residents have used the public transport system in the last year, which places Dunedin third behind Wellington and Auckland, and ahead of Christchurch, Tauranga, and Hamilton.

The evidence showed that, as identified in the SFDT PBC, frequencies are a barrier to public transport use, and improvements are likely to lead to growth in mode share as would be expected from international research into the response to public transport service changes. It also showed that cheaper fares are likely to lead to growth in mode share. Changes to fares can be implemented relatively quickly, without the long lead times required for service changes and associated contract changes, making the 2030 mode share target date more achievable. The evidence also supported service span improvements, to make public transport more appealing to health, hospitality, and retail sectors, which are significant in central Dunedin.

Option Development and Assessment

The following figure outlines the process taken by the SSBC for identifying a preferred package of improvements, from the identification of long list fare and service (frequency, span, and express) interventions, through packaging and package filtering, to identification of the preferred option.



A modified version of Waka Kotahi's Early Assessment Sifting Tool (EAST) reduced the initial long list of 108 discrete intervention options to 51, which were then organised together to create sub-packages or groupings of interventions that applied to the whole network. This grouping process created 22 sub-packages which were further combined into an initial long list of 15 packages made up of fare and service improvement combinations. Seven packages were taken to a stakeholder workshop following initial performance assessment, with the workshop adding eight additional packages.

The final long list of 15 packages is shown in the following table, with the Do Minimum representing current fare and service levels, including funded improvements to Mosgiel services that were implemented in 2023.

Package	Fares		Frequency	
	Fare Adult Bee Card	Primary	Secondary	Targeted
Do Minimum	$2.00		Varies by route	
1	$1.50	15min	15min	60min
2	$2.50	15min		60min
3	$1.00 Under 18 travel free	15min	30min (15min during peak)	60min
4	City Zone: Free 1 zone: $1.00 2 zones: $1.50 3 zones: $2.00	15min	30min (15min during peak)	60min
5	$1.00	15min	30min (15min during peak)	60min
6	$1.50	15min	30min (15min during peak)	60min
7	$2.00 Cap $12.00 per week	15min	30min (15min during peak)	60min
8	Free	15min	15min	60min
9	Free	15min	30min (15min during peak)	60min
10	$2.00 Cap $12.00 per week	15min	15min	60min
11	Inner Zone: Free 1 zone: $1.00 2 zones: $1.50 3 zones: $2.00	15min	30min (15min during peak)	60min
12	1 zone: $2.00 2 zones: $4.00 3 zones: $10.00	15min	30min (15min during peak)	60min
13	1 zone: $2.00 2 zones: $4.00 3 zones: $10.00	15min (30min on weekday evenings and weekends)	30min (15min during peak)	120min
14	$1.00	15min (30min on weekday evenings and weekends)	30min (15min during peak)	120min
15	Free	15min (30min on weekday evenings and weekends)	30min (15min during peak)	120min

The free fare packages 8 and 9 were recommended by a multi-criteria assessment (MCA), ranking top and close second. Packages 1, 3, 5, 10 and 15, also scored well. A range of MCA sensitivity tests were undertaken, which identified Package 9 was the recommended programme, ranking top or second across all tests. Packages 3 and 4 also performed well across many tests.

Packages 1, 8, 9 and 10 are estimated to exceed the 8% target, with Package 15 coming very close. The free fare packages of 8, 9 and 15 were found to represent greater value for money than others – they achieve the same mode share as more expensive packages but for less additional net cost per annum.

These assessments were considered by the Connecting Dunedin partner representatives. It was identified that the free fare packages were unlikely to be feasible as they would not be supported by Waka Kotahi, but that they may be retained in the medium list for further testing.

The resulting medium list included a spread of packages:

- High-cost packages that exceed 8% mode share and performed well in MCA: packages 8 and 10.
- Moderate cost packages that achieve close to 8% mode share, with a range of MCA rankings: packages 3, 4, 5 and 9 (packages 3 and 5 were similar with the same frequency and $1 flat fare, but Package 3 included free under 18 travel)
- Lower cost packages that fall short of 8% mode share, with a range of MCA rankings: packages 13 and 15.

The medium list packages were assessed against a range of metrics including Dunedin CUBE Transport Model outputs. A summary of the results and decisions are provided below.

Consideration	3 / 5	4	8	9	10	13	15
Additional net cost ($m) pa	21.6	21.4	39.8	23.2	35.5	18.1	20.2
Indicative mode share 2030 (Levers Tool)	7.3%	7.1%	10.3%	8.2%	8.4%	5.3%	7.8%
Indicative mode share 2028 (Cube Model)	7.0%	7.2%	10.4%	9.9%	5.9%	4.6%	9.8%
Passengers (Cube Model)	27k	31k	51k	46k	22k	15k	46k
VKT (Cube Model)	3.14m	3.14m	3.06m	3.08m	3.16m	3.19m	3.08m
MCA Rank	=3	9	2	1	=3	15	=3
Decision	**Short List**	**Short List**	**Exclude** High cost but only slightly better than P9	**Short List**	**Exclude:** High cost but only slightly better than P9	**Exclude:** Low cost but poor performing for all metrics	**Short List**

Four options were shortlisted – packages 4, 5, 9 and 15 – Package 3 (free travel for under 18s) was replaced with Package 5, which had the same service frequencies but a $1 flat fare. At this time, the Do Minimum was updated with the introduction of Community Connect. The change in the Do Minimum resulted in an update to marginal net cost over Do Minimum as well as expected mode share. A high-level economic assessment was completed for the shortlisted options using the updated figures, and the results are summarised below.

	Pay For Travel		Free Fares	
Package	**4**	**5**	**9**	**15**
Additional net cost ($m) pa	19.7	19.6	23.2	20.2
Indicative mode share 2030 (Levers Tool)	7.1%	7.1%	8.2%	7.8%
Indicative mode share 2028 (Cube Model)	7.2%	7.0%	9.9%	9.8%
Passengers (Cube Model)	31k	27k	46k	46k
VKT (Cube Model)	3.14m	3.14m	3.08m	3.08m
MCA Rank	9	=3	1	=3
BCR	2.6	2.2	4.2	4.8

Package 15 was identified as the most realistic step change for Dunedin, offering a significant improvement over current frequency. There were concerns that the 15-minute frequency all day every day from 6.30am-11.30pm for primary routes under packages 4, 5 and 9 would not be well utilised and would lead to congestion within the hub and city approach roads. There were also concerns about introducing the 60-minute frequencies on targeted services, since the current timetables represent tailored services agreed with those communities, and it was considered that changes to those routes should be looked at separately from this business case.

As a result, a new hybrid Package 16 was added to the short list to allow testing of a slightly amended version of the Package 15 service. Package 16 builds on Package 15 with the following changes:

- Primary services – 15-minute daytime frequency to be extended to weekends, as this will provide a service for health, retail, and hospitality sectors.
- Targeted services – Do Minimum (retain current service levels).
- Package 16a: $1 fare; Package 16b: 50c fare. A flat fare had performed best in all the assessments, and these fares were selected after testing five different flat fare options ($2, $1, 50c, 20c, free) in the Levers Tool. These fares were able to achieve the 8% mode share target whilst still retaining farebox revenue.

The final short list of six packages was modelled using the CUBE model. The outputs were used to determine indicative single year economic benefits, incremental benefit BCRs, and overall BCR's, for the emerging short list and shortlisted options. The following table shows the outcome of this assessment, with the options ordered by cost.

Package	Indicative Annual Net Cost over Do Minimum ($m)	Indicative Annual Benefits over Do Minimum ($m)	Indicative Incremental benefit cost ratio (BCR)	Indicative BCR (over Do Minimum)
P16a ($1)	$16.2	$35.5	2.2 (3rd best)	2.2
P16b (50c)	**$17.7**	**$55.3**	**13.2 (2nd best)**	**3.1 (3rd best)**
P5 ($1)	*$18.7*	*$35.6*	*-19.7*	*1.9*
P4 (zonal/free)	*$18.8*	*$41.6*	*-12.5*	*2.2*
P15 (free)	***$19.8***	***$79.0***	***11.3 (best)***	***4.0 (best)***
P9 (free)	*$22.9*	*$79.8*	*0.3*	*3.5 (2nd best)*

Package 15 was found to be the best performing option from an economic perspective. However, as a free fare package it is not feasible. Package 16b is the next best performing option in terms of incremental analysis, has a strong overall BCR, and is the best performing of the paid fare options.

The analysis identified Package 16b as the preferred option. It has the second lowest cost, provides good return on investment, and achieves the mode share target by 2034-35. Connecting Dunedin partner representatives subsequently confirmed it as the preferred option.

Preferred Package

The preferred option Package 16b has the characteristics outlined in the following table.

Type of Service	Frequency	Times	Span
Primary Services	15-minute headway	7am – 7pm (seven days)	6am – 11.30
	30-minute headway	Other times	
Secondary Services	15-minute headway	Weekday peak	
	30-minute headway	All other times	
Targeted Services	Current service levels		
Fares	From 1 September 2024 the adult Bee Card fare will be 50 cents. Other fare products will retain present relativities to the adult Bee Card fare.		

It will deliver the following benefits sought, meeting all targets, most within the required timeframe, and exceeding most of them.

Benefit	Measure	Baseline	Target	Preferred Package
Improve access to work/education	Percentage of urban population living within 500m of stop with public transport that runs every 15 minutes during the morning peak	32% in 2023	80% in 2027	84% in 2027

Benefit	Measure	Baseline	Target	Preferred Package
by public transport	Percentage of urban population living within 500m of stop with public transport that runs every 30 minutes during the weekday interpeak	72% in 2023	80% in 2027	84% in 2027
	Percentage of urban population living within 500m of stop with public transport that runs every 30 minutes during the weekend daytime	33% in 2023	80% in 2027	80% in 2027
Mode shift from private vehicles to public transport	Public transport mode share for journey to work and education (census data)	3.4% in 2018	8.0% in 2030	6.9% in 2029-30 8.3% in 2034-35
	Annual public transport boardings	2.8m in 2022/23	5.5m in 2038/39	6.0m in 2038/39
Carbon emissions from light vehicle fleet	Light vehicle carbon emission saving (Dunedin CUBE Transport Model)	DM 129t CO_2e in 2028 and 125t in 2038	160t CO_2e in 2028 and 150t in 2038	171t CO_2e in 2028 and 155t in 2038

The 50th percentile cost and revenue estimates of the preferred package are shown below, by NLTP period. The $403.52 million cost compares to a Do Minimum cost of $207.61 million over the same period, with a corresponding funding increase requirement of $195.91 million over the decade.

$m	2024-27	2027-30	2030-33	2034-35	Total
Fare revenue	($2.61)	($3.54)	($4.06)	($1.45)	($11.65)
Fare substitute	($4.98)	($4.98)	($4.98)	($1.66)	($16.61)
Gross operating cost	$94.86	$135.52	$148.07	$51.34	$429.78
Capital cost	$2.00	$0.00	$0.00	$0.00	$2.00
Total cost to funders	**$89.27**	**$127.00**	**$139.02**	**$48.24**	**$403.52**

The preferred package has been assessed to have a base BCR of 2.5, providing $889 million in economic benefits compared to $355 million in economic costs over a 40-year evaluation period, and associated net present value of $534 million. Benefits come from four main categories: emissions, time savings (car passengers and public transport passengers), health benefits, and tax benefits/increased labour supply. Costs reflect the increased operating cost of service improvements over the Do Minimum, as well as minor improvements to bus stop and layover infrastructure to reliably enable the additional frequencies. Sensitivity analysis confirms a BCR range of 1.0 to 6.8, with the extremes representing the 'most pessimistic' and 'most optimistic' scenarios, indicating that it can be expected to provide a positive economic return under all likely scenarios. The BCR of 2.5, a very high GPS Strategic Alignment, and a high Scheduling Alignment, giving it a recommended National Land Transport Programme investment priority of 2 (out of 12).

Implementation Plan

The proposed timing for delivery of key elements of the preferred package is as follows.

Proposed Implementation	Description	Estimated Timing
Fare Change	$0.50 flat fare (Adult Bee Card)	1 September 2024
Unit 3 and 5 Service Levels	Contracts commence with improved service levels	1 July 2025
Unit 1 and 2 Service Levels	Contracts commence with improved service levels	1 October 2026
Unit 4 Service Levels	Contracts commence with improved service levels	15 August 2028

Service level changes align with operational contract end dates except for Unit 3, where a variation will be required.

Funding

The preferred package requires an increase in capital and operating costs. It is assumed that the improvements will be funded through passenger fares, increased local rates, and National Land Transport Fund allocation at the standard 51% funding assistance rate. Supplementary funding sources have been identified and will be actively pursued by ORC

to offset costs. An ORC Councillor briefing was held on 23 August 2023 to articulate the service level improvements and associated costs. Councillors noted the potential for significant additional funding, and noted this would be consulted on through the Long Term Plan consultation in early 2024, which will confirm rates funding.

The recommended adult Bee Card flat fare of 50 cents is lower than the current flat fare of $2. However, the low fares contribute strongly to mode shift and are essential to enable the Connecting Dunedin partners to achieve the 8% public transport mode share that has been committed to through the adoption of the SFDT PBC. If fares were to remain at the current level, there would need to be significantly higher investment in frequencies to achieve the same 8% mode share, and it is unlikely that this would be fundable, or implementable by 2030, as significant preparation would be required both by bus operators and in terms of investment in supporting infrastructure.

Delivery

ORC will be the project sponsor responsible for the success and delivery of the project and will provide political oversight and achievement of the benefits and outcomes identified in this SSBC. ORC will also be a delivery partner alongside bus operators responsible for delivering services. The investment proposal will be procured in alignment with the ORC's Transport Activity Procurement Strategy 2021 (Procurement Strategy), which will need to be updated, and the ORC Procurement and Contract Management Policy May 2022.

Risks

A risk assessment has been completed. The following risks had a high residual threat or opportunity rating:

- There is a risk that policy levers change, resulting in lower or higher uptake of public transport. Ongoing communication with policy makers is required to understand potential changes, as well as flexibility to adapt services to respond to changes.
- There is a risk that inadequate public communications cause confusion and result in mode-shift away from public transport. An effective public communication strategy will be developed to mitigate this risk.
- The 2023 General Election may result in a change in direction or priorities for transport, which may affect funding available for public transport.

Next Steps

It is recommended that ORC approves the business case and that Waka Kotahi subsequently endorse it. These and further next steps are shown below.

Action	Timeframe	Party
Council approves business case	Late 2023	ORC
Waka Kotahi endorses business case	End 2023	Waka Kotahi
Actively pursue supplementary funding sources	Mid 2024	ORC
Confirm costs - update bus network in Remix and reconfirm the resource requirements (buses, hours, kms)	Late 2023	ORC
Update procurement plan	Late 2023	ORC
Commence contract variation and pre-procurement processes for operator procurement	2024 - 2026	ORC
Confirm the communications approach to present the vision for the network to the community	Early 2024	ORC
Develop the project plan for an update of the Otago Regional Public Transport Plan	Early 2024	ORC
Consult through LTP and RLTP	Mid 2024	ORC

STRATEGIC CASE

1 Introduction

Over the last ten years, Otago Regional Council (ORC) has made significant improvements to public transport services in Dunedin. Routes are now more direct, there is a central bus hub, and a flat fare of $2 has been trialled. In response, patronage has slowly increased, however in 2018 bus trips only formed 3.4% of the journey to work, with most people choosing to drive.

In 2021, the Shaping Future Dunedin Transport (SFDT) Programme Business Case identified that a target of 8% bus use for journey to work by 2030 was feasible if the public transport elements of the programme were implemented, with changes to fares and frequencies expected to provide the lion's share of the shift. The 8% mode share target was based on patronage trends combined with an estimate of the maximum mode shift that has been achievable in other NZ centres, recognising that 2030 was a relatively short period for changes to be implemented and influence patronage. Under these circumstances, it was identified that the quickest way to achieve this mode shift growth would be by a combination of changes to frequencies and fares.

Increasing public transport mode share will improve travel times for all modes, have positive health outcomes, reduce emissions, and improve transport choice in Dunedin, particularly during the building of the new Dunedin Hospital, which will affect travel time reliability on key arterial routes in the city centre.

In parallel with the development of this business case, Dunedin City Council (DCC) identified a target of 18% bus use for all trips by 2030, to enable the Council's Zero Carbon Goal to be met[1].

1.1 Purpose

The purpose of the Fares and Frequency Single Stage Business Case (FFBC) is to identify a realistic and cost-effective public transport improvement programme option which will increase use of the Dunedin bus service, to achieve the SFDT 8% target, especially for journeys to work or education.

The preferred option will be aligned to the Shaping Future Dunedin Transport Programme Business Case (SFDT PBC) and the Otago Regional Public Transport Plan and supported by the Connecting Dunedin partners. The SFDT 8% PT mode share target by 2030 will guide the package development.

1.2 Scope

This FFBC focuses on fare and frequency improvements. The following are within scope:

- Public transport service levels – using the Regional Public Transport Plan (RPTP) as a guide[2], identify service improvements for frequency and service span, and timing of any changes.
- Fare pricing – propose a preferred option for fare pricing, that aligns with national and regional policy, and the RPTP's aspiration for fares that are affordable for bus users and ratepayers.
- Additional revenue sources – identify other sources of revenue that could be used to fund the preferred option.

The following are not part of the scope:

- Development of new timetables and route changes.
- Consideration of bus size and motive power.
- On-demand public transport solutions.
- The appropriate level of infrastructure that should be provided at stops.
- Public transport priority measures (this will be addressed by Dunedin City Council).
- Travel demand management plan.

1 DCC Zero Carbon Goal: net zero emissions of all greenhouse gases, other than biogenic methane, by 2030.

2 The outcomes from this business case may require ORC to revisit parts of its RPTP.

1.3 Background

1.3.1 Shaping Future Dunedin Transport Programme Business Case

The catalyst for this FFBC was the SFDT PBC, which was approved in 2022. The SFDT PBC identified several further business cases, of which the FFBC was one, and a number of other initiatives.

The purpose of the SFDT PBC was to identify changes to the Dunedin transport network that would best support the location of the new Dunedin Hospital (NDH), whilst at the same time providing a future focused, accessible transport system enabling placemaking and liveability outcomes for the city. The SFDT PBC problems and benefits are shown in Figure 1-1 below.

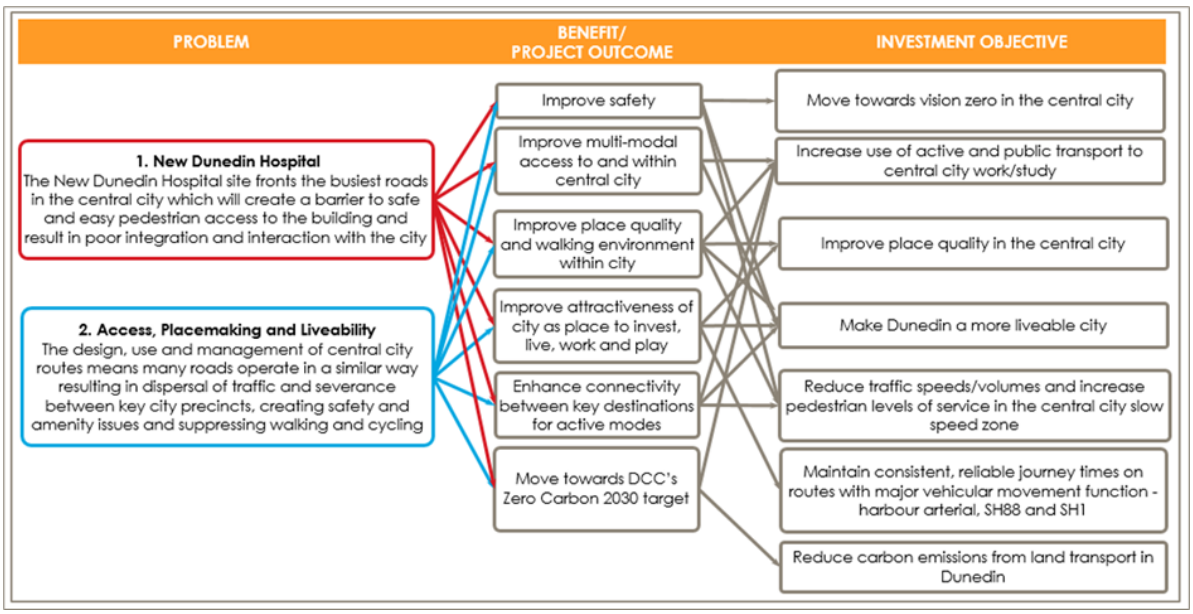


Figure 1-1: SFDT PBC Problems and Benefits

The project enabled the Connecting Dunedin partners - DCC, Waka Kotahi NZ Transport Agency (Waka Kotahi), and Otago Regional Council (ORC) - to confirm and commit to the best long-term transport and urban mobility system for central Dunedin.

The benefits which are particularly relevant for this business case are 'improve multi-modal access to and within the central city', and 'improve environmental outcomes'. The most relevant investment objectives are 'increase use of active and public transport to central city work/study', 'make Dunedin a more liveable city' and 'reduce carbon emissions from land transport in Dunedin'.

The Strategic Case for the SFDT PBC was not specific enough to be used for this FFBC as it covered all modes. A targeted case for change, with a focus on public transport as part of the overall transport system, has been developed for this business case.

1.3.2 Public Transport in Dunedin

There have been substantial efforts to improve elements of Dunedin's public transport system since 2015. Prior to 2015, different routes operated in different areas in the daytime, evenings, weekends, and holidays, with infrequent and poorly spread timings and complex routes. The fare structure was also confusing, with six zones.

The 2014/15 RPTP set out several significant service changes across all routes. These included more direct routes, improved frequency, clockface timetabling, and buses following the same route for every journey on each service. The fare structure was revised in 2016 to provide a slightly simpler five zone structure. However, the high number of zones continued to be unintuitive, making it difficult for people to understand transfer options and calculate the price of potential public transport journeys. In 2019 the central Dunedin bus hub opened.

A timeline of changes since 2015 is presented in Table 1-1 below.

Table 1-1: Summary of Network and Fare Changes

Date	Change
1 July 2015	New services commenced for Abbotsford, Brighton, Fairfield, Green Island, and Mosgiel (PTOM Unit 5). All services routed through Green Island, to allow transfers between the Mosgiel and the other southern routes.

Date	Change
July 2016	Revised fare zones and prices. Free transfers with a 30-minute time limit introduced.
16 August 2016	New services commenced for St Kilda, Halfway Bush, Brockville, Kenmure, Waverley and Belleknowes (PTOM Unit 4, contracted until 30 September 2026).
18 September 2017	All remaining new services commenced for Balaclava, Logan Park, Concord, Port Chalmers, Palmerston, Peninsula (PTOM Unit 1), St Clair, Normanby, Corstorphine, Wakari, St Clair Park, Helensburgh (PTOM Unit 2) and Ridge Runner (PTOM Unit 3, partial only). All contracted until 30 September 2026.
20 March 2019	Dunedin Bus Hub opened.
Late 2019 to present	Additional (overflow) services required on Mosgiel routes, during peak times. Additional services also required during the afternoons to Port Chalmers.
April to September 2020	Free fares introduced (due to COVID-19 pandemic).
September 2020 to present	$2 flat fare trial launched with the Bee Card.
April 2021	Real Time Tracking launched on website; Transit app launched concurrently.
January 2022	New school routes commenced between Green Island and Kings/Queens Colleges in South Dunedin, and between Green Island and Kaikorai Valley College.
1 October 2022	New services commenced for Lookout Point/Calton Hill, Shiel Hill, Opoho, Ridge Runner (PTOM Unit 3)

Despite these changes, a negativity towards Dunedin's public transport system lingers and many people remain hesitant to use the bus, due to the historic mismatch between what people needed and what the system provided.

The assessment completed for the SFDT PBC concluded that there is significant potential for the bus network to carry many more passengers and perform a far more important role in the overall Dunedin transport system, particularly at a time when the city is aiming to reduce carbon emissions and may face increased network pressure due to construction of the new hospital and other central city transport construction projects such as the George Street upgrade and Albany Street cycleway. The SFDT project identified that this SSBC would provide most of the increased bus patronage to enable the SFDT target to be met. However, there are other projects that ORC are completing, which will support this goal, such as the phase in of electric buses and new real time information system, as well as the introduction of target fare reductions through Community Connect. The SFDT programme identified other projects for the partners to deliver and support additional mode shift, as shown in Table 1-2, with the current status of each project identified.

Table 1-2: Status of SFDT Projects Supporting Public Transport Patronage Increase

Theme	Project	Status
Public Transport Improvements	Southern Bus Priority Central Bus Hub and Superstop Upgrades	Business case underway Hub completed, Superstops underway
Parking Management	Demand Responsive Pricing Smart Prioritisation of Parking Parking Wayfinding System Upgrade Payment Technologies Occupancy Sensors Consolidate Existing Off-Street Parking	In planning phase In planning phase In planning phase Underway Underway In planning phase
Park and Ride	Mosgiel Park and Ride Burnside Park and Ride	Business case underway In planning phase

The $2 flat fare trial helped to rebuild patronage after the COVID-19 pandemic but came at a considerable cost. Monthly fare revenue decreased by an average of about $98,000 per month from September 2020 to February 2021, equating to an annual decrease of $1.2 million, although the associated patronage uplift was one of the best in the country, particularly with the further reductions provide by the Government's half-price fare scheme.

Services are currently costing more than budgeted. The Dunedin network will have a projected gross operational cost of $22.3 million per annum in the 2023-24 financial year, an increase from $18.8 million in the 2023-23 financial year, primarily relating to inflation and driver wage uplifts. Fares provided $3.6 million in revenue to counter the 2022-23 cost.

As of August 2021, the Dunedin Passenger Transport Reserve had a negative balance of $6.5 million. This may have increased further and will need to be recouped over the life of the 2021-31 LTP. The RPTP includes policies to deliver

fares that are affordable for both users and communities and to ensure that public transport users make a fair contribution to the operation of the public transport network. The current fare system is not delivering sufficient revenue to provide a sustainable and affordable public transport network for users and the community.

2 Partners and Key Stakeholders

2.1 Partners

This business case has been developed in collaboration with key investment partners (Table 2-1). Together, these organisations form 'Connecting Dunedin', a partnership to provide a coordinated approach to planning and delivery of Dunedin's transport projects.

Table 2-1: Connecting Dunedin Partners

Partners	Focus Areas
Waka Kotahi	Funding and Investment: Waka Kotahi is the Government's transport investor and state highway network provider. Waka Kotahi is responsible for providing an integrated land transport system that is effective, efficient, and safe. It co-invests in provision of PT services. It has guidelines to support Council's in their development of RPTP and is developing policy related to its investment in fares.
Otago Regional Council	Provider of public transport: ORC is responsible for planning, monitoring and delivery of public transport services in Dunedin and Queenstown. ORC is also responsible for promoting the economic, social, cultural, and environmental wellbeing of the region. Strategic Planning: ORC is responsible for developing the Otago RLTP.
Dunedin City Council	Strategic Growth, Roading and Infrastructure: DCC is responsible for managing the local road network, on and off-street carparking and public transport infrastructure. DCC is also responsible for planning for the future of the city, including land-use and growth planning, setting the strategic direction and how it will be achieved.
Iwi	Local iwi are a treaty partner of all the organisations in the Connecting Dunedin partnership.

2.2 Key Stakeholders

Most key stakeholders to this business case are Dunedin's largest employer organisations. Some currently fund transport support services for their employees or have expressed a willingness to do so to help achieve organisational or wider city goals. Stakeholders are shown in Table 2-2.

Table 2-2: Key Stakeholder Summary

Partners	Focus Areas
Zero Carbon Alliance	Dunedin's Zero Carbon Alliance (ZCA) is a DCC-led initiative that aims to reduce city-wide emissions in collaboration with major institutions in the city. Organisations that are part of the Zero Carbon Alliance include ORC, Kati Hurapa Runaka ki Puketeraki, Otakou Runaka, Te Whatu Ora Health New Zealand Southern, University of Otago and Otago Polytechnic. All participating organisations have indicated a desire to increase public transport use for staff (and students were relevant), recognising the contribution this can make to reducing carbon emissions for the city.
University of Otago	The University of Otago is a large tertiary education centre and significant employer in the city. The University has adopted mode share targets of 10% travel by public transport and 28% travel by active modes by 2025.
Otago Polytechnic	Otago Polytechnic is a large tertiary education centre and significant employer in the city.
Te Whatu Ora New Zealand Health Southern	Te Whatu Ora Southern manages all health services, including hospital and specialist services, and primary and community care for the region. It is a major employer and destination in the city. Te Whatu Ora Southern has adopted mode share targets of 12% travel by public transport and 23% travel by active modes by 2025.

A summary of engagement activity follows, with more detail reported in the relevant section.

1. Investment Logic Mapping – a stakeholder workshop was held on 17 October 2022 to gain a better understanding of current issues and business needs, and to agree problems and benefits for this business case (Section 5.1).

2. Specific Stakeholder Conversations – a presentation introducing the project was made to the Zero Carbon Alliance (ZCA) in October 2022, and interviews conducted with the Workplace Travel Co-ordinator (Otago University, DCC and Dunedin Hospital), and with the Sustainability Director at Otago Polytechnic.
3. Engagement Survey - an engagement survey was completed in November 2022 to gain community and stakeholder input to inform development of the business case (Appendix A).
4. Long List workshop – a stakeholder workshop was held on 8 March 2023 to hear feedback and gather input on the initial long list packages, as well as understand stakeholder fare and frequency preferences and present ideas of future funding options that the Council could investigate (see Section 11.4).
5. Connecting Dunedin – a report providing an update about the project was provided to the Connecting Dunedin Governance Group in May 2023.
6. ORC Elected Members – a presentation was provided to Elected Members on the Emerging Preferred Package in August 2023.

3 Context

3.1 Geographic Context

The urban area of Dunedin city lies on the east coast of Otago, surrounding the head of Otago Harbour. The city suburbs extend into the surrounding valleys and hills, onto the Otago Peninsula, and along the shores of the Otago Harbour and the Pacific Ocean.

The city centre is constrained to the north and west by steep topography and to the east by the harbour. However, the inner suburbs of South Dunedin through the centre to North East Valley form a relatively flat arc across the city.

Due to the topography, most of Dunedin's residential growth is occurring in the outer west and south-west suburbs such as Mosgiel where land is flat. These areas are connected to the main Dunedin urban area primarily by State Highway 1 (Dunedin's Southern Motorway).

3.2 Economic Context

Dunedin has a diverse economy which includes manufacturing, publishing, and technology-based industries as well as education, research, tourism, and health. The city's most important activity centres around tertiary education – Dunedin is home to the University of Otago, NZ's oldest university, and the Otago Polytechnic. The tertiary sector attracts over 20,000 local and international students and teaching/research staff and is renowned for its scientific research and partnerships. As a result, students account for around 20% of Dunedin's population.

The University of Otago and Otago Polytechnic are significant property owners and investors in the city. The University has a significant planned capital spend including a new college, new Health Sciences Building, Food Sciences Development and various compliance upgrades.

Dunedin offers large scale health services in the form of Dunedin hospital, which is a 388-bed tertiary facility employing over 3000 staff and servicing an Otago and Southland catchment of 289,000 people. The hospital is in the city centre and is a teaching and clinical training hospital with strong links to the University of Otago Dunedin School of Medicine and the Otago Polytechnic Schools of Nursing, Midwifery and Health Sciences. It is being rebuilt at a cost of $1.6 billion on a different site in the central city over the next 10 years.

Dunedin is a designated UNESCO City of Literature and is a popular tourist destination offering a wide range of attractions. In recent years Port Chalmers has been a regular fixture on cruise ship itineraries, with year-on-year growth shown in Table 3-1. These visits have brought significant increases in foot traffic in the central city. Tourists wanting to visit the city are predominantly transported from Port Chalmers by buses using State Highway (SH) 88 to a drop off and pick up point in the Octagon.

Table 3-1: Growth in Cruise Ship Visits to Dunedin[3]

	2016-2017 (actual)	2017-2018 (actual)	2018-2019 (actual)	2019-2020 (actual)
Cruise ship arrivals	79	87	115	112
Estimated passenger numbers (at least 90% disembark)	162,300	179,000	229,000	204,000

[3] Figures from Port Otago Annual Report and Otago Daily Times 13/4/19 *Record Cruise Ship Season Comes to End*

In 2011, the Forsyth Barr Stadium opened, which is NZ's largest indoor events arena with a maximum capacity of 36,000. Music, sporting, and other cultural events held at the stadium have brought influxes of visitors to the city.

In recent years the Council has focussed on attracting knowledge-based industries to the city. In the Council's Central City Plan, the Warehouse Precinct is identified as a brownfield 'tech park', with retrofitted heritage buildings and warehouses providing for a high concentration of IT, research, and science-based industries, as well as medium-density housing. This was supported by Dunedin winning the Gigatown competition in 2014, beating 49 towns to be named NZ's first Gigatown. Since then, the Government has established the Centre of Digital Excellence (CODE) in Dunedin.

The mean household income in Dunedin for 2022 was $82,154, well below the national mean of $117,786. Household income will partly be affected by the large percentage of students in the city, but there are also known areas of social deprivation, such as around South Dunedin.

The COVID-19 pandemic has brought some negative impacts on the Dunedin economy, but the economy is diverse, and growth continues.

3.3 Transport Context

Transport in Dunedin is predominantly car-based. People driving private vehicles make up 74.4% of the total journey to work mode share.

This has led to the transport sector producing 39% of Dunedin City's gross GHG emissions, the highest of any sector in the 2018/19 reporting period[4], as shown in Figure 3-1. On-road transport produced over 50% of the transport sector's emissions and over 20% of total gross emissions. Furthermore, GHG emissions produced by the transport sector increased by 23% from 2015/16 to 2018/19.

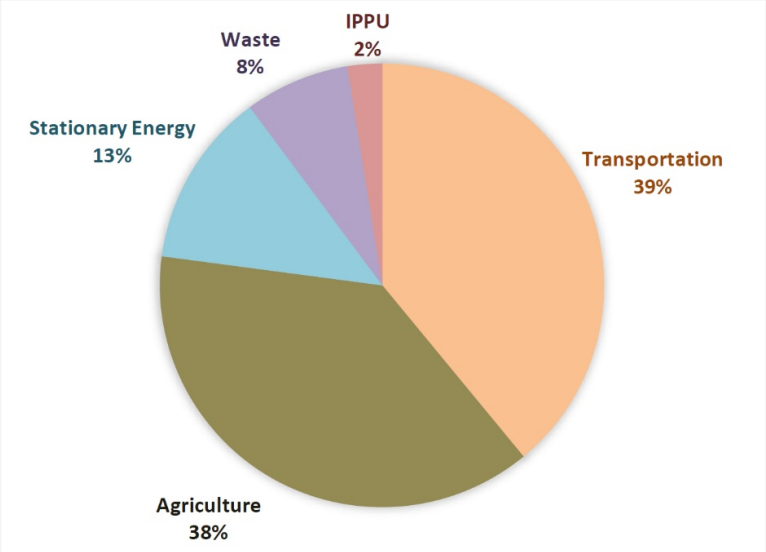


Figure 3-1: Dunedin City's Gross GHG Emissions by Sector (tCO_2e)[5]

Dunedin's cycle network is growing and in 2018, cyclists accounted for 2.1% of the journey to work (about the same as the New Zealand average). Walking is a viable transport option for many residents due to the compact nature of the city, and medium density housing close to the central city. In 2018, about 10% of residents recorded their main means of travel to work as walk/jog, compared to 5.2% nationally.

On average, over 30,000 people travel into the combined Dunedin Central, Harbourside and Campus South areas each weekday for work or education. Most journeys to these areas are from surrounding suburbs and are relatively short, around 5-6km in length. An additional 3,174 people (2018 census) also live in these areas and study or work there.

The Dunedin strategic transport model shows 11,800 vehicles per day entering the one-way system from the north and travelling south. Of these, 20% use SH1 as a through route to the south, 65% use it to access the CBD, University and waterfront areas with the remainder travelling to hill suburbs or South Dunedin.

[4] Dunedin City Community Carbon Footprint 2018/19

[5] Dunedin City Community Carbon Footprint 2018/19

Almost three times the number of vehicles enter the network from the south, with a total of 29,100 per day via SH1 (15,400) and Wharf Street (13,700). Only 10% use SH1 as a through route to the north. Eighty per cent of vehicles on SH1 are accessing the CBD, University and Harbourside.

Dunedin has an extensive bus network that provides good coverage across the city (Figure 3-2). However, many routes have relatively low frequencies (see Section 5.2.1), particularly at off-peak periods, and only 3.4% of the population used the bus for the journeys to work (2018). This suggests that public transport is not making an appropriate contribution to the transport system.

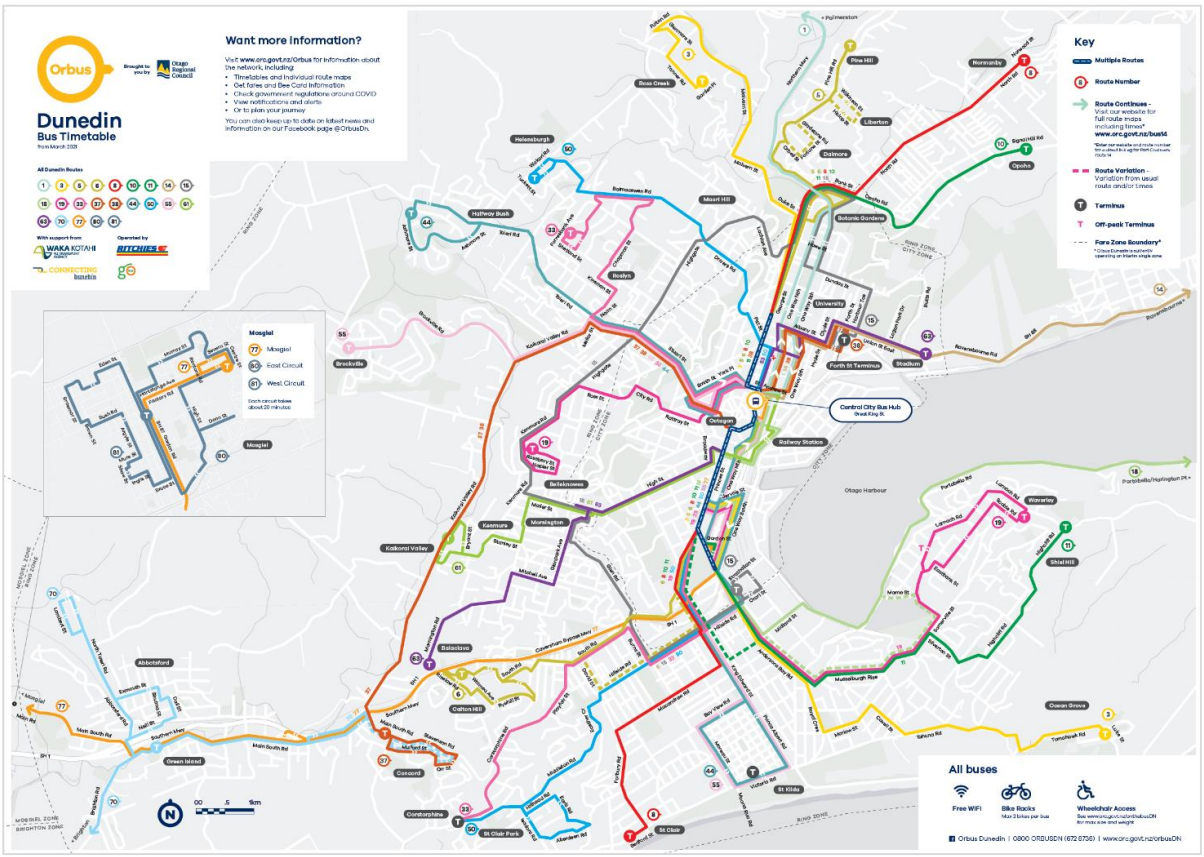


Figure 3-2: Dunedin's Current Bus Network Map

3.4 Land use change

Dunedin is the second largest city in the South Island, and the principal city of the Otago Region. The Statistics NZ estimated resident population for 2020 is 132,800. It is the seventh-largest urban area in NZ.

Dunedin's population has increased by around 9,300 people since 2013 (1.1% p.a.). This has been reflected in the National Policy Statement on Urban Development (NPS-UD), which in 2019 classified Dunedin (Otago Region and Dunedin City) as a 'newly defined medium-growth urban area'. Estimates show that population continued to grow until 2021, where it started to decline during the COVID-19 pandemic. A loss of 2,000 people from Dunedin was experienced during 2021, and a further 400 people in 2022. Post COVID-19 growth projections show the population is expected to reach 142,000 in 2048[6].

Population growth is driving demand for housing. The DCC Second Generation District Plan (2GP) guides the Council to identify suitable sites that meet the overarching objective, which is that Dunedin remains a compact and accessible city with resilient townships based on sustainably managed urban expansion. Urban expansion only occurs if required and in the most appropriate form and locations. The current 2GP zoning is shown in Figure 3-3.

DCC have started work on a variation to the 2GP, to address an anticipated shortfall in housing capacity in the medium term based on the requirements of the NPS-UD. The variation will consider and include both intensification and

[6] DCC's 10 Year Plan 2021-31

greenfield residential zone changes. A range of areas will be included to ensure housing choice, as required by the NPS-UD.

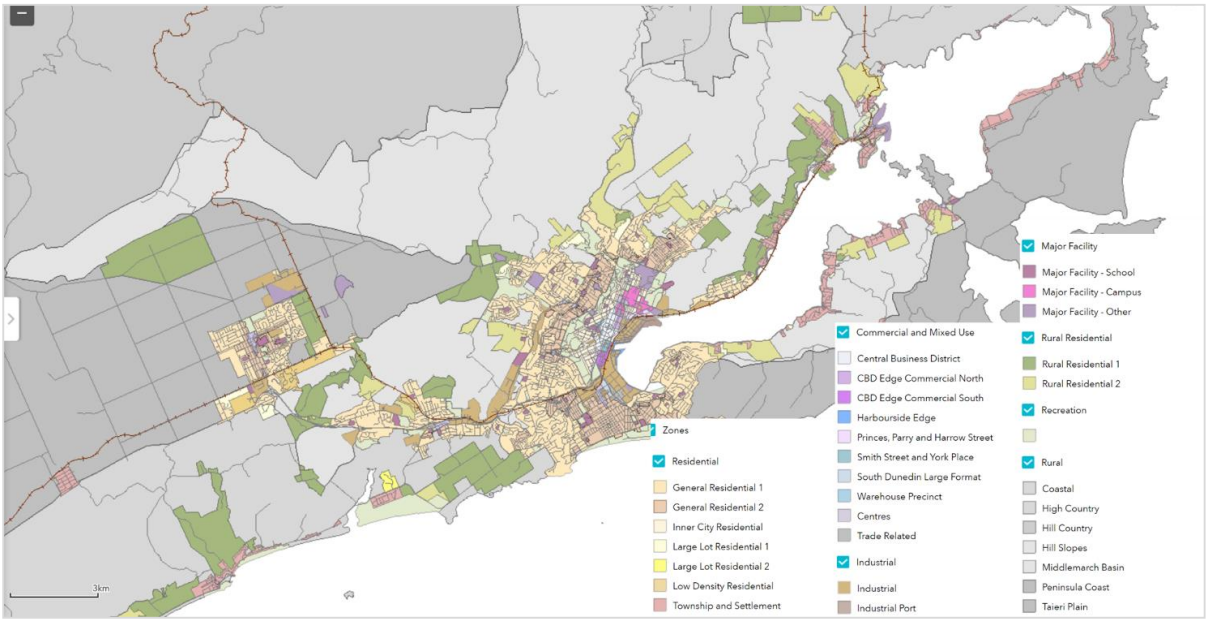


Figure 3-3: Zoning Map from the 2GP

In the central city, the main changes in the last five to ten years have been around the Warehouse Precinct and the University. The Warehouse Precinct was historically a thriving area of commerce and industry and contains many buildings of significant heritage value, however many of these sites were abandoned or neglected. Some buildings have now been restored and this area has been revitalised, with support from Council's heritage grant scheme and urban amenity improvements, such as street planting, increased pedestrian space, new lighting, and furniture.

4 Strategic Alignment

Reducing transport emissions is one of the most important components of the overall strategic direction for transport in Dunedin. Significant changes in how people travel, including mode shift from private vehicles to more sustainable modes and a corresponding reduction in light vehicle kilometres travelled (VKT), is needed to meet the environmental targets set for the region.

Table 4-1, Table 4-2 and Table 4-3 describe the relevant national, regional and local plans, programmes and policies and how they relate to this investment proposal.

Table 4-1: National Plans and Policies

Document	Alignment
Government Policy Statement on Land Transport (GPS) 2021/22 – 2030/31	The current GPS sets out four strategic priority areas: • Better travel options. • Safety. • Climate change. • Improving freight connections. Investment that improves Dunedin's public transport system in a way that encourages people to use the bus to travel to work or education is aligned with priority area (1), (2) and (3). Creating better travel options will increase PT mode share; reducing private car use will reduce road safety risk and reduce vehicle emissions. **A draft 2024-27 GPS was released for consultation in late August 2023. The final GPS may change these priorities.**
Transport Outcomes Framework (TOF), June 2018	The TOF sets five priority outcome areas: • Inclusive access. • Healthy and safe people. • Environmental sustainability. • Resilience and security.

Document	Alignment
	• Economic prosperity. Investment that improves Dunedin's public transport system (1) supports inclusive access and (5) enables economic activity. Increasing PT mode share (2) reduces road safety risk and (3) reduce environmental emissions.
First Emissions Reduction Plan (ERP)	The outcome of this investment aligns with the ERP transport-related goals - increasing PT mode share will contribute to: The total distance travelled by the light fleet (cars, vans, utes) reduced by 20 per cent by 2035. This will be achieved through faster, frequent, and convenient buses and trains and safe walkways and cycle lanes through our cities. **The MOT plan to set sub-national VKT reduction targets in mid-2023[7]. However, draft targets indicate that Tier 2 areas are expected to reduce light fleet VKT by 12-16% against baseline and Dunedin is likely to have a light VKT reduction target of 16%.**

Table 4-2: Regional Plans and Policies

Document	Alignment
Partially Operative Otago Regional Policy Statement June (RPS) 2019	Policy 4.4.6 Energy efficient transport (b) (d) strongly align with the objectives of this programme. Item b seeks to ensure good transport connectivity in urban areas through the provision and integration of high quality and safe walking, cycling, public transport amenities. Item d seeks to establish a higher uptake in public transportation as an alternative to private transport through provision of safe, reliable, and well sheltered amenities.
Otago-Southland Regional Land Transport Plan (RLTP) 2021-2031	The RLTP outline the vision “A transport system providing integrated, quality choices that are safe, environmentally sustainable and support the regions wellbeing and prosperity”. The investment outcome of this business case contributes to improving connectivity and choice, environmental sustainability and the RLTP’s future focus (as defined in the plan). **A new RLTP will be prepared to respond to a new GPS. This may change the RLTP strategic direction.**
Regional Public Transport Plan (RPTP) 2021-2031	The RPTP has five objectives (listed below). All five objectives align with the outcomes sought in the development of this SSBC. • Contribute to carbon reduction and improved air quality through increased public transport mode share and sustainable fleet options. • Deliver an integrated Otago public transport network of infrastructure, services and land use that increases choice, improves network connectivity, and contributes to social and economic prosperity. • Develop a public transport system that is adaptable. • Establish a public transport system that is safe, accessible, provides a high-quality experience that retains existing customers, attracts new customers, and achieves high levels of satisfaction. • Deliver fares that are affordable for both users and communities. **A new RPTP will be prepared to respond to a new RLTP and GPS.**
ORC Long-term Plan (LTP) 2021-2031	The LTP includes the strategic direction for the ORC which includes the need for sustainable, safe, and inclusive access focused on transitioning away from fossil-fuel private cars to transport by bus, foot and on a bike. Investment that improves Dunedin's public transport system in a way that encourages people to use the bus to travel to work or education is strongly aligned with that strategic direction.

[7] Decarbonising Transport Action Plan 2022–25, Ministry of Transport (December 2022).

Table 4-3: Local Plans and Policies

Document	Alignment
Dunedin Towards 2050 – a Spatial Plan for Dunedin	Of the six strategic directions outlined in the plan, the outcomes sought through this investment align strongly with two: • An environmentally sustainable and resilient city • An accessible and connected city.
Dunedin City Integrated Transport Strategy (ITS)	Of the five focus areas defined as part of the ITS, the following four align strongly with the outcomes sought through this business case: • Safety: Improving Dunedin's road safety record • Travel Choices: Providing safe, viable travel options in addition to the car • Centres: Strengthening connections to, within and between Dunedin's centres • Resilience: Ensuring the on-going resilience of Dunedin's transport system and key infrastructure.
Second Generation Dunedin City District Plan (2GP)	The outcomes sought from this SSBC align strongly with Objective 2.2.2. within the 2GP which seeks to "reduced reliance on private motor cars for transportation" and to 2.2.2.4 which seeks to "Support transport mode choices and reduced car dependency through policies and rules."
Dunedin City 10 year plan 2021-2031	This business case aligns strongly with the outcome of having "A connected city with a safe, accessible and low carbon transport system". The related priorities include improving public transport connectivity, increasing mode share for PT and active modes, and increasing network resilience.
Dunedin Central City Plan	The plan identifies the car-dominated existing environments as a challenge and seeks to sets strategic directions for the city to be more liveable, environmentally sustainable, accessible, and connected. Public transport improvements achieved through this business case, together with the placemaking and upgrades to the city centre, will help achieve the strategic outcomes for the city.

5 Problems and Benefits

5.1 Defining the Problems

Key stakeholders gathered on 17 October 2022 to gain a better understanding of current issues and business needs. The stakeholder panel identified and agreed the key problems and benefits. These were refined through the business case process with the final Investment Logic Map shown in Figure 5-1. An outcome statement was also agreed, which articulates the scope of the business case. Journey to work and education is emphasised for this business case, and it was acknowledged that improvements for all work and education opportunities in Dunedin will result in improvements for wider user groups.

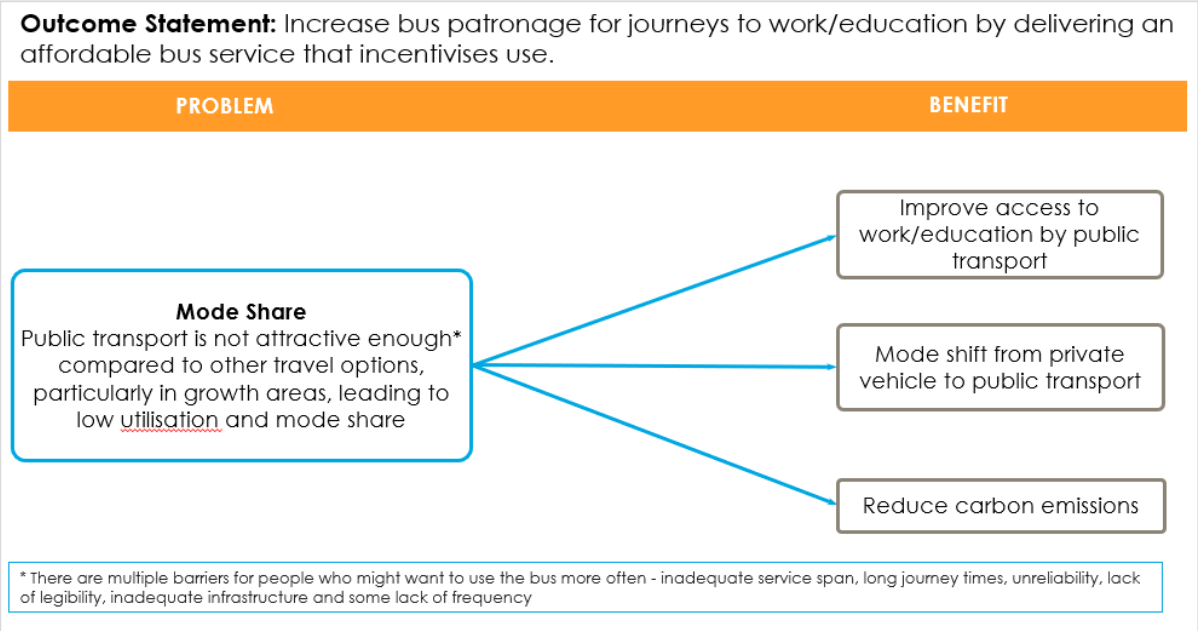


Figure 5-1: Investment Logic Map

The final agreed single problem statement, that **public transport is unattractive compared to other travel options, leading to low utilisation and mode share** has several integrated components that must be examined side-by-side to understand the full Dunedin public transport picture and evidence in support of the problem. These components include frequency, service span, legibility, journey times as well as aspects such as user comfort, which are out of scope for this business case. The cause, effect and consequence for the problem are shown in Table 5-1.

Table 5-1: Cause, Effect and Consequence

Problem: Public transport is unattractive compared to other travel options, leading to low utilisation and mode share	
Causes	Lack of attractiveness • Frequency • Reliability and legibility • Service span • Journey time • Comfort
Effect	Low patronage/utilisation and latent demand
Consequence	Low mode share

5.2 Cause: Lack of attractiveness

For public transport to be an attractive transport choice, it must meet the needs of customers. One of the most significant aspects relates to the timetable – when services start and finish, how often the bus comes and how long the trip takes. To be a truly attractive option, a public transport system must give people confidence that service will meet their needs, taking them where they want to go, when they want to go, and is convenient, comfortable, and affordable.

Dunedin's current public transport system is not attractive to customers. The Public Transport Engagement Survey undertaken in November 2022 to inform this business case was completed by 1,795 respondents. One question asked '*Which of the following options would encourage you to use the bus, or use the bus more?'.* Respondents were asked to rank up to three options in order of preference. Table 5-2 shows the top five ranked options.

Table 5-2: Options That Would Encourage Bus Use, Ranked by Preference

Rank	Options
1	A more frequent timetable (e.g., every 15 or 30 minutes)
2	Improved reliability
3	Longer service spans (e.g., earlier start times and/or evening times)

Rank	Options
4	Cheaper bus fare
5	Faster travel time

These opinions were also reflected in a 2022 University of Otago Staff Travel Survey, which showed the main reasons staff choose a particular transport mode were convenience, quicker travel times, price, and flexibility (the ability to pick-up/drop-off others).

5.2.1 Frequency

Frequency (also referred to as headway and service interval) is closely linked to wait time and the convenience and attractiveness of public transport as a travel option. Frequency provides freedom, reducing the need for planning and enables people to be spontaneous. An attractive public transport system creates the opportunity for customers to 'forget the timetable' and simply decide when they want to travel, making the experience more similar to driving your own car. More frequent services also provide a better user experience by reducing the consequences of missing the bus and possible overcrowding. If a passenger misses their desired bus, they do not have long to wait for the next one. These experiences in reliability and consistency create lasting trust in a public transport system and support mode shift.

Research[8] recommends the use of optimal 'forget-the-timetable' frequencies (10 minutes or less) on key travel corridors is required to provide a viable alternative to car travel. This research suggests that higher frequency services are more attractive to customers and a key element to enable mode shift from private vehicles to public transport.

Improvements that increase the frequency of services was the highest ranked preference in the Public Transport Engagement Survey for people wanting to use Dunedin's public transport system. Table 5-3 lists the RPTP target frequency by service type. Of the 20 routes across Dunedin's network, only two are planned to provide a 'rapid' 10-minute service and four are planned to provide a 'frequent' 15-minute peak service.

Table 5-3: RPTP Target Frequency

Service Type	Target Frequency	Number of services
Rapid	10-minute frequency all-day	Two
Frequent	15-minute peak 30-minute off-peak	Four
Regular	30 to 60-minute dependent on service	16
Targeted Services	Dependent on demand and funding	One

Approximately 70% of Dunedin services have a target frequency of 30 to 60-minutes, dependent on the service. A 60-minute headway[9] provides a very poor level of service and is considered a low frequency[10] target, particularly when many of the alternative car journey's take significantly less time (see Table 5-10).

The RPTP target frequencies will be enacted as and when contracts allow. This means that many Dunedin services currently offer far lower frequencies than identified in the RPTP. Table 5-4 summarises the routes that do not meet relevant RPTP target frequencies (shown in red). A route was considered non-compliant if the headways do not meet the target frequency listed for the corresponding service type in the RPTP. The non-complying routes include:

- All rapid services (#8, 63).
- All frequent services (#5, 6, 10,11).
- Four regular services (#18, 77, 80, 81).

[8] Waka Kotahi Research Report 396 Public Transport Network Planning: A Guide to Best Practice in NZ Cities (Massey University; Royal Melbourne Institute of Technology; GAMUT Centre, University of Melbourne; Institute of Transport Economics, Oslo, Norway; 2010)

[9] "headway" is the amount of time between buses at a stop.

[10] Public transport network planning: a guide to best practice in NZ cities (March 2010), Waka Kotahi research report 396 refers to half-hourly to hourly routes as low frequency.

Table 5-4: Comparison of Operational and RPTP Target Service Frequencies

Route #	Route Description	Weekday Peak Frequency (minutes)	Weekday Interpeak Frequency (minutes)	Weekday Evening Frequency (minutes)	Weekend Frequency (minutes)
Rapid Target Frequency		**10min**	**10min**	**10min**	**10min**
8	St Clair - City – Normanby. Normanby - City - St Clair	15min	15min	30min	30min
63	Balaclava - City - Logan Park. Logan Park - City - Balaclava	15min	15min	30min	30min
Frequent Target Frequency		**15min**	**30min**	**30min**	**30min**
5	Pine Hill - City - Calton Hill	20min	40min	60min	60min
6	Calton Hill - City - Pine Hill	20min	40min	60min	60min
10	Opoho - City - Shiel Hill	20min	40min	60min	60min
11	Shiel Hill - City - Opoho	20min	40min	60min	60min
Regular Target Frequency		**30-60min**	**30-60min**	**30-60min**	**30-60min**
18	Portobello (Harington Point) – City, City - Portobello (Harington Point)	20min	60min	62min	60min
77	Mosgiel, Fairfield, Green Island – City. City – Green Island, Fairfield, Mosgiel	30min	30min	30min	120min
80	Mosgiel East circuit	40min	40min	40min	N/A
81	Mosgiel East circuit	40min	40min	40min	N/A

The timetables that were operational from early-2019 to 18 July 2022 have been considered for this and subsequent timetable analysis in this business case. A reduced timetable[11] was in effect since 19 July 2022 due to bus driver shortages, but the full timetable became operational again on 1st February 2023. Appendix B contains a more complete table of the timetabled service headways for all routes during the weekday peak, weekday interpeak, weekday evening and weekend periods, and confirms whether they meet the RPTP targets (sourced from the RPTP 2021-2031).

High service frequency is particularly important where a transfer is required. Dunedin's PT system includes several locations where customers must connect from one service to another. For example, customers travelling to the CBD from Brighton need to transfer from route 70 to route 77 at the Green Island Super Stop. However, route 77 operates at 30–60-minute frequencies which, in some instances, creates a lengthy wait time. Research shows that customers value normal wait time at about twice the value of in vehicle time[12], and therefore connection times can be very negatively perceived and discourage public transport use.

Similarly, the Mosgiel east and west loops have 40-minute frequencies with customers needing to transfer to route 70 to travel to the city. Mosgiel is a high growth area where improved service frequency could translate into higher patronage. For this reason, a Mosgiel express service was implemented in September 2023. In parallel to this, DCC is preparing a business case for park and ride facilities, through which PT services would operate.

Consultation feedback was generally consistent regarding increasing frequencies, including:

- Higher weekend frequencies (30 mins).
- 10/15/30 minute frequencies for high demand routes.
- Clock face[13] timings for legibility.

Table 5-5 contains representative feedback from customers about service frequency.

[11] Service frequencies have reduced, but in some instances additional early and late services have been added.

[12] Waka Kotahi Research Report 339: Measurement Valuation of Public Transport Reliability, Booz Allen Hamilton (2008)

[13] 'Clock face' timetables have services departing on the hour or at the same minutes past the hour all day e.g. 5.15, 6.15, 7.15.

Table 5-5: Customer Feedback on Service Frequency

Customer (2 – RPTP)	Waikouaiti Coast Community Board (169)
"Bus frequency needs to be developed further for people to use it on a regular basis, especially in need of connecting bus. A bus every 15 minutes in peak times and 30 minutes in non-peak time at least"	*"North Coast area has a population of 4,000. There is no bus service at weekends or evenings. The only 'travel choice' at these times is the car or stay at home. This is not consistent with the RPTPs aspirations. This is unsatisfactory and should change in year 1 of the plan. We have already suggested a preferred timetable and this is attached."*

Route 1 (Palmerston) services were a focus of significant feedback during the last RPTP consultation, with people asking for increased service frequency on weekdays and establishment of weekday and evening services.

Weekend services typically operate on even lower frequencies. Seventeen of the 20 Dunedin routes operate at 60-minute frequencies on weekends, with only 8, 63 and 77 operating at 30-minute frequencies. This type of timetabling does not recognise that people need to travel on weekends as well as weekdays.

The evidence shows that current frequencies, as well as some proposed RPTP frequencies, will only achieve a high enough frequency for public transport to be a viable alternative to the private vehicle on a small handful of routes.

5.2.2 Reliability and Legibility

An easy-to-understand public transport system is essential. Legibility, or how easy a system is to understand, is usually assessed spatially (are the routes easy to understand) and temporally (is the timetable easy to understand). Poor legibility can put customers off using the bus at all. It can also sometimes lead customers to think the bus service is unreliable, for example they may end up waiting at the wrong place at the wrong time and then wonder why the bus did not arrive.

Overall, the Dunedin bus network is relatively legible from a spatial perspective, with clear routes and numbering. Buses generally operate on arterial roads, and some roads accommodate multiple routes.

Improvements could be made in the city centre, particularly where routes use the one-way pair or form loops. This is confusing and requires some people to catch their return bus from a different part of the city from where they alight. Through the city centre routes 1, 14, 15, 18, 19, 44, 55, 61 and 77, travel northbound using different sections of road than they use southbound.

There are also legibility issues with some bus routes in the southern suburbs. This is shown in Figure 5-2. Use of one-way sections and loops through Abbotsford, Green Island and Concord increase complexity, especially for unfamiliar users. Legibility issues do not make the system attractive and may be a barrier to some people.

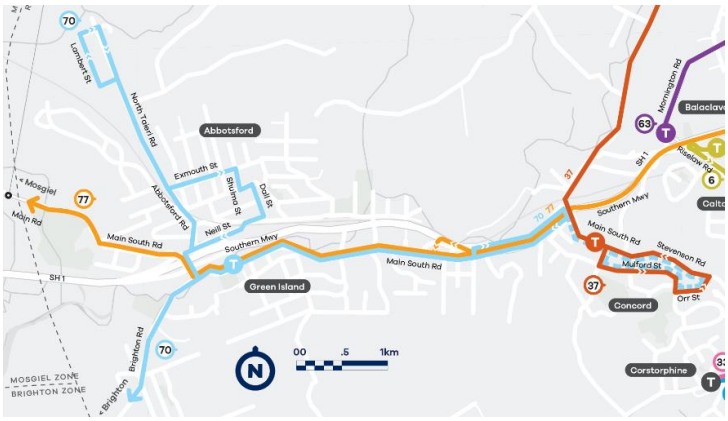


Figure 5-2: Loops Through Abbotsford, Green Island and Concord

The timetable for many routes is challenging. The network does not consistently use a clockface timetable which schedules services to run at the same times in each hour. Coupled with high frequency, use of a clockface timetable makes it easy for customers to remember a schedule and have confidence in the public transport system - they know when the bus comes and they know the services are regular, so they won't need to wait long. Further, a clockface timetable with high frequency services minimises the impact of cancelled services. This is due to the shorter wait time for the next service, and knowing services will come at short, consistent intervals.

Buses on many routes in Dunedin operate at different frequencies during the peak and off-peak, during the weekday and on Saturday and Sunday[14]. This lack of legibility makes it difficult for customer to plan public transport journeys throughout the week as they need to consult the timetables more often. Waka Kotahi's Research Report 396 discusses the importance of 'stable operating patterns', noting the preference for "consistent, high-quality service across the network all day, rather than operating different service types in peak, off-peak, night and weekend time periods."

Demand-based changes, route-by-route, are very difficult to understand. Currently, ten routes operate special late night evening services on Fridays, with final services operating until 10:30pm to 12am. Most other services (except 11 and 44) operate no later than 11:00pm. On Saturdays, some services run later, with final bus between 11:00pm and 12:00am.

The evidence shows some areas where routes are overly complex. It also demonstrates that timetables and inconsistent, confusing, and difficult to understand. Both aspects will be a barrier to public transport use.

5.2.3 Service span

Service span refers to the period of time between the first and last bus service. If the earliest and latest services do not suit a person's needs or schedule, they will have to choose a different mode. While it may be unrealistic for a service span to be all-day, every day, public transport as a mode choice must be ruled out if it does not run early or late enough, for example to get to or from home.

The service span of a given route should meet the needs of the customers it is trying to serve. While there is no standard "best practice" service span, a rule of thumb recommended for other NZ cities (e.g., Queenstown) is for a minimum service span of 7am-7pm, seven days a week. This consistency makes it easier for customers to remember and trust that they can complete their journeys by public transport. However, longer service spans are needed if public transport is to be a viable alternative to driving.

Table 5-6 lists the RPTP target hours of operation by service type. There are different target hours of operation for each service type, and for weekdays, Saturdays, and Sundays within each service type. Target hours of operation are not overly ambitious, with particularly limited service span targets for Sundays (7am-9pm, 9am-6pm and 'based on demand'). This lack of consistency throughout the week increases complexity for customers and can form an additional barrier to choosing public transport.

Table 5-6: RPTP Target Hours of Operation

Service Type	Target Hours of Operation
Rapid	Weekdays 6am-11pm Saturday 7am-11pm Sunday 7am-9pm
Frequent	Weekdays 7am-9pm Saturday 8am-9pm Sunday 9am-6pm
Regular	Weekday 7am-7pm Saturday 8am-8pm Sunday based on demand
Targeted Services	Personalised to meet the specific requirements of each travel requirements and to compliment the rest of the network

Table 5-7 summarises the eight routes that do not meet their RPTP target hours of operation. A service span was considered non-compliant (shown in red) if the first and last services in to or out of the bus hub do not meet the target hours of operation listed for the corresponding service type in the RPTP (Table 5-6).

The non-complying routes include the two rapid services (#8, 63), all four frequent services (#5, 6, 10, 11) and two regular services (#80, 81), although these regular services would be better categorised as targeted services as they run on weekdays only. Appendix C contains a more complete table of the service spans (sourced from the RPTP 2021-2031).

[14] The RPTP defines 'peak' as weekdays before 9:00am and 3:00pm-6:30 pm, and 'off-peak' as Weekdays 9:00am-3:00pm, weekends and public holidays.

Table 5-7: Comparison of Operational and RPTP Target Service Span

Route #	Route Description	Weekday Service Span	Saturday Service Span	Sunday Service Span
Rapid Target Hours of Operation		**06:00-23:00**	**07:00-23:00**	**07:00-21:00**
8	St Clair - City – Normanby. Normanby - City - St Clair	06:05-22:20	08:20-23:50	08:20-20:20
63	Balaclava - City - Logan Park. Logan Park - City - Balaclava	06:13-21:58	07:28-23:28	07:58-19:28
Frequent Target Hours of Operation		**07:00-21:00**	**08:00-21:00**	**09:00-18:00**
5	Pine Hill - City - Calton Hill	06:30-22:11	08:11-22:11	08:11-19:11
6	Calton Hill - City - Pine Hill	06:25-22:02	08:02-22:02	09:02-18:02
10	Opoho - City - Shiel Hill	06:50-22:21	08:21-22:21	09:21-19:21
11	Shiel Hill - City - Opoho	06:30-23:12	08:12-22:12	09:12-18:12
Regular Target Hours of Operation		**07:00-19:00**	**08:00-20:00**	**Based on demand**
80	Mosgiel East circuit	08:00-18:00	N/A	N/A
81	Mosgiel East circuit	08:20-17:40	N/A	N/A

The current start time of Dunedin services ranges between 6:00am and 8:20am, which may not meet the needs of people that need to travel early in the morning. This has been identified as an issue for workers needing to travel to Dunedin Hospital for the morning shift, which starts at 7am. For public transport to be a viable choice for these workers, earlier services are needed to allow morning shift workers sufficient time travel to their workplace. Of the inbound services from the area clusters shown above, only two services arrive at the Bus Hub before 6:30am on weekdays.

Dunedin's evening services are irregular and may not provide a feasible travel option for late shift workers nor those who want to enjoy late night social and cultural activities. Depending on the day, last bus services are between 6:00pm and 12:00am. Most routes operate a last service no later than 11:00pm during the week. Feedback from Te Whatu Ora indicated that the preferred service span for hospital staff is 11:30pm at a minimum and later if possible. This would allow evening shift workers to complete their required finishing up procedures without having to rush and potentially miss their bus. Service span was raised extensively in RPTP consultation feedback from October 2022.

"Would be great if bus 50 had a later running time. Maybe a few minutes later than 11pm to give time to come down from wards/dept and walk to bus stop, after finishing shift at 11pm. ***We rely on bus service a lot.***   *Suggest an earlier start time than 6.20am for bus 50 so lower Middleton Rd* ***healthcare workers can reach town in time for morning shift handover at Dunedin hospital****. Or bus 33 could go up to Corstorphine via lower Middleton Road on first morning trip."*
Customer (14 - RPTP)

The standard work hours of staff from three of Dunedin's largest employers is shown in Table 5-8. Hours for DCC and University of Otago are based around opening hours for the public or teaching hours. Changing work practices means employees may have greater flexibility with where and when they work. For example, a 2022 University of Otago Staff Travel Survey found that only 65% of respondents expected to arrive at work between 8:15-9:15am and only half expected to leave between 4:30-5:30pm.

Table 5-8: Staff Hours at Dunedin's Largest Employer Organisations

Organisation	FTE	Staff hours
Te Whatu Ora (Dunedin and Wakari Hospital)	~3,000	7:00am – 3:30pm 2:30pm – 11:00pm 10:45pm – 7:15am 8:00am – 4.30pm
DCC	1,095	Monday – Friday, 8:30am-5pm
University of Otago	~3,361	Monday-Friday, 8:30am-5pm

Flexible transport is also required for other employment sectors. Table 5-9 shows change in Dunedin's highest employment sectors since 2013. In addition to health and education, Dunedin has a significant number of people working in retail, construction and accommodation and food services. These sectors require early starts, late finishes and weekend work.

Table 5-9: Dunedin Highest Employment Sectors

Dunedin City	2018			2013			Change
Industry sector	Number	%	Otago Region %	Number	%	Otago Region %	2013 to 2018
Education and training	8,847	13.9	9.7	6,882	12.3	9.3	+1,965
Health care and social assistance	8,715	13.7	9.9	7,299	13.0	10.0	+1,416
Retail trade	6,399	10.0	9.7	6,204	11.1	10.6	+195
Construction	5,190	8.1	10.3	3,819	6.8	8.1	+1,371
Professional, scientific and technical services	5,082	8.0	7.2	3,780	6.7	6.2	+1,302
Accommodation and food services	5,049	7.9	9.9	4,497	8.0	9.0	+552

Buses also serve an important function in providing a safe and reliable transport choice for the public when alternative modes are not available. The current evening service span does not provide attractive options for people seeking a safe and reliable transport option to get home. Students and other who choose to engage in the evening social activities on Fridays and weekends, which may include alcohol, need a safe means of transport home. Evening services should operate at least until midnight. This is outlined in the feedback from the Otago University Students' Association (OUSA).

*"Strongly in favour of implementing **late night buses between the Octagon on Thursday, Friday, and Saturday nights. Dunedin is sorely lacking in safe alternatives for students to get home from the centre of town.** The benefits of running buses between town and the student quarter include: hospitality staff who work late having options to get home safely; lower risk of students being harassed or assaulted; students having a warm alternative to walking home; people who end up consuming too much alcohol can get home without driving; higher patronage rates of students; and more students would be likely to engage with local bars and eateries if they had a safer route home, engaging with and boosting the local economy."*

OUSA (152)

The two Mosgiel loop services (80, 81) do not operate at all during weekends, and the Palmerston to City (1) route has limited services (Four Saturday services and two Sunday services). Of the other services, only two have services operating later than 8:30pm.

The evidence shows that service spans vary across the network. Many services do not start early enough to allow people to reach their workplace in time. Similarly, services do not run late enough to allow the bus to be an option for travelling home after a late shift or a night out.

5.2.4 Journey times

While parking availability at a destination has the biggest impact on a person's choice of mode, travel time also has a significant influence on how someone will travel to a destination. Journeys taken by public transport are rarely the fastest choice for several reasons. There is usually a walk and a period waiting, the bus often travels a route designed to service the greatest number of people, and people boarding and alighting a bus service adds additional time. However, to provide a competitive and attractive service, public transport journey times need to be as close to other modes as possible.

Dunedin's public transport customers want faster travel times. To understand how competitive public transport is with driving in Dunedin, journey times for different origin-destination journey pairs were compared. Google Maps journey planner was used to test travel times from the Dunedin City Library, eleven randomly chosen residential addresses (located within 500m of the route terminus or outer village centre). Table 5-10 sets out the driving and bus journey times for these journeys for the morning and evening peak periods. Journey times for driving assumed that drivers parked at the origin and destination. Bus journey times include walk time, wait time (assumed to be a consistent five minutes), and wait times for connections when applicable.

Table 5-10 shows that most journeys take twice as long by bus, and some can take more than three times as long. In many cases, this equates to an additional 20-30min on the bus compared to in a car, for the same journey. This highlights bus journey times are **not** competitive with driving.

Table 5-10: Driving and Bus Journey Times

	AM Peak – Inbound (minutes)			PM Peak – Outbound (minutes)		
Journey	**Drive**	**Bus**	**Bus as multiple of drive**	**Drive**	**Bus**	**Bus as multiple of drive**
St Clair to City Centre	14	40	2.9	16	38	2.4
Normanby to City Centre	13	41	3.2	13	37	2.8
Mosgiel to City Centre	22	51	2.3	21	46	2.2
Brockville to City Centre	11	27	2.5	10	25	2.5
Shiel Hill to City Centre	16	36	2.3	14	35	2.5
Port Chalmers to City Centre	23	42	1.8	21	44	2.1
Brighton to City Centre	26	56	2.2	26	56	2.2
Portobello to City Centre	34	50	1.5	34	56	1.6
Roslyn to City Centre	8	26	3.3	9	27	3.0
Abbotsford to City Centre	17	38	2.2	17	44	2.6
Green Island to City Centre	15	32	2.1	15	33	2.2

The evidence demonstrates most journeys take twice as long by bus, and some can take more than three times as long.

Feedback received during RPTP consultation showed that customers are unhappy with the travel times from Mosgiel and Brighton, to the point that it has discouraged them from using the bus entirely (refer to feedback in Table 5-11). Significant population growth is expected in Mosgiel, as detailed in Section 3 of this report. Current slow and uncompetitive bus travel times mean new residents will most likely drive to the city.

Table 5-11: Customer Feedback on Journey Times from Mosgiel and Brighton

Customer (46 - RPTP)	Customer (187 - RPTP)
"A direct express route from Mosgiel to Dunedin central is needed during peak times e.g. 0600-0930 and 1600-1900. Mosgiel has significantly increased in population with a large number of people commuting into Dunedin. Currently it take 40+ minutes going into town via green island etc. In a car it takes 20 minutes. ***This extra time wasted on the bus puts me off using the bus*** *as a commuting option."*	*"Please change the Brighton-Dunedin service to meet the criteria in Objective 4. Because of the changes to the route and timetable a few years back, I have mostly stopped using the bus.* ***The new service in the 4-6pm slot is too infrequent and takes longer.*** *The buses nearly always run late sometimes by 20-30 mins. The route takes too long - goes round Abbotsford on every run, adding to journey time. Transferring on to the Mosgiel connection in Green Island increases journey time and it is unpleasant to wait in bad weather."*

5.2.5 Comfort

Improved bus stop/waiting area infrastructure is out of the scope of this business case, however an assessment is provided in Appendix D.

5.3 Effect: Low Patronage and Latent Demand

The effect of somewhat unattractive public transport in Dunedin is that the network underperforms. One way to measure performance is by the number of people using the services offered. If a public transport system cannot attract customers, it will struggle to be successful. Revenue from patronage (through fares) is one of the main contributors towards covering the costs of providing and improving public transport. A well-used public transport system is also a visual cue to potential customers. Seeing high numbers of people taking the bus, particularly for their daily work or education journey, is one of the most effective forms of promoting public transport to non-users.

Figure 5-3 shows that total patronage for the Dunedin bus network has been slowly increasing since 2015.

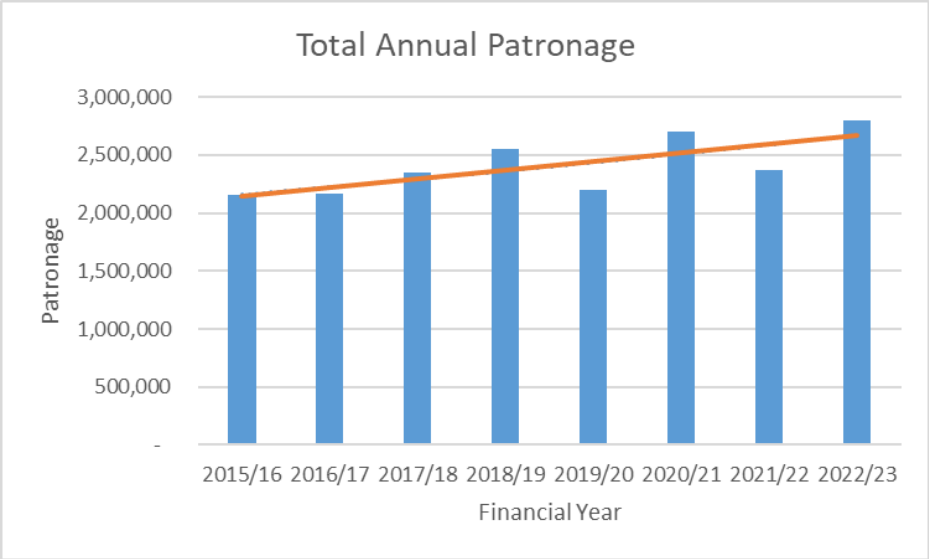


Figure 5-3: Total Annual Patronage by Financial Year

The steady increase in patronage reflects the implementation of improvements to make public transport more attractive. Annual patronage increased steadily from 2.2m trips in the 2016/17 financial year to 2.5m trips in the 2018/19 financial year. This was the period after which improvements were introduced to reduce the number of fare zones, simplify pricing, and introduce free 30-minute transfers. Patronage dropped in 2019/20 as a result of the COVID-19 pandemic, which results in heightened health setting and social distancing requirements from March 2020, and strict lockdowns in March 2020 and August 2021. Wearing masks on public transport was mandatory from August 2020 to September 2022, which increased fear of catching COVID-19 on buses and discouraged public transport use.

Despite the impacts of the COVID-19 pandemic, patronage increased to 2.7m in the 2020/21 financial year and further increased to 2.8m in the 2022/23 financial year. This is an unusually successful rebound in patronage as most NZ and international cities experienced a decline in public transport patronage. This can likely be attributed to the attractiveness of free travel from April to September 2020, the introduction of a $2 flat fare system in September 2020 followed by the government subsidised half-priced fares (i.e., a $1 flat fare) from April 2022 to June 2023. These low fares have proven to be highly attractive to Dunedin residents, encouraging an increase in bus patronage.

Overall, the data shows that in 2022/23, patronage has grown over 2015/16 figures by 600,000 trips per year or 27%. The average per annum growth rate is 3.9%.

A more detailed comparison of patronage by month across the 2019/20 to 2022/23 financial years is shown in Figure 5-4.

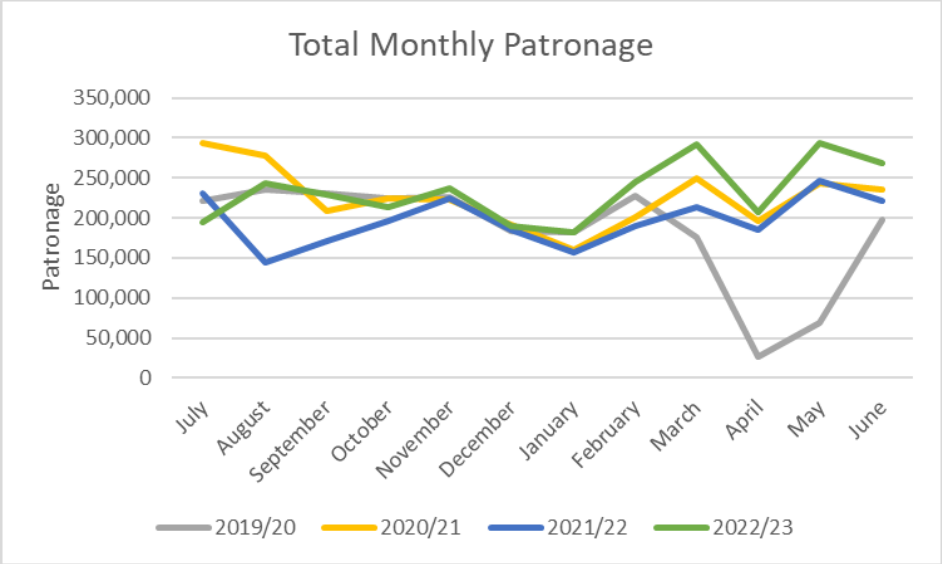


Figure 5-4: Total Monthly Patronage Across 2019/20 to 2022/23

Dunedin buses operated reduced services from July 2022 to January 2023 due to a shortage of bus drivers and increased driver illness. This is reflected in the number of cancelled services, which is shown in Figure 5-5.

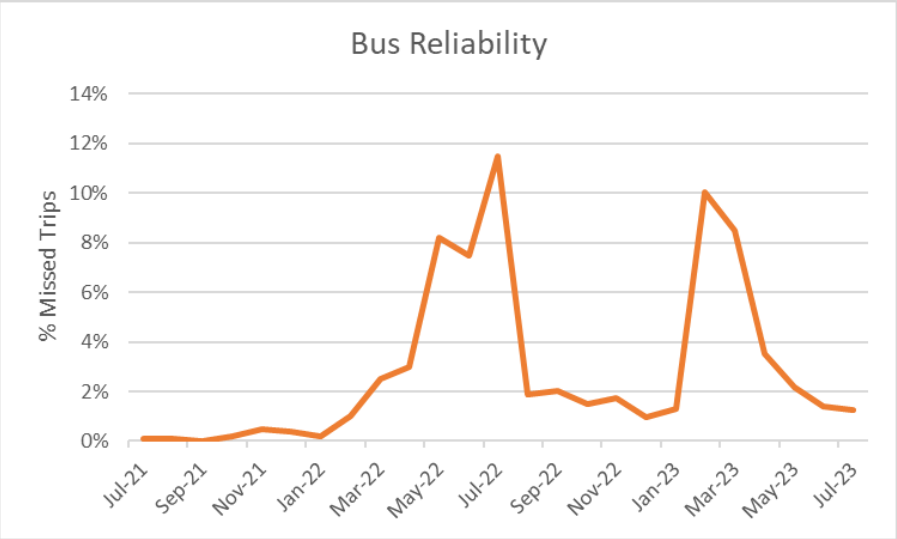


Figure 5-5: Bus Reliability as Percentage of Total Trips Missed

Understanding people's preferences and potential future travel choices can be difficult, and it is accepted that how people respond to surveys may not necessarily translate into actual change. However, the presence of latent demand for public transport use in Dunedin is evident in the Public Transport Engagement Survey results, where around 75% of respondents said they would or might consider travelling more often by bus to their place of work/education, and only 14% said they would not consider it (19% were already catching the bus all the time). Improvements to the network and services has resulted in increasing patronage, and further improvements are likely to result in in continued growth.

The patronage evidence demonstrates a steady increase in patronage, but significant latent demand. The $2 fare appears to have helped Dunedin patronage bounce back more quickly following the pandemic travel restrictions than has been seen in other centres around the country.

5.4 Consequence: Low Mode Share

Public transport is not an attractive mode for people travelling to work and education in Dunedin. Census 2018 travel to work (Figure 5-6) and education (Figure 5-7) data shows high motor vehicle use. When travelling to work, a vast majority of people (74%) travel by private vehicle. Only 3.8% of people take the bus to work, slightly lower than the national average of 4%. When travelling to education, most people either walk or jog (40%) or are a passenger in a vehicle (32%). Only 5% travel by bus compared to the national average of 7%.

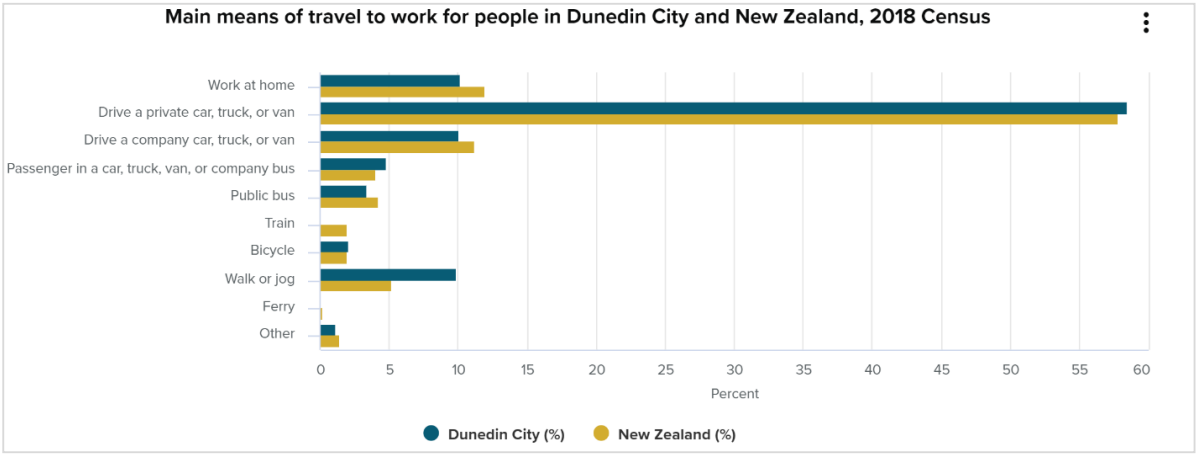


Figure 5-6: Travel to Work Mode Share

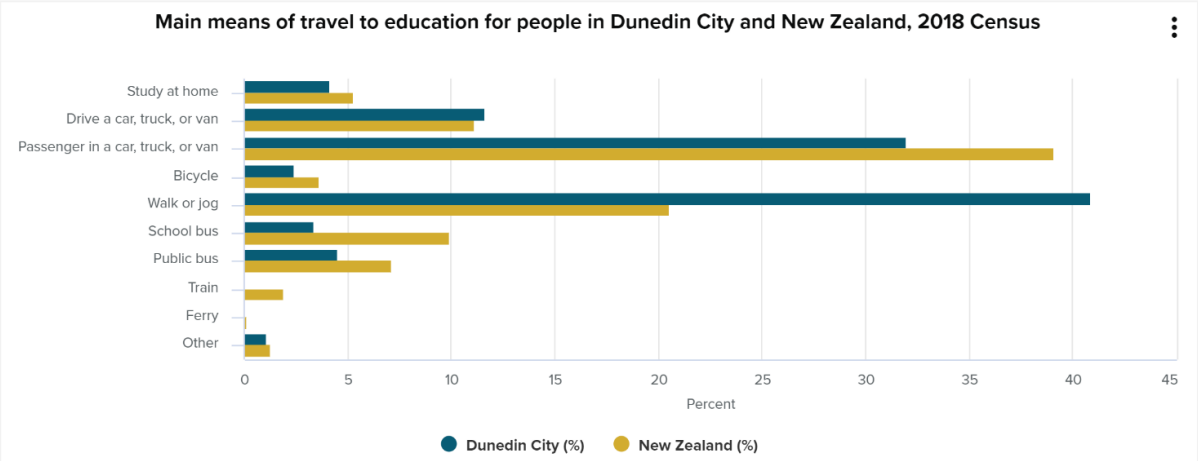


Figure 5-7: Travel to Education Mode Share

There is real opportunity in Dunedin for mode shift to public transport. Dunedin's geography and land-use distribution creates an environment where a significant proportion of work-related trips are to and from the Central Dunedin area. This is due to the concentration of key destinations like the CBD, Dunedin Hospital, and university. Figure 5-8 shows that trips to the city centre for work and education are concentrated in 5 key areas.

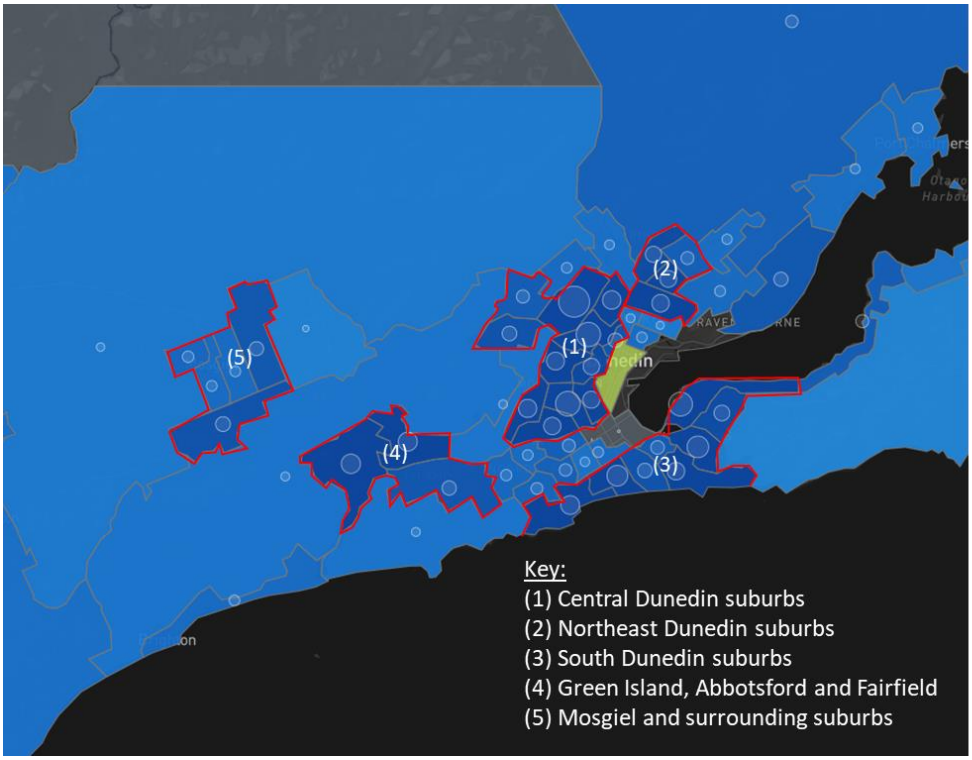


Figure 5-8: Trip Origin Areas for Travel to the City Centre for Work and Education[15]

Dunedin's large employers are working together through the Zero Carbon Alliance to try and reduce carbon emissions from transport. The employers have significant workplaces located in the central city. Enabling the employees of these organisations to take the bus to work more often would significantly reduce light VKT, a key metric adopted by the ERP, and support Dunedin's environmental objectives. Historically, 5-6% of staff have travelled by bus to work at the University of Otago (2019, 2021) and the Southern District Health Board (2019). At DCC, 12% of staff travel to work by

[15] https://commuter.waka.app/

bus (2020). To monitor how The Zero Carbon 2030 Alliance is tracking towards its emissions reduction commitments, each organisation regularly surveys their staff about how they travel. A summary of the most recent survey results and barriers to change are in Table 5-12. This information was used in the programme development phase, alongside the Public Transport Engagement Survey results.

Table 5-12: Large Employers and Their Travel Behaviour

University of Otago	The 2022 University of Otago Staff Travel Survey collected travel behaviour and preference information from over 1,000 university staff. On the day of the survey, 90% of staff travelled to work, while only 10% worked from home. Of the staff who travelled, 53% drove alone or with passengers, 17% walked, 10% biked or e-biked, 9% were a passenger in vehicle, and just 7% caught the bus. Almost half of respondents (523) said they would consider travelling to work by bus. This included 53% of people who drive alone and 54% of drivers who take passengers. **The main reasons people drive alone or with passengers were because it's the most convenient option, it's the quickest option, or because they have a parking space.** Almost half of respondents (49%) have used the bus to travel to work before, and 62% said they have a Bee Card. Only 5% of respondents stated that they were unable to use the bus.
Southern DHB	A Southern DHB Travel Survey conducted in 2019 found that staff would be most likely to be encouraged to catch the bus by discounted bus fares (32%) and changes to bus routes, stops or timetables (30%). 215 of the respondents said that nothing would encourage them to take public transport to and from work. **The same survey found that barriers to sustainable travel (which included walking, cycling, bus and carpooling) included the long journey times (38%), distance between home and work (35%), unpredictable weather (31%), and the inconvenience (30%).** Only 19% of people thought there were no barriers to using sustainable modes of travel.
Dunedin City Council	A DCC travel survey conducted in 2020 found that public transport was an alternative mode of transport that 48% of respondents could use. **A quarter of respondents (25%) said they would be encouraged to catch the bus by increased frequency, while 19% said they would be encouraged by cheaper fares.**

The evidence shows that for the journey to work and education, the mode share for public transport is much lower than driving and is also lower than walking. There is substantial room for growth, and this is desirable given the VKT reduction target for Dunedin.

6 Benefits

The benefits were discussed at a workshop with ORC, DCC and Stantec held on 16 December 2022, and confirmed following peer review.

The three key benefits of addressing the identified problems are described below. These benefits have been derived from Waka Kotahi's Land Transport Benefits Framework. Each benefit includes one or more key performance indicators that will be used to measure the performance of the preferred option.

Improve access to work/education by public transport.

Making public transport more attractive will give people more viable transport options and will make it easier for people to access their places of work and education. It will especially benefit those that have limited transport options, e.g., those who are unable to drive (including the young and elderly); those who are unable to afford a vehicle.

Mode shift from private vehicle to public transport.

Improving the attractiveness of public transport will help it compete with driving for regular trips such as travelling to work or education, which will help to alleviate reliance on private vehicles and reduce overall distances that people travel by private vehicles. This in turn will have a positive result in reducing emissions produced by transport in the city and emissions that would otherwise have been produced by private vehicle trips.

Reduce carbon emissions from light vehicle kilometres travelled.

Improving the quality of the network and making the service more accessible and practical for people to allow people to take the bus instead of driving for some trips, reducing reliance on private vehicles and overall distances that people travel by private vehicles (VKT). This in turn will have a positive result in reducing emissions produced by transport in the city. Increasing the number of passengers each bus carries will offset the emissions which would be produced by those passengers using a private vehicle.

6.1 Benefit Measures

Table 6-1 shows how the benefits will be measured, along with baselines and proposed targets for each measure. The Waka Kotahi Land Transport Benefits Framework was used as a starting point for the development of measures. However, these were adapted to better align with benefit measures in the Waka Kotahi Investment Priority Method (IPM) and to be more relevant to this investment proposal. The relevant Benefits Framework/IPM measures have been referenced as footnotes.

Table 6-1: Benefit Measure Baselines and Targets

Benefit	Measure	Baseline	Target
Improve access to work/education by public transport	Percentage of urban population living within 500m of stop with public transport that runs every 15 minutes during the morning peak	32% in 2023	80% in 2027
	Percentage of urban population living within 500m of stop with public transport that runs every 30 minutes during the weekday interpeak	72% in 2023	80% in 2027
	Percentage of urban population living within 500m of stop with public transport that runs every 30 minutes during the weekend daytime	33% in 2023	80% in 2027
Mode shift from private vehicles to public transport	Public transport mode share for journey to work and education (census data)	3.4% in 2018	8.0% in 2030
	Annual public transport boardings[16]	2.8m in 2022/23	5.5m in 2038/39
Carbon emissions from light vehicle fleet	Light vehicle carbon emission saving (Dunedin CUBE Transport Model)	DM 129t CO_2e in 2028 and 125t in 2038	160t CO_2e in 2028 and 155t in 2038

7 Investment Objective

One investment objective was developed to specify the desired outcomes for the proposed investment.

By making public transport more attractive to customers, particularly in areas where public transport competes with the private car for regularly made trips, we remove barriers for using the service. It means public transport becomes more viable option for more people.

Figure 7-1 shows how the investment objective relates to the problem, benefits, and key performance indicators (KPIs).

[16] Adapted from LTP Inclusive Access; 10.1.1 Number of pedestrians, cyclists, and public transport boardings.

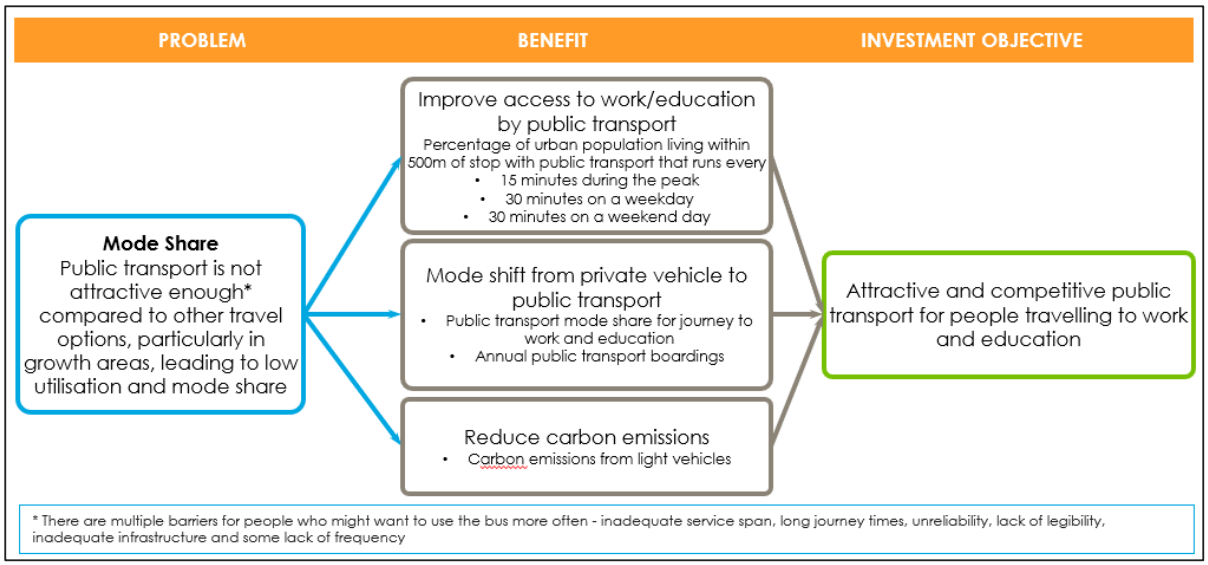


Figure 7-1: Investment Logic Map

8 Constraints, Dependencies and Assumptions

Table 8-1 summarises the key constraints, dependencies and assumptions identified. Management strategies and registers have been developed to record management of these and they will be monitored and managed during the development and delivery of the preferred package of works.

Table 8-1: Key Constraints, Dependencies and Assumptions

	Constraints	Notes
C1	Total project cost	Investment partners have finite funding availability. The total project cost should be realistic.
C2	Existing road network	Bus routes are limited to Dunedin's existing road network.
C3	Existing bus hub	Changes should be able to be accommodated by the existing bus hub.
	Dependencies	**Notes and Management Strategies**
D1	Other interventions recommended by the Shaping Future Dunedin Transport Programme Business Case	The Shaping Future Dunedin Transport Programme Business Case recommended four projects that together were needed to achieve the target mode share for public transport of 8% (by 2030). These projects are Fares and Frequency SSBC; Southern Bus Priority; Superstop and Hub Upgrades; and Parking Management. It was estimated that most of the mode shift would arise from the Fares and Frequency SSBC. DCC are implementing the SFDT Parking Management and Southern Bus Priority. The effectiveness of both projects will influence mode shift and affect the overall mode share that will be achieved. Parking Management in particular can drive additional mode shift beyond what is expected for this business case. interdependencies.
	Assumptions	**Notes and Management Strategies**
A1	Committed service improvements	Improvements to the Mosgiel bus services (introduce 15-minute peak services and a new express service) will commence in September 2023.
A2	Land-use and population growth patterns do not differ significantly from forecasts	It is assumed that the land-use and population growth will not differ significantly from what is forecasted by the 2GP. Bus routes and service frequencies can be adjusted to respond to significant differences.

A3	Best practice in NZ	It is assumed that best practice approaches from elsewhere in NZ will be applicable to Dunedin in terms of how the city's bus users may respond to different measures that might be introduced to increase patronage.
A4	Location and activities of tertiary institutes and large employers in Dunedin will not change significantly	It is assumed that all tertiary institutes and large employers within Dunedin will remain in their current location and will not change their activities significantly. A change in location or activity of a tertiary institute or larger employers (e.g., shift to majority online lectures or working from home) may result in a drop in patronage or a need to reconfigure bus routes.
A5	COVID-19 impacts on bus patronage are short-term	It is assumed that the drop in bus patronage levels due to the COVID-19 pandemic are short-term, and that patronage will recover

9 Case for Change

The SFDT PBC demonstrated the need to invest in public transport as a priority to achieve the programme outcomes relating to multi-modal access and city liveability. Urgency is required due to the construction of the new Dunedin hospital which began in 2023 and is expected to lead to travel delays for vehicles using sections of SH1 and SH88 within the central city. Travel disruption during construction presents a compelling opportunity for people to change mode.

The FFBC has investigated the current public transport system, to see whether further investment is required, or whether the current service levels and fares already offer an attractive alternative to driving a private vehicle. The key evidence is summarised in Table 9-1.

Table 9-1: Summary of Evidence

Aspect	Survey Rank[17]	Evidence
Frequency	1	Research recommends the use of optimal 'forget-the-timetable' frequencies on key routes and evidence worldwide and in NZ shows that higher frequency services are more attractive to customers. This is supported by evidence specific to Dunedin from the engagement survey which showed customers wanted higher weekend and peak frequencies and 10–30-minute frequencies on high demand routes as these improvements would encourage them to use the bus more often. Only 6 out of 23 Dunedin bus services have 10–30-minute frequencies. The other services have frequencies of between 30 and 60 minutes, which are not attractive to users. Different frequencies during peak, off-peak, weekday and weekends also make it difficult for customers to plan trips and adds complexity. High service frequency is important to facilitate smooth and quick transfers, e.g. for residents of Brighton/Ocean View/Waldronville where there is no direct route to the central city.
Reliability	2	There was a particular reliability issue in late 2022 due to driver sickness. Reliability is critical on lower frequency routes - a missed trip means a long wait and can discourage those who live on lower frequency routes from getting the bus.
Service span	3	Current service spans are not sufficient to meet the needs of shift workers - only two inbound services to the city centre arrive at the bus hub before 6.30am on weekdays, and most evening services operate no later than 11pm. This is a barrier for hospital shift workers who have 7am starts and 11pm finishes as they need time before and after a shift to get changed/complete handover and travel to and from the bus stop. In addition to hospital shift workers, Dunedin also has a significant number of people employed in retail and hospitality sectors which require safe and reliable transport choices at various hours of the day including at weekends. For PT to be a viable option for the journey to and from work, services must be early and late enough for these workers.
Fares	4	Free bus fares were ranked top of the options that would encourage respondents to travel more by bus. When asked 'are you happy with the current bus fares', 72% were happy and 27% said they should be cheaper.

[17] November 2022 Survey completed by 1795 respondents. Respondents were asked to rank changes that would encourage them to use the bus.

Aspect	Survey Rank[17]	Evidence
Travel time	5	Assessment showed journey times are 2.5 to 3 times slower than driving. This equates to roughly an additional 20-30 minutes on the bus compared to a car for the same journey. Feedback from customers showed dissatisfaction with travel times, particularly from Mosgiel and Brighton. This has discouraged users from using the bus, and with significant growth expected for Mosgiel, its likely new residents will also default to driving if bus journey times are not improved. and journeys take significantly longer than a car trip

The evidence showed that, as identified in the SFDT PBC, frequencies are a barrier to public transport use, and improvements are likely to lead to growth in mode share as would be expected from international research related to fare elasticities. It also showed that cheaper fares are likely to lead to growth in mode share and this change can be implemented very quickly with no ramp up required, making the 2030 target date more achievable. The evidence also supported service span improvements, to make public transport more appealing to health, hospitality, and retail sectors, which are significant in central Dunedin.

Dunedin is a compact city and there are positive signs in the public transport space that additional investment will yield benefits. The annual average rate of increase of bus patronage during the period 2016/17 to 2022/23 is 3.9% p.a., and Dunedin has performed better than other centres where patronage has not recovered following the pandemic. Dunedin also shows excellent potential for further mode share, with strong latent demand (75% of survey respondents said they would consider travelling more often by bus) and better land use/transport integration than many other centres. Many (40%) of Dunedin residents are familiar with the bus system and have used it in the last year[18], which puts Dunedin ahead of the other urban centres of Christchurch, Tauranga, and Hamilton, where a far smaller percentage have used the bus system in the last year.

Despite these positive signs regarding Dunedin's PT system, the overall contribution public transport makes to a multi-modal system for Dunedin is low, with only 3.4% of the population using the bus for the journey to work[19].

Increasing public transport mode share is an SFDT Programme Investment Objective, delivering access and emissions benefits, and contributing to a liveable city. The FFBC evidence shows where investment is needed to make public transport more competitive compared to driving a car. The evidence is clear that with some investment to fund improvements, there is clear potential for public transport to play a far larger role as part of the overall transport system. Without this investment, PT mode share will remain at current low levels. Congestion and delays will become commonplace in the city centre during construction of the New Dunedin Hospital and will continue once the hospital opens and as the city's population grows. Further consideration of the use of fares, frequencies and service span are supported by the evidence, and should drive the development of options.

Improving public transport mode share will have many benefits which are well documented: health benefits; travel time savings for all modes; improved parking availability for those that drive; and emissions reductions.

[19] 2018 Census Journey to Work

[19] 2018 Census Journey to Work

ECONOMIC CASE

10 Development and Refinement Process

The process for identifying a preferred programme was completed over four stages, using the following steps:

Stage 1: Long List Development:

- Consider strategic alternatives and brainstorm interventions.
- Filter the interventions, using Waka Kotahi's Early Assessment Sifting Tool (EAST).
- Allocate interventions into subpackages and then packages.
- Use the Levers Tool, a bespoke spreadsheet forecasting tool developed for this project, to test different combinations of fares and frequencies to understand their performance.
- Socialise and get feedback on the packages at a stakeholder workshop.
- Select the range of packages to form the final long list.

Stage 2: Long List to Medium List:

- Assess the long list packages using multi-criteria analysis (MCA) to identify a medium list packages.
- Socialise and get feedback from ORC and Waka Kotahi on the medium list.

Stage 3: Medium List to Short List:

- Undertake modelling on the medium list of packages to better understand their performance.
- Socialise and confirm Waka Kotahi and ORC acceptance with the emerging shortlist packages.

Stage 4: Short List to Preferred Option:

- Undertake an economic assessment of the short-listed packages.
- Recommend a preferred package for the investment proposal.

ORC have been involved throughout this optioneering process. Waka Kotahi was consulted with during the MCA and shortlist meeting stages. DCC was consulted during the short list and preferred option phases. Other stakeholders had input at the long list stage via a workshop.

The optioneering process undertaken for this project is illustrated in Figure 10-1 below. The bracketed numbers in each phase indicate the total number of interventions/packages at each stage.

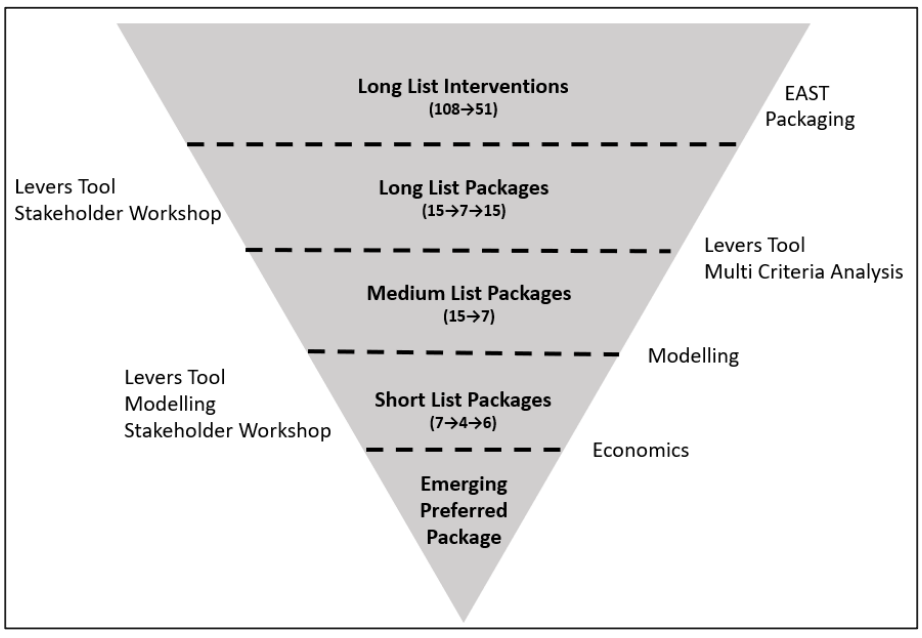


Figure 10-1: Long List to Preferred Process

11 Long List Development

11.1 Intervention Options and Filtering (EAST)

An initial long list of intervention options was presented at a stakeholder workshop held on 16 December 2022. Interventions ranged from those that applied to the whole network (e.g. single zone structure) to those applying only to specific routes (e.g. more weekend services to Palmerston). The intervention options related to the following categories:

- Fare structure (including relative change from current fare level).
- Service frequency (by service class, time of day and day of week).
- Service span (by service type).
- Express buses (by destination and time of day).
- Route improvements (by location).

The initial long list was finalised with 108 discrete intervention options. These were screened using a modified version of the Waka Kotahi Early Assessment Sifting Tool (EAST – refer to Appendix E).

Each of the intervention options were scored on a 5-point scale against the investment objective, as well as affordability and public acceptability. Options that scored two or lower against the investment objective were eliminated due to not supporting the desired outcomes of the business case. Likewise, options that scored one against the affordability or public acceptability criteria were also eliminated, as they are unlikely to be practically feasible. A further three interventions were eliminated as they were too similar to other options or scored poorly against both affordability and public acceptability.

11.2 Developing Sub-packages

The EAST assessment process resulted in 51 intervention options progressing to the next stage of assessment. These were packaged into groupings of interventions, that applied to the whole network (Figure 11-1).

A. Fares • System: flat fare, two-zone, three-zone, four-zone (free city zone), per km • Level: lower, same or higher fares compared to current • Overlays: off-peak discount, free travel for targeted groups, fare capping	**B. Frequency / headways** • The number of services per hour / time between services • Set by route or service class • Ideally consistent across time of day and day of week
C. Span • Time of the first service into the city and last service departing the bus hub at the end of the day • Set by route or service class • Ideally consistent across the week (weekday / weekend)	**D. Express buses** • Additional services that only call at key stops (e.g., park and ride, superstops) to reduce journey times • Not suitable for all routes • Usually only used in peak demand periods

Figure 11-1: Sub-package groupings

This grouping process created 22 sub-packages with:

- Thirteen relating to fares (A1-A13).
- Six relating to frequency (B1-B6).
- One relating to service span (C1).
- Two subpackages relating to express buses (D1-D2).

11.2.1 Fares Sub-Packages

Thirteen fare sub-packages were created as shown in Table 11-1 below.

Table 11-1: Fare Sub-Packages

Category	Fare Type	Identifier	Adult Fare (Bee Card)	Child Fare (Bee Card)
Fares	Flat	A1	$2.50	$1.50
	Three Zone	A2	1 zone: $2.00 2 zones: $2.50 3 zones: $3.00	1 zone: $1.20 2 zones: $1.50 3 zones: $1.80
	Three Zone	A3	1 zone: $1.50 2 zones: $2.00 3 zones: $2.50	1 zone: $0.90 2 zones: $1.20 3 zones: $1.50
	Flat	A4	$2.00	$1.20
	Two Zone	A5	1 zone: $1.50 2 zones: $2.00	1 zone: $0.90 2 zones: $1.20
	Flat	A6	Free	Free
	Flat	A7	$1.00	$0.60
	Three Zone	A8	Inner zone: Free 1 zone: $1.00 2 zones: $2.00	Inner zone: Free 1 zone: $0.60 2 zones: $1.20
	Free Travel for Under 18s	A9	N/A	Free
	Maximum Fare Cap	A10	Maximum fare equal to six trips per week	Maximum fare equal to six trips per week
	Four Zone	A11	City Zone: Free 1 zone: $1.00 2 zones: $1.50 3 zones: $2.00	City Zone: Free 1 zone: $1.00 2 zones: $1.50 3 zones: $2.00
	Four Zone	A12	Inner Zone: Free 1 zone: $1.00 2 zones: $1.50 3 zones: $2.00	Inner Zone: Free 1 zone: $0.60 2 zones: $0.90 3 zones: $1.20
	Three Zone	A13	1 zone: $2.00 2 zones: $4.00 3 zones: $10.00	1 zone: $1.20 2 zones: $2.40 3 zones: $6.00

11.2.2 Frequencies sub-packages

Six frequency sub-packages were created as shown in Table 11-2 below.

Table 11-2: Frequency Sub-Packages

Category	Identifier	Primary	Secondary	Targeted
Frequency	B1	15min	15min	60min
	B2	15min	30min (15min during peak)	120min
	B3	15min	30min	120min
	B4	15min (30min during weekday and weekend evenings)	30min	120min
	B5	10min	15min	60min

Category	Identifier	Primary	Secondary	Targeted
	B6	15min (30min during weekday evenings and all-day on weekends)	30min (15min during peak)	120min

Most of the frequencies included align with Waka Kotahi's One Network Framework (ONF) and generally accepted industry practice for the difference service classes. The exceptions are:

- B4 and B6 Primary frequency during evenings and weekends (30min) is less than the ONF's indicative vehicle volume of ≥4 services per hour across most of the day, seven days per week.
- B1 and B5 Secondary frequency (15min) is higher than the ONF's indicative vehicle volume of <4 services per hour and meets the indicative volume for a Primary service (≥4 services per hour).

The ONF service levels were used to inform the optioneering and package development.

11.2.3 Service Span sub-packages

The definition of service span adopted for this business case is the time between the first bus arriving and the last bus departing the bus hub on a route. The service spans presented are the minimum service span, meaning buses can arrive earlier and depart later, depending on the demand and need. It is ORC's objective to deliver an easy to understand and reliable public transport system for Dunedin. For this reason, the span should be consistent seven days a week.

Only one service span sub-package was created because it was the only fit-for-purpose and practical option for the network based on the feedback from stakeholders and the public survey. This was for a 6am-11:30pm service span for the Primary and Secondary networks, and 7am-7pm for the Targeted network. This service span is most likely to meet the needs of Dunedin hospital staff working shift work, as it provides sufficient time at the start and the end of the shift for staff to complete the necessary change-over tasks and comfortably walk the distance between the Dunedin bus hub and the hospital.

An option to extend the Primary and Secondary span to midnight was considered, but ultimately discontinued. This was because there would be very little demand on some routes. It was considered appropriate for all Primary and Secondary routes to run until at least 11:30pm with some services running later based on demand.

Table 11-3 below outlines the service span sub-package.

Table 11-3: Service Span Sub-Package

Category	Identifier	Primary	Secondary	Targeted
Span	C1	6am-11:30pm	6am-11:30pm	7am-7pm

11.2.4 Express Buses sub-packages

Express services are usually implemented as additional services on a given route that only stop at certain bus stops (e.g., key nodes on the network). They are used most often to cater for higher demand periods, such as the morning and evening commuter peaks or after school period.

Express services are generally not favoured in transport planning as they inherently come at a higher cost, since they increase the overall peak vehicle requirement of the network (additional bus requirement), but they only increase capacity for the short peak periods they operate, and they do not increase frequency to most bus stops. It therefore tends to be more cost effective to encourage peak spreading by increasing frequency to existing routes.

However, express bus services can be a useful tool in appropriate scenarios. For this reason, two express bus sub-packages were created, as shown in Table 11-4. These are for peak express services through the outer suburbs of Port Chalmers, Portobello, and Brighton (complementing those that have been recently introduced in Mosgiel), which currently experience capacity issues on routes during commuter peaks, and express services to Mosgiel, Port Chalmers, Portobello, and Brighton during an extended peak period, to provide more capacity through peak spreading.

Table 11-4: Express Bus Sub-Packages

Category	Identifier	Description
Express Buses	D1	Peak express services to Port Chalmers, Portobello, and Brighton
	D2	Extended peak hours express services to Mosgiel, Port Chalmers, Portobello, and Brighton

Note: The Do Minimum includes peak express services to Mosgiel; these will be included in all packages.

11.3 Developing Long List Packages

The sub-packages were combined to create variety of network-wide packages that were a combination of both fares and frequencies. An initial list of 15 packages were developed (Table 11-5). Sub-package C1, the only service span considered, was included in all packages. Each sub-packages is included in at least one package.

Table 11-5: Initial Long List Packages

Package Description	Sub-Packages Included
Highest fares, best service	A1, B1, C1
Higher fares, better service	A2, B2, C1
Slightly higher fares, some improvements	A3, B3, C1, D2
Same fares with fare cap, small improvements	A4 + A10, B4, C1, D1
Same fares with fare cap, significant improvements	A4 + A10, B2, C1
Cheaper fares, significant improvements	A7, B2, C1
Cheaper fares, small improvements	A5, B4, C1, D1
Cheaper fares, significant improvements	A5, B2, C1
Highest fares, some improvements	A1, B3, C1, D2
Cheaper fares, best service	A5, B1, C1
Free fares, best service	A6, B5, C1
Reduced flat fares, free travel for U18s, best service	A7, A9, B5, C1
Same or cheaper fares, best service	A8, B5, C1
Reduced flat fares, free travel for U18s, better service	A7, A9, B2, C1
Four zone with free city, better service	A11, B2, C1

11.3.1 Levers Tool

An initial assessment of the mode share impact of each package was tested using a bespoke ‘Levers Tool’. This spreadsheet-based tool uses standard fare and service demand elasticities to test the performance of different combinations of fares and frequencies, as well as the impact of staging changes. The tool assesses the patronage change and consequent mode share change in future years based on the parameters of each package, providing a quick and flexible way to determine the impact and compare results. Details of the Levers tool and the screening process is provided in Appendix F.

The Levers Tool was used to eliminate packages that would not significantly increase mode share. From the 15 packages tested, eight were eliminated. Figure 11-2 summarises the remaining seven packages (in addition to the Do Minimum) that progressed to the next stage of assessment.

Package	Frequency	Fares (Adult Bee Card)	Indicative Net Cost	Indicative Mode Share	
				2030	2035
Do Minimum	Vary considerably Mosgiel improvements	Flat Fare: $2.00	$	3.4%	3.4%
Package 1 Same or lower fares Very high service	Frequent: 15min Regular: 15min Access: 60min	One-zone trips – $1.50 Two-zone trips – $2.00	$$$	8.6%	10.4%
Package 2 Higher fares Very high service		Flat Fare – $2.50	$$$	7.5%	8.8%
Package 3 Lower fares + free travel for U18s High service	Frequent: 15min Regular: 30min Access: 60min	Flat Fare – $1.00 Free travel for Under 18s	$$	7.3%	8.6%
Package 4 Same or lower fares Free travel in the City Zone High service		Trips within the City Zone – Free One-zone trips – $1.00 Two-zone trips – $1.50 Three-zone trips – $2.00	$$	7.1%	8.3%
Package 5 Lower fares High service		Flat Fare: $1.00	$$	7.1%	8.3%
Package 6 Same or lower fares High service		One-zone trips: $1.50 Two-zone trips: $2.00	$$	6.5%	7.5%
Package 7 Same fares (fare cap) High service		Flat Fare: $2.00 Maximum fare limited to six trips per week	$$	6.3%	7.2%

Figure 11-2: Packages to be Progressed to the Next Stage of Assessment

11.4 Stakeholder Feedback

A stakeholder workshop was held on 8 March 2023. Representatives from ORC, DCC, Te Whatu Ora, Waka Kotahi (public transport policy team), Fisher and Paykel and Stantec were present. Representatives from University of Otago, OUSA, Dunedin Secondary Schools Partnership, Generation Zero, Otago Chamber of Commerce and the Accident Compensation Corporation were also invited.

The case for change was presented, along with the process used to develop long list package options (combinations of fare and frequency improvements). Stakeholders had the opportunity to provide feedback and state their preferences of the seven long list options presented.

Key feedback that was received at the workshop included:

- A desire from all stakeholders to see free fare options added to the list for assessment, and for a few other additional options to be added (8 new options were added in total as a result of the workshop feedback).
- Preference for the flat fare or 2-zone fare options for simplicity.
- Support for a cruise ship levy or increased advertising revenue if the income is sufficient to cover the cost to set up and manage. It was explained that these supplementary funding sources would be explored outside the business case process as the funding available is not likely to be significant.
- Employers appear to be open to contributing for their employees' travel, but need to understand the service offering including how this would work. It was explained that developing a service offering would be explored outside this business case process.
- Support for increasing parking charges to a level that makes bus fares attractive.
- Recommendation for this business case to focus on supplementary funding sources that can make a significant contribution to operating costs, and for others to be progressed outside of the business case.

A record of the workshop was circulated to all invitees, after which OUSA provided feedback via email relating to their support of free fares for tertiary students and all bus customers.

The workshop resulted in eight additional packages being added onto the long list (packages 8 – 15), including three free fare options.

A meeting was held on 23 March 2023 with Waka Kotahi's Senior Investment Advisor who could not attend the workshop. This meeting confirmed an overall level of comfort with the content and outcomes from the stakeholder workshop, and overall approach taken.

Waka Kotahi's Senior Investment Advisor joined weekly project meetings with ORC after this time.

11.4.1 Final Long List Packages

The final 15 long list packages are summarised in Table 11-6.

Table 11-6: Summary of Long List of Packages

Package	Fares	Frequency		
	Fare Level (Adult Bee Card)	Primary	Secondary	Targeted
Do Minimum	$2.00	Varies by route		
Package 1	$1.50	15min	15min	60min
Package 2	$2.50	15min		60min
Package 3	$1.00 (Free travel Under 18)	15min	30min (15min during peak)	60min
Package 4	City Zone: Free 1 zone: $1.00 2 zones: $1.50 3 zones: $2.00	15min	30min (15min during peak)	60min
Package 5	$1.00	15min	30min (15min during peak)	60min
Package 6	$1.50	15min	30min (15min during peak)	60min
Package 7	$2.00, maximum $12.00 per week	15min	30min (15min during peak)	60min
Package 8*	Free	15min	15min	60min
Package 9*	Free	15min	30min (15min during peak)	60min
Package 10*	$2.00, maximum $12.00 per week	15min	15min	60min
Package 11*	Inner Zone: Free 1 zone: $1.00 2 zones: $1.50 3 zones: $2.00	15min	30min (15min during peak)	60min
Package 12*	1 zone: $2.00 2 zones: $4.00 3 zones: $10.00	15min	30min (15min during peak)	60min
Package 13*	1 zone: $2.00 2 zones: $4.00 3 zones: $10.00	15min (30min on weekday evenings and weekends)	30min (15min during peak)	120min
Package 14*	$1.00	15min (30min on weekday evenings and weekends)	30min (15min during peak)	120min
Package 15*	Free	15min (30min on weekday evenings and weekends)	30min (15min during peak)	120min

***** Packages added at the request of stakeholders following the long list workshop.

12 Long List to Medium List

12.1 Understanding the Do Minimum

The performance of the Do Minimum should be compared to the packages in the long list. The Do Minimum represents the minimum level of expenditure required to maintain the current level of service, not the minimum level of investment required to achieve the programme objectives.

The Do Minimum for this business case was based on the existing bus routes, service spans, service frequencies, fares, and bus stop infrastructure as of March 2023.

The following improvements have been financially committed, and were therefore also included in the Do Minimum:

- Additional services to Mosgiel (#77) – 15-min peak and peak express services.
- Some new school routes.
- Minor route and service changes to improve coverage.
- Super stops at Gordon Road, King Edward Street, Bank Street, North Road, Hillside Road, and Clyde Street.

The Do Minimum was updated following a Central Government's Budget 2023 announcement in May 2023 (see section 14.1).

12.2 Multi-Criteria Assessment

The long list was assessed using multi-criteria assessment (MCA). The MCA process is an industry standard screening tool used to assess the long list of packages against a range of criteria to identify which packages to progress to the next stage of assessment. The levers tool was also used to inform some of the MCA scores.

12.2.1 Assessment Criteria

Table 12-1 outlines the criteria used in the MCA to assess the long list of packages. The assessment criteria were created by first selecting criteria that would represent the key elements of the project investment objective. Waka Kotahi's MCA guidance[20] specifies that investment objectives are to be included as part of assessments. While legibility was not identified as an issue with the current bus system, it is a key consideration for the success of any potential changes and was, therefore, included as a criterion.

Draft criteria were initially discussed with ORC at a workshop in late December 2022, refined and subsequently confirmed in February 2023 before the stakeholder workshop. Criteria were grouped into 'opportunities and impacts' and 'implementability'. While supporting areas of growth was not identified specifically as one of the main problems for the FFBC, it is important to consider in any potential network improvement. While it is not a major problem now, car dependency for trips from growth areas could have a significant impact on the region's mode shift and environmental targets.

Table 12-1: Long List to Short List Assessment Criteria

Assessment Criteria	Description
IO: Attractive and competitive public transport for people travelling to work and education (50%)	
Service Levels	How frequent are the services? Includes consideration of the different service types across the weekday peak, weekday interpeak, weekday evenings and weekends.
Fares	How much are customers charged to use public transport?
Legibility	How easy is it to understand the service levels and fares?
Opportunities and Impacts (20%)	
Supports Growth Areas	How well does the option support the city's growth?
Climate Change Mitigation	How well does the option support mode shift from private vehicles to public transport? This score was based on estimated patronage.
Implementability (30%)	
Net Operating Cost	How much will it cost to the investor to operate the option annually? (high level cost) This score was based on the option's service kms and fleet size.
Public Acceptability	How likely is the option to be accepted by most of the public? This score was based on feedback received at the stakeholder workshop.

[20] www.nzta.govt.nz/assets/resources/planning-policy-manual/docs/multi-criteria-assessment-user-guidance.pdf

Assessment Criteria	Description
Achievability	How quickly can the option be implemented?
Value for Money	How much public transport mode share is enabled by the option, for the cost to implement it?

12.2.2 Scoring Framework

Table 12-2 outlines the scoring framework that was used to assess the long list options against the criteria. It was adapted from the 7-point scoring system described in Waka Kotahi's Multi-Criteria Analysis: User Guidance (August 2020)[21].

Table 12-2: Waka Kotahi's 7-point Scoring System

Magnitude	Definition	Score
Large positive	Major positive impacts resulting in substantial and long-term improvements or enhancements of the existing environment.	3
Moderate positive	Moderate positive impact, possibly of short-, medium- or long-term duration. Positive outcome may be in terms of new opportunities and outcomes of enhancement or improvement.	2
Slight positive	Minimal positive impact, possibly only lasting over the short term. May be confined to a limited area.	1
Neutral	Neutral – no discernible or predicted positive or negative impact.	0
Slight negative	Minimal negative impact, possibly only lasting over the short term, and definitely able to be managed or mitigated. May be confined to a small area.	-1
Moderate negative	Moderate negative impact. Impacts may be short, medium, or long term and are highly likely to respond to management actions.	-2
Large negative	Significant negative impacts resulting in sizeable and long-term deterioration or damage to the existing economic or social environment.	-3

The general approach to scoring is summarised in Table 12-3 below. The majority of criteria were assessed using quantitative data and input from stakeholders, which made the MCA scoring relatively straightforward. The Levers Tool provided much of this data, including operating costs, which are described further in Appendix G.

Table 12-3: MCA Scoring Guide

Assessment Criteria	Higher Score	Lower Score	Source
Service Levels	Higher service kms.	Lower service kms.	Levers Tool
Fares	Lower weighted average fare per trip	Higher weighted average fare[22] per trip	Levers Tool
Legibility	Easier for customers to understand.	More complicated for customers to understand.	Qualitative Judgement
Supports Growth areas	Higher frequencies / lower fares for trips serving growth areas	Lower frequencies / higher fares for trips serving growth areas	Qualitative Judgement
Climate Change Mitigation	Higher patronage	Lower patronage	Levers Tool

[21] https://www.nzta.govt.nz/assets/resources/planning-policy-manual/docs/multi-criteria-assessment-user-guidance.pdf

[22] The weighted average fare is a calculation that takes into account the number of passengers who pay each fare, e.g. Adult Bee Card, Child Bee Card, Adult Full Fare, Child Full Fare, other concessions. It is more accurate than a simple average fare and represents what people, on average are paying in bus fares.

Assessment Criteria	Higher Score	Lower Score	Source
Net Operating Cost	Lower cost	Higher cost	Levers Tool
Public Acceptability	Positive feedback from stakeholder workshop	Negative feedback from stakeholder workshop	Stakeholder Workshop
Achievability	Faster implementation	Slower implementation	Qualitative Judgement
Value for Money	Higher ratio of mode share to net cost	Lower ratio of mode share to net cost	Levers Tool

12.2.3 MCA Results

Table 12-4 provides a summary of the MCA scores. For the weighted score, an equal percentage weighting under each grouping has been used. This means the weightings of the three criteria under Investment Objectives are equal. Similarly, the weighting of the two Opportunities and Impact criteria and the four Implementability criteria are equal. (e.g., supports growth areas and climate change mitigation were weighted 10% each).

The Do Minimum was also scored. The impact of the Do Minimum was considered neutral in all criteria except legibility, where it scored -2. The Do Minimum does not change current service levels, fares, or any of the other criteria. However, it was scored -2 for legibility, as there are known issues with legibility because many routes have different service spans and frequencies, and the overall system is quite complex. The resulting confusion has a negative impact, relative to the other packages being assessed.

Table 12-4: Long List Package Scores

Long List Option	Investment Objectives 50%			Opportunities and Impacts 20%		Implementability 30%				Weighted Score	Rank
	Service Levels	Fares	Legibility	Supports Growth Areas	Climate Change Mitigation	Net Operating Cost	Public Acceptability	Achievability	Value for Money		
Do Minimum	0	0	-2	0	0	0	0	0	0	-0.3	16
Package 1	3	1	3	3	3	-3	2	-2	1	1.6	3
Package 2	3	-1	3	3	2	-3	-1	-2	1	1.0	13
Package 3	2	2	2	2	2	-2	3	-1	3	1.6	3
Package 4	2	2	0	2	2	-2	3	-1	3	1.3	9
Package 5	2	2	2	2	2	-2	3	-1	3	1.6	3
Package 6	2	1	1	2	2	-2	3	-1	2	1.3	9
Package 7	2	1	2	2	2	-2	2	-1	2	1.4	8
Package 8	3	3	3	3	3	-3	3	-2	2	2.1	2
Package 9	2	3	3	3	3	-2	3	-1	3	2.2	1
Package 10	3	1	3	2	3	-3	3	-2	1	1.6	3
Package 11	2	1	0	1	2	-2	3	-1	3	1.1	12
Package 12	2	-1	0	0	1	-2	-1	-1	0	0.0	14
Package 13	2	-1	-1	0	1	-2	-1	-1	0	-0.1	15

Package 14	2	2	1	1	2	-2	3	-1	2	1.3	9
Package 15	2	3	1	2	2	-2	3	-1	3	1.6	3

A summary of the justification for the MCA scores are included in Appendix H.

The MCA showed:

- Packages 8 and 9 are recommended by the MCA, ranking top and close second. These both have free fares.
- Packages 1, 3, 5, 10 and 15, also scored well.
- Packages 1, 2, 8 and 10 were the highest performing for service levels and poorest performing for net operating cost and achievability. This was due to most of the network (primary and secondary routes) running at 15 minute all day headways, resulting in higher costs, and requiring more buses and drivers.
- Packages 8, 9 and 15 include free fares, which performed the best for the fare criteria.

12.2.4 Sensitivity Testing

Sensitivity testing was undertaken to assess the performance of the long list options under different scenarios. Table 12-5 shows the performance (ranking) of the long list options under the different scenarios, as well as using the Base Weighting. The sensitivity tests undertaken to test against these were:

- Investment Objectives 60%, Cost and Achievability 40%.
- Investment Objectives 100%.
- Implementability 100%.
- Waka Kotahi Defined (Standard Weighting excluding Fares, Growth Areas, and Acceptability).
- Standard Weighting (excluding Fares)
- Equal Weighting.

The exclusive of fares in two sensitivity tests was requested by Waka Kotahi (see 12.3).

Table 12-5: MCA Sensitivity Testing Scores

	Base Weighting - IOs 50%, Implementability 20%, Achievability	IOs 60%; Cost and Achievability 40%	IOs 100%	Implementability 100%	Waka Kotahi Defined	Standard Weighting (Excluding Fares)	Equal Weighting	Average rank (rounded)
Do Minimum	16	14	16	10	16	16	15	15
Package 1	3	8	3	13	3	3	10	6
Package 2	13	13	8	16	5	5	13	10
Package 3	3	3	5	1	6	5	3	4
Package 4	9	9	11	1	12	12	7	9
Package 5	3	3	5	1	6	5	3	4
Package 6	9	9	11	1	9	9	7	8
Package 7	8	9	9	7	6	8	7	8
Package 8	2	2	1	10	2	1	2	3
Package 9	1	1	2	1	1	2	1	1

Package 10	3	3	3	12	3	4	6	5
Package 11	12	9	11	7	13	13	12	11
Package 12	14	15	14	14	14	14	14	14
Package 13	15	16	15	14	15	15	15	15
Package 14	9	7	9	7	11	11	11	9
Package 15	3	3	7	1	9	9	3	5

The sensitivity testing showed:

- Package 9 is the recommended programme from the MCA, ranking top or second across all tests.
- Packages 3 and 4 also performed well across many tests.
- Package 8 and 10 performed well across most tests but poorly for Implementation. This is because of the significant additional cost of these packages as well as the practical achievability in terms of the increase in fleet size and driver numbers required.
- The Do Minimum and Packages 2, 11, 12, 13 and 14 all scored poorly and are not supported and performed poorly across a range of tests.

12.2.5 Levers Tool Results

In addition to informing MCA scores, the levers tool was also used to produce mode share and cost estimates as shown in Figure 12-1.

Table 12-6 Levers Tool Estimates for Long List

Figure 12-1: Indicative Mode Share and Additional Net Cost by Package

These results show that in general, a higher additional cost results in a higher mode share, as shown in Figure 12-2.

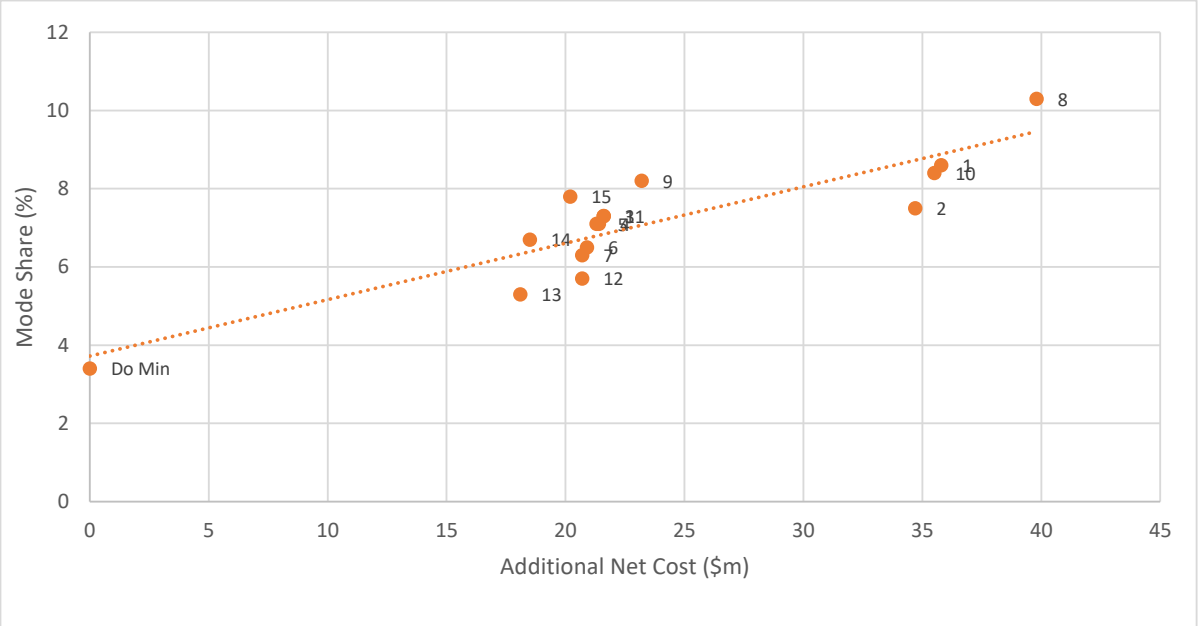


Figure 12-2: Relationship Between Additional Net Cost and Mode Share

However, as the graph shows there are some outliers:

- Packages 8, 9 and 15, which are all free fare packages, offer better value for money. They deliver more mode share than other packages of similar cost. This is because the effect of the free fare on mode share is greater than the lost farebox revenue.
- Packages 2, 12 and 13 are poor value for money, delivering less mode share than other packages of similar cost. These packages all have more expensive fares, which suppresses mode share.

12.3 SFDT Partner Feedback

At this stage, feedback was sought from Waka Kotahi and DCC. This process required several iterative discussions. The following feedback was provided and confirmed:

- Two additional MCA sensitivity tests added that excluded a score for fares (see 12.2.4).
- Free fare options could be included in the shortlist but were unlikely to be supported by Waka Kotahi due to the precedent in relation to national fare structures this could set.
- A spread of package options should form a medium list for further testing in the model. The medium list would include the options that performed best through the assessments, as well as 'outliers' in terms of cost and mode shift. This spread would provide an understanding of the benefits and disbenefits of expensive programmes that exceeded the mode shift target, and cheaper programmes that fell short of the target.
- DCC requested the package that included a 'free' inner city zone option be included in the medium list, as the Council had been discussing this for some time.
- Model assumptions and inputs were confirmed by Waka Kotahi.

An update for the project was presented to the Connecting Dunedin on 1st May 2023. The report provided an update on the community engagement, package development with the proposed medium list, and funding options (see Appendix I).

12.4 Final Medium List packages

As a result of the MCA and Levers Tool Assessment detailed in section 12.2, as well as SFDT partner feedback, eight packages, representing a spread of cost, mode share and MCA performance, formed the medium list (Table 12-7).

Table 12-7: Medium List Summary

Package	Rationale for Including	Fares	Frequency		
		Fare Level (Adult Bee Card)	Primary	Secondary	Targeted
Do Minimum	For comparison purposes	$2.00	Varies by route		
3	Moderate cost packages that achieve close to 8% mode share	$1.00 (Free travel for Under 18s)	15min	30min (15min during peak)	60min
4		City Zone: Free 1 zone: $1.00 2 zones: $1.50 3 zones: $2.00	15min	30min (15min during peak)	60min
5		$1.00	15min	30min (15min during peak)	60min
8	High-cost package that exceeds 8% mode share	Free	15min	15min	60min
9	Moderate cost package that achieves 8% mode share	Free	15min	30min (15min during peak)	60min
10	High-cost package that exceeds 8% mode share	$2.00, maximum $12.00 per week	15min	15min	60min
13	Lower cost packages that fall short of 8% mode share	1 zone: $2.00 2 zones: $4.00 3 zones: $10.00	15min (30min on weekday evenings and weekends)	30min (15min during peak)	120min
15		Free	15min (30min on weekday evenings and weekends)	30min (15min during peak)	120min

The following packages were excluded:

- P1 and P2 – high-cost packages but with lower mode share than P8 and P10.
- P6 and P7 – same frequency as P3, P4, and P9 but falls short of the mode share target.
- P11 – performs poorly in the MCA and falls short of mode share target.

13 Medium List to Short List

13.1 Modelling

Modelling was undertaken using the Dunedin CUBE Transport Model for the medium list packages. The CUBE model is a four-stage 'regional' transport model, covering the greater Dunedin area, and includes heavy vehicle, light vehicle, public transport, and active modes. It was last updated in 2018.

Traditional transport models such as the CUBE model provide good information on relative mode shares and other elements such as changes in light vehicle kilometres and emissions in response to public transport service changes. However, they struggle to replicate the impact of transformational public transport investments, since they reflect past behaviour in response to often poor service levels and high fares. They also take a point of time approach, assuming an instantaneous response in travel behaviour and mode shift following investment, which does not correctly reflect either staged implementation or the typical ramp up profile of patronage increases following improvements to public transport. Transport models consequently tend to overestimate the short-term impacts of public transport changes, while underestimating the longer-term impacts.

13.1.1 Model Outputs

The CUBE model provided an initial estimate for a range of parameters for 2028 and 2038, assuming implementation in 2024. The model was only able to reflect changes to the adult Bee Card fare, so could not distinguish between packages that included different fares products e.g. free for under 18s, fare cap, etc. This meant that package 3 and 5 outputs were the same, despite their approach to child fares being different. A summary of CUBE outputs is shown in Appendix J.

Table 13-1: Cube Model Medium List Package Assessment

Package	Total Patronage (all routes)		Light VKT		PT Mode share		PT Mode share, Home<->Work		Change in Mode Share, light vehicle & active modes		Network delay (vehicles-hours)		CO2-e, tonnes	
	2028	2038	2028	2038	2028	2038	2028	2038	2028	2038	2028	2038	2028	2038
Do Min	12,965	13,282	2,929,912	3,156,256	1.9%	1.9%	4.0%	3.9%			89,965	97,804	172	155
3	27,843	28,472	2,879,995	3,104,713	4.0%	4.0%	7.0%	7.0%	-2.1%	-2.1%	88,186	95,971	173	156
4	31,106	31,816	2,879,552	3,103,531	4.5%	4.5%	7.2%	7.2%	-2.6%	-2.6%	87,999	95,766	173	156
8	51,217	52,446	2,796,095	3,020,079	7.2%	7.2%	10.4%	10.3%	-5.3%	-5.3%	85,397	93,092	172	155
9	46,431	47,555	2,816,325	3,040,279	6.6%	6.7%	9.9%	9.9%	-4.8%	-4.8%	86,007	93,702	170	154
10	21,520	21,970	2,899,580	3,124,502	3.1%	3.1%	5.9%	5.8%	-1.2%	-1.2%	88,926	96,739	177	159
13	15,150	15,499	2,927,767	3,153,758	2.2%	2.2%	4.6%	4.6%	-0.3%	-0.3%	89,793	97,647	175	158
15	46,026	47,072	2,818,022	3,040,459	6.6%	6.6%	9.8%	9.8%	-4.7%	-4.7%	86,017	93,713	170	153

Figure 13-1 shows the modelled public transport mode share from home to work in 2028. The metric is not the same as journey to work, as it does not capture multipurpose journeys (e.g., home to childcare, then to work). However, it is a good comparative indicator of the likely journey to work mode share expected from the different packages.

The modelling showed that three packages were expected to achieve the 8% home to work public transport mode share target in 2028, and two packages were close to achieving the target.

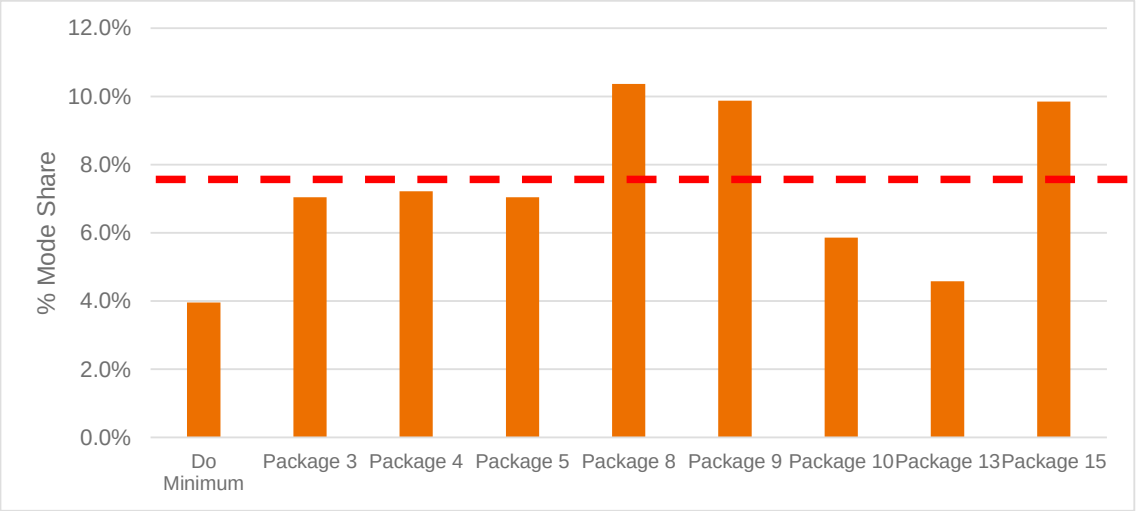


Figure 13-1: Cube Model PT Mode Share Estimate (Home to Work) 2028

As expected, the model results show that the packages that achieve the most mode share - P8, P9 and P15 – are also expected to have the highest patronage, highest overall PT share, lowest VKT, and lowest network delay. P9 and P15 have the lowest carbon dioxide equivalent emissions.

13.1.2 Levers Tool and Cube Model Comparison

The Levers Tool and the CUBE model take different methodological approaches to estimation and have differing forecast years. The model generates trips and allocates these between modes based on a mode choice approach, whereas the Levers Tool reflects the 'carrot' impact of fare and service changes directly on public transport demand. The model essentially assumes an instantaneous demand response to improvements, whereas Levers Tool allows for ramp up of the response. The Levers Tool can reflect fares in a more refined way than the model. The model was found to be less sensitive to service levels and more sensitive to fares than the Levers Tool. Regardless of these differences, both tools were found to provide similar results for mode share, as shown in Figure 13-2. This broad consistency provides assurance that the estimates are robust and can be relied upon for this business case.

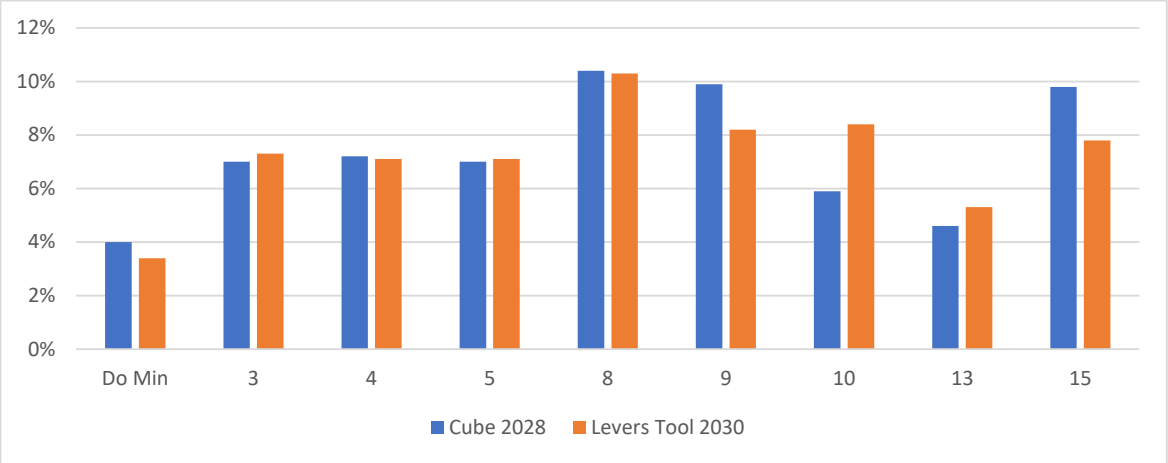


Figure 13-2: Levers Tool and Cube Model PT Mode Share Comparison

13.1.3 Summary Outputs

The performance of each medium list package is presented in Table 13-2 and discussed with the partners. This enabled a short list to be identified for economic assessment.

Table 13-2: Medium List Assessment

Consideration	Package 3	Package 4	Package 8	Package 9	Package 10	Package 13	Package 15
Additional net cost pa ($m)	$21.6	$21.4	**$39.8**	$23.2	**$35.5**	**$18.1**	**$20.2**
Levers Tool: Indicative mode share (all trips) in 2030	7.3%	**7.1%**	**10.3%**	8.2%	**8.4%**	**5.3%**	7.8%
Modelling: indicative mode share (JTW) in 2028	7.0%	7.2%	**10.4%**	**9.9%**	**5.9%**	**4.6%**	9.8%
Levers Tool: Value for money (mode share: net cost)	**0.227**	**0.220**	0.173	0.207	**0.141**	**0.105**	0.218
Modelling: Value for money	0.143	0.152	0.161	**0.255**	**0.054**	**0.035**	**0.292**
Modelling: Passengers	27k	31k	**51k**	**46k**	**22k**	**15k**	**46k**
Modelling: VKT	3.14m	3.14m	3.06m	**3.08m**	**3.16m**	**3.19m**	**3.08m**
MCA: Overview (and ranking)	**Good performance across all criteria (=3)**	Good but low score for legibility (9)	Good but low score for cost and achievability. Poor value for money (2)	**Best performance (1)**	**Very high net operating cost. Difficult to achieve. Poor Value for money (=3)**	**Poor performing - unattractive fare structure, poor legibility, complex frequency, low value for money (15)**	Good but low score for legibility (=3)
Recommendation	**Short List**	**Short List**	**Exclude:** High cost but only slightly better than P9	**Short List**	**Exclude:** High cost but only slightly better than P9	**Exclude:** Low cost but poor performing over range of metrics	**Short List**

NOTE green indicates the top 2 packages for each consideration, red indicates the bottom 2 packages

13.2 Short List

A short list of four package options was identified (Table 13-2).

During the development of the short list, Community Connect was announced (Section 14.1). This meant that under 18s would be eligible for free travel. As a result, Package 3 (which included free travel for under 18s) became defunct. To enable another moderate cost package to go forward into the short list, it was identified that Package 3 had the same fares and frequencies as Package 5 (see Table 12-7Table 13-2). For this reason, Package 3 was replaced with Package 5, and Package 5 was included in the short list.

A workshop was held on 7 June 2023 to discuss the performance of the emerging short list packages, and the results of the economic assessment, which is outlined in Appendix K. The free fares packages performed best from an economic perspective. Figure 13-3 summarises the assessment results.

Parameter	PAY FOR TRAVEL		FREE FARES	
	Package 4 15m / 30m (15 peak) / 60m Free / $1 / $1.50 /$2	**Package 5** 15m / 30m (15 peak) / 60m $1 flat fare	**Package 9** 15m / 30m (15m peak) / 60m Free fares	**Package 15** 15m (30m eve and we) / 30m (15m peak) / 120m Free fares
Marginal net cost over Do Minimum pa ($m)	$19.7	$19.6	$23.2	$20.2
Levers Tool: Indicative mode share ('JTW') in 2030	7.1%	7.1%	8.2%	7.8%
Modelling: Indicative mode share (all trips) in 2028	4.5%	4.0%	6.6%	6.6%
Modelling: indicative mode share (JTW) in 2028	7.2%	7.0%	9.9%	9.8%
Levers Tool: Value for money (mode share: net cost)	0.220	0.221	0.207	0.218
Modelling: Value for money	0.152	0.143	0.255	0.292
Modelling: Passengers	31k	27k	46k	46k
Modelling: VKT	3.14m	3.14m	3.08m	3.08m
MCA: Overview	Good but lowest MCA out of these 5 options - legibility issue	Good performance across all criteria	Best performance	Good performance except for legibility
Comments	Similar to 3 but performs better and is cheaper, but not so legible/attractive	Good performer but falls short of 8%. Similar to 4, but attraction of flat fare.	Best performer for MCA, affordable and achieves the 8%.	Nearly as good as Package 9 but not so legible. Better value but does not meet ONF PT3 criteria.
BCR **Incremental BCR**	2.6 75	2.2 -	4.2 0.3	4.8 92

Figure 13-3: Summary of Assessment Results

Packages 9 and 15 offered the highest benefits and patronage. For the fare paying packages, Package 5 was supported because of the simplicity of the fare structure and the low cost. Package 4 performed reasonably well, but there were concerns about a central 'free' zone. This was because experience from elsewhere showed people would be encouraged to drive and park on the edge of the free zone, leading to parking issues and additional driving. There is also a risk that a free central zone would attract people who currently walk or cycle within this area.

Waka Kotahi acknowledged that from a purely economic case perspective, the evidence showed the options that combine frequency improvements and free fares were the best performing out of those assessed. However, the free fare options would not be supported by Waka Kotahi, meaning those packages are not feasible within current policy settings.

The frequencies for Package 15 were agreed to be the most realistic for Dunedin, offering a significant improvement over current frequency. There were concerns that the 15-minute frequency all day every day, from 6am to 11.30pm, for primary routes under Packages 4, 5 and 9 would not be well utilised, and the 60m frequency for Access services was also too high.

It was agreed that a hybrid Package 16 would be added to the short list. This is described below.

13.3 Hybrid Package 16

Package 16 builds on Package 15, with some additional changes:

- Primary services – 15m daytime frequency to be extended to weekends, as this will provide a service for health, retail, and hospitality sectors, which are important part of the journey to work. It also makes the timetable more legible and easier to remember.
- Targeted services – the frequencies for these services were developed in consultation with the community and represent tailor-made timetables. The catchments are also small in terms of the journey to work and education, whereas particularly for Route 1 (Palmerston), the distances are significant (53km), therefore adding significant cost with little benefit.

It was acknowledged that a flat fare had performed best in all the assessments and had the most support from all the SFDT partners. It was agreed that the single service level would be tested against five different flat fare options, to ascertain the best fare.

Given the significant amount of assessment already undertaken, Package 16 was added to the short list without preliminary screening, given it forms a hybrid of other packages. The final shortlisted packages are shown in Table 13-3.

Table 13-3: Final Short List of Packages

Package	Fares	Frequency		
	Fare Level (Adult Bee Card)	Primary	Secondary	Targeted
Do Minimum	$2.00	Varies by route		
Package 4	City Zone: Free 1 zone: $1.00 2 zones: $1.50 3 zones: $2.00	15min	30min (15min during peak)	60min
Package 5	$1.00	15min	30min (15min during peak)	60min
Package 9	Free	15min	30min (15min during peak)	60min
Package 15	Free	15min (30min on weekday evenings and weekends)	30min (15min during peak)	120min
Package 16	Single zone – five fare level options (baseline adult fares) - $2, $1, 50c, 20c and free	15 min daytime (7-7) 30 min early/late	15 min at peak 30 min at other times	Current service levels retained

14 Short List to Preferred Option

14.1 Updated Do Minimum (Budget 2023)

The Do Minimum was updated part way through this business case, as a result of the Government's Budget announcement on 18 May 2023. The Budget included new policy for free public transport for five-12-year-olds (under-fives were already free) and half priced public transport for 13–25-year-olds. The new fare structure commenced on 1 July 2023.

A New Do Minimum was created to reflect the change to fares, and it was agreed with Waka Kotahi that this business case should quantify the magnitude of change between the New Do Minimum and the Preferred Option. The previous analysis using the Do Minimum (Long List, Medium List and Short List) was not invalidated by the New Do Minimum.

Table 14-1 below shows the difference between the Do Minimum and the New Do Minimum. The old Child fare has been removed and replaced by the equivalent of half the price of the adult fare.

Table 14-1: Comparison of the New Do Minimum to the Previous Do Minimum

	0-4 years	5-12 years	13-18 years	19-24 years	25-64 years	65+ years
Do Minimum	Free	$1.20		$2.00		$2.00 (Free off-peak with SuperGold card)
New Do Minimum	Free		$0.50 (Half-price of the adult fare)		$1.00	$1.00 (Free off-peak with SuperGold card)

The New Do Minimum has the same service levels as the previous Do Minimum.

14.2 Hybrid Package 16 – Assessment

A standalone assessment of Package 16 was completed to provide the same metrics as the shortlisted packages, and to the five different flat fare options. Assessment was based on the following assumptions:

- Service levels are assumed to roll out in three tranches: 2025-26, 2026-27 and 2028-29.
- Fares assumed to roll out in 2024-25 for this assessment (may need to be matched to service roll out).

The Levers Tool was used to calculate indicative journey to work mode share for the fare options for Package 16. The graph in Figure 14-1 compares projected mode share rates in 2029-30 (two LTP cycles), 2034/35 and 2038/29. When compared to the 2018 mode share percentage, the graph shows that by 2035, three of the five fare options (0.50, 0.20 and a free fare) achieve the 8% mode share target. It takes an additional 5 years (by 2038/39) to achieve 8% mode share with the $1.00 fare option.

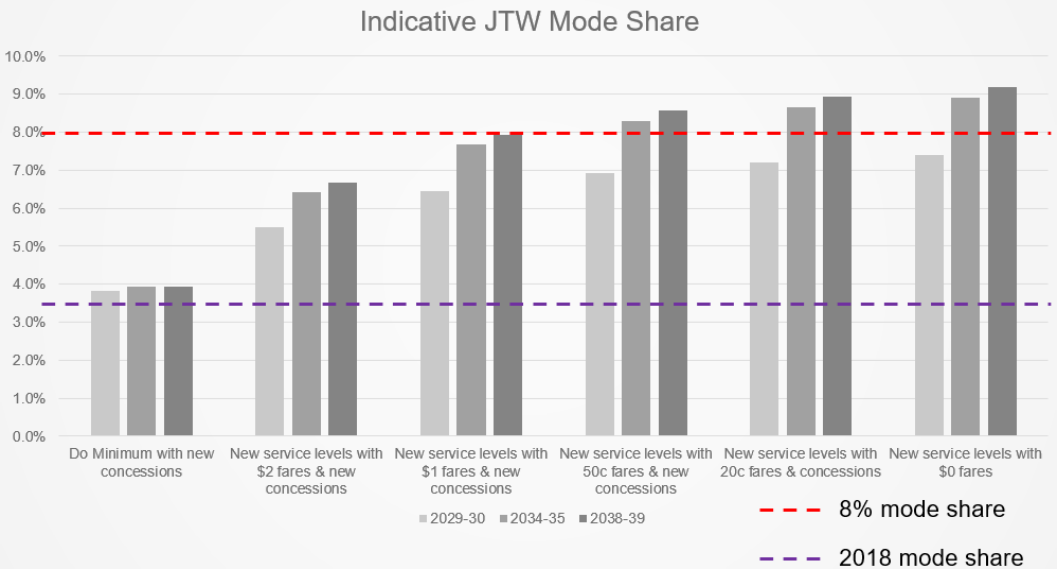


Figure 14-1: Indicative Journey to Work Mode Share of Package 16 Fare Variations

Table 14-2 shows more detail about how Package 16 (P16) performed with the different flat fares. As expected, the table shows fare revenue decreases as the fares reduce, and the cost to the funders (ORC/Waka Kotahi) increases as income from fares declines. Conversely, the indicative mode share increases as fares become cheaper.

The SFDT partners had mixed views on the results from the fare comparison. The current $2 fare fell well short of achieving the mode share target, however, the, 0.20c and free fare options (which achieved the highest mode share target) were unlikely to receive co-investment from Waka Kotahi. As a result the SFDT partners agreed to test two options through modelling and economic assessment – the $1.00 and $0.50 fares options.

Table 14-2: Package 16 Fare Comparisons

Package 16	Fare Revenue 2034-35 ($m)	Net Cost ($m)	Marginal Cost over old Do Minimum ($m)	PT JTW Mode Share 2029-30	Value for money (mode share: net cost)	PT JTW Mode Share 2034-35
$2 fare	$5.3	$28.7	$14.1	5.5%	0.15	6.4%
$1 fare	$3.2	$30.8	$16.2	6.5%	0.19	7.7%
50c fare	$1.7	$32.3	$17.7	6.9%	0.20	8.3%
20c fare	$0.7	$33.3	$18.7	7.2%	0.20	8.7%
$0 fare	$0.0	$34.0	$19.4	7.4%	0.21	8.9%

14.3 Short List Economic Assessment

The short list of P4, P5, P9, P15, P16a ($1) and P16b (50c), were modelled using the CUBE model and the updated Do Minimum. The outputs were used to determine indicative single year economic benefits, incremental benefit BCRs, and overall BCR's, for the emerging short list and shortlisted options, as outlined in Appendix K.

Table 14-3 shows the outcome of this assessment, with the options ordered by cost. The table shows that Package 15 is the best performing option from an economic perspective. However, as a free fare package it is not feasible. Package 16b is the next best performing option in terms of incremental analysis and has a strong overall BCR, performing better than Package 16a.

Table 14-3: Comparative Results[23]

Package	Indicative Annual Net Cost over Do Minimum ($m)	Indicative Annual Benefits over Do Minimum ($m)	Indicative Incremental benefit cost ratio (BCR)	Indicative BCR (over Do Minimum)
P16a ($1)	$16.2	$35.5	2.2 (3rd best)	2.2
P16b (50c)	**$17.7**	**$55.3**	**13.2 (2nd best)**	**3.1 (3rd best)**
P5 ($1)	*$18.7*	*$35.6*	*-19.7*	*1.9*
P4 (zonal/free)	*$18.8*	*$41.6*	*-12.5*	*2.2*
P15 (free)	***$19.8***	***$79.0***	***11.3 (best)***	***4.0 (best)***
P9 (free)	*$22.9*	*$79.8*	*0.3*	*3.5 (2nd best)*

The analysis demonstrates that of the fare paying packages, Package 16b is the preferred option. It has the second lowest cost, provides good return on investment, and achieves the mode share target by 2034-35. The SFDT partners agreed this was the Preferred Option.

15 Preferred Option

15.1 Overview

15.1.1 Description

The Preferred Option delivers a 'fit-for-purpose' public transport service for Dunedin in terms of fares and frequency, that will drive and support mode shift to public transport, particularly for trips to work and education.

The Preferred Option comprises the following elements:

- From 1 September 2024 the adult Bee Card fare will be 50 cents. Other fare products will retain similar relativities to the adult Bee Card fare as present.
- Service frequencies and span will significantly improve, to the levels shown in Table 15-1.
- Minor infrastructure improvements to support the increased service frequencies.

[23] Note that there was some refinement of costs and benefits between the development of those shown in Figure 13-3 and those shown in this table, so the costs and BCRs differ between the tables. Preferred option benefits, costs, and BCRs also differ from those shown in this table as they are based on a full 40-year evaluation rather than on a single indicative year.

Table 15-1: Preferred Package Frequencies and Service Span

Type of Service	Frequency	Times	Span
Primary Services	15-minute headway	7am – 7pm (seven days)	6am – 11.30
	30-minute headway	Other times	
Secondary Services	15-minute headway	Weekday peak	
	30-minute headway	All other times	
Targeted Services	Current service levels		

Table 15-2 shows the proposed alignment of routes with the proposed service level classifications (primary, secondary, and targeted) compared to the current RPTP classification.

Table 15-2: Proposed Service Type

Proposed Service Type	RPTP Service Type	Route #	Route Description
Primary	Frequent	5	Pine Hill - City - Calton Hill
		6	Calton Hill - City - Pine Hill
	Rapid	8	St Clair - City – Normanby. Normanby - City - St Clair
	Frequent	10	Opoho - City - Shiel Hill
		11	Shiel Hill - City - Opoho
	Rapid	63	Balaclava - City - Logan Park. Logan Park - City - Balaclava
Secondary	Regular	3	Ross Creek - City - Ocean Grove. Ocean Grove - City - Ross Creek
		14	Port Chalmers – City - Port Chalmers
		15	Ridge Runner Northbound Ridge Runner Southbound
		18	Portobello (Harington Point) – City - Portobello (Harington Point)
		19	Waverley - City – Belleknowes. Belleknowes - City - Waverley
		33	Corstorphine - Caversham - City – Wakari. Wakari - City - Caversham - Corstorphine
		37	Concord - City - University
		38	University - City - Concord
		44	St Kilda - City - Halfway Bush. Halfway Bush - City – St Kilda
		50	St Clair Park - City – Helensburgh. Helensburgh - City - St Clair Park
		55	St Kilda - City – Brockville. Brockville - City - St Kilda
		61	City – Kenmure. Kenmure - City
		70	Brighton - Abbotsford and Green Island. Green Island - Abbotsford and Brighton
		77	Mosgiel, Fairfield, Green Island – City. City – Green Island, Fairfield, Mosgiel
Targeted	Targeted	1	Palmerston – City. City - Palmerston
	Regular	80	Mosgiel East circuit
		81	Mosgiel East circuit

It is anticipated that a minimum of two and up to four extra bus bays may need to be installed in the vicinity of the bus hub. Additionally, some city centre and layover stops may need to be lengthened to accommodate the increased

frequencies during peak periods. These relatively minor changes are required to ensure that the improved frequencies are delivered reliably. A high-level capital cost has been allocated in the financial case; however, the exact requirement of physical works will be subject to the more detailed timetabling exercise after the FFBC has been approved.

15.1.2 Timing

The new fare levels will be introduced on 1 September 2024, as this is the final date by which the National Land Transport Programme (NLTP) will be approved, and funding allocated. This change will require publicity and engagement, but implementation is straightforward.

Service level improvement implementation will be aligned with the retendering of bus operating contracts, with the exception of Unit 3. Physical works required to support the increased frequencies should be considered and planned when timetabling the routes prior to tender. Table 15-3 outlines the resulting implementation timeframe.

Table 15-3: Proposed Timing of Implementation for the Preferred Option

Proposed Implementation	Description	Estimated Timing
Fare Change	$0.50 flat fare (Adult Bee Card)	1 September 2024
Unit 3 and 5 Service Levels	Contracts commence with improved service levels	1 July 2025
Unit 1 and 2 Service Levels	Contracts commence with improved service levels	1 October 2026
Unit 4 Service Levels	Contracts commence with improved service levels	15 August 2028

Table 15-4 shows the routes allocated to each unit.

Table 15-4: Routes by Unit

Unit	Routes
Unit 1	Palmerston, Balaclava, Logan Park, Concord, Port Chalmers, Northern Services and Peninsula
Unit 2	St Clair, Normanby, Corstorphine, Wakari, St Clair Park, Helensburgh
Unit 3	Pine Hill, Lookout Point, Shiel Hill, Opoho
Unit 4	Halfway Bush/Brockville, St Kilda (rapid), Waverley, Ocean Grove, Ross Creek, Belleknowes, Kenmure
Unit 5	Mosgiel, Mosgiel Loop, Abbotsford

The contract for Unit 3 has recently been awarded with a termination date of 2031. This Unit includes higher frequency routes on key corridors that have priority for improvement, and it is important to bring forward the date as far as possible, given that the lower fares are likely to increase demand. It is therefore proposed to introduce the new service levels for Unit 3 in 2025 through a variation of the existing contract. During this period, ORC also plan to transition all contracts to zero emission buses in line with contract expiry dates. For Unit 3, this may lead to a period when there is a mix of diesel and electric buses (depending on lead in time required by operator to fully transition the fleet).

15.2 Performance

Table 15-5 outlines the performance of the preferred package against the benefit measure baselines and targets, demonstrating that it performs strongly across all of the benefits sought.

Table 15-5: Performance or the Preferred Package

Benefit	Measure	Baseline	Target	Preferred Package
Improve access to work/education by public transport	Percentage of urban population living within 500m of stop with public transport that runs every 15 minutes during the morning peak	32% in 2023	80% in 2027	84% in 2027
	Percentage of urban population living within 500m of stop with public transport that runs every 30 minutes during the weekday interpeak	72% in 2023	80% in 2027	84% in 2027

Benefit	Measure	Baseline	Target	Preferred Package
	Percentage of urban population living within 500m of stop with public transport that runs every 30 minutes during the weekend daytime	33% in 2023	80% in 2027	80% in 2027
Mode shift from private vehicles to public transport	Public transport mode share for journey to work and education (census data)	3.4% in 2018	8.0% in 2030	6.9% in 2029-30 8.3% in 2034-35
	Annual public transport boardings[24]	2.8m in 2022/23	5.5m in 2038/39	6.0m in 2038/39
Carbon emissions from light vehicle fleet	Light vehicle carbon emission saving (Dunedin CUBE Transport Model)	DM 129t CO_2e in 2028 and 125t in 2038	160t CO_2e in 2028 and 150t in 2038	171t CO_2e in 2028 and 155t in 2038

Figure 15-1 shows the projected patronage impact of the preferred package, based on the Levers Tool mid-range forecast and assuming that the 2023-24 patronage is similar to 2022-23[25].

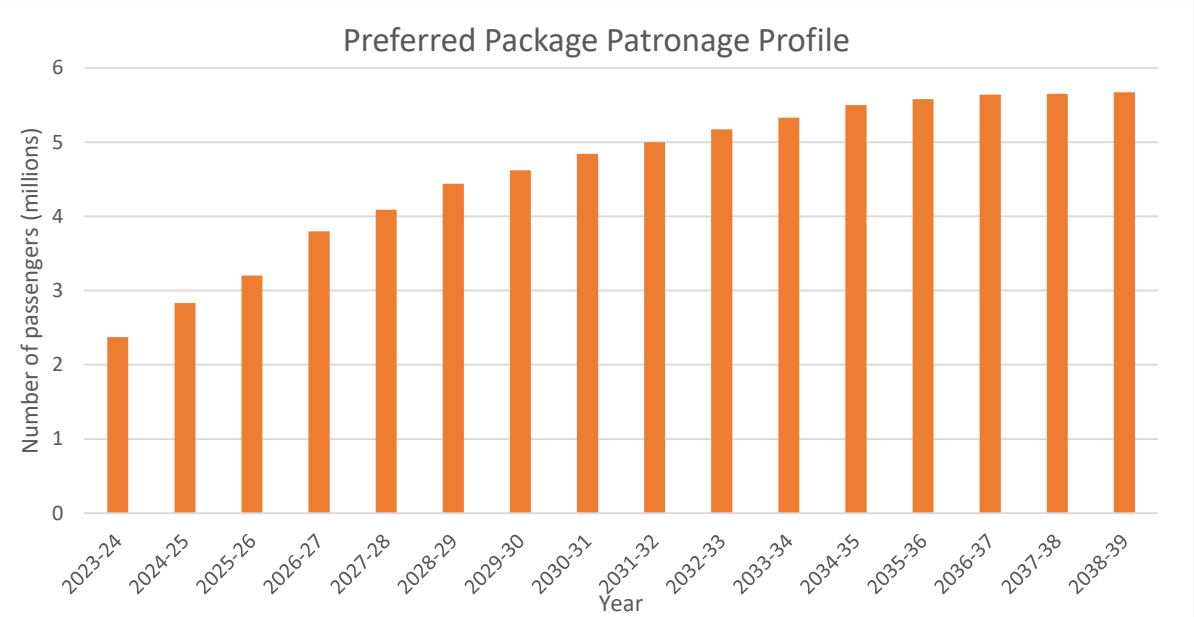


Figure 15-1: Patronage Projection

15.3 Economic Assessment

15.3.1 Benefit Cost Analysis

Appendix L provides details of the economic assessment of the preferred option, including assumptions. Benefits come from four main categories: emissions (CO, CO2, NOx, PM2.5, and VOC), time savings (car passengers and public transport passengers), health benefits, and tax benefits/increased labour supply. These were based on the 2038 outputs of the CUBE model, adjusted to reflect population growth and speed and level of PT uptake, and monetised in accordance with Waka Kotahi's Monetised Benefits and Costs Manual (MBCM) requirements. Costs reflect the

[24] Adapted from LTP Inclusive Access; 10.1.1 Number of pedestrians, cyclists, and public transport boardings.

[25] This assumption reflects some service improvements and population growth, but also the effective fare increases resulting from the end of the Government's half price fares scheme.

increased operating cost of service improvements over the Do Minimum, as well as minor improvements to bus stop and layover infrastructure to reliably enable the additional frequencies (see Section 16). The preferred option has a resulting primary BCR of 2.5, based on $889.0 million in benefits and $354.8 million in costs over the 40-year evaluation period, and an associated net present value of $534.2 million.

15.3.2 Sensitivity Analysis

Sensitivity analysis was undertaken to understand the effect of key economic risks, including changes to the evaluation period, discount rate, PT demand rate and level, population growth, cost of carbon, exclusion of wider economic benefits, inclusion of weekend benefits[26], and cost. 'Most pessimistic' and 'most optimistic' scenarios were also developed to better understand the likely BCR range. Table 15-6 summarises the outcome of these sensitivity tests. It indicates that the BCR remains positive in all situations tested, including the worst-case scenario.

Table 15-6: Sensitivity Test Results

Sensitivity Scenario	Benefits ($m)	Cost over Do Minimum ($m)	BCR
Base Case Assessment	$889.0	$354.8	2.5
Evaluation Period – 60 years	$1058.0	$413.4	2.6
Evaluation Period – 30 years	$741.9	$303.0	2.5
Discount Rate – 6%	$643.4	$263.7	2.4
Discount Rate – 2%	$1283.4	$499.2	2.6
Faster Rate of PT Uptake	$921.0	$354.8	2.6
Lower Level of PT Uptake	$592.7	$354.8	1.7
Higher Lever of PT Uptake	$1185.3	$354.8	3.3
Low Population Growth	$804.0	$354.8	2.3
High Population Growth	$972.7	$354.8	2.7
Low Carbon Price	$888.0	$354.8	2.5
High Carbon Price	$890.2	$354.8	2.5
Exclusion of Wider Economic Benefits	$760.8	$354.8	2.1
Inclusion of Weekend Services	$1022.5	$354.8	2.9
Costs 30% Lower than Estimated	$889.0	$248.4	3.6
Costs 30% Higher than Estimated	$889.0	$461.2	1.9
Most Pessimistic Scenario	$299.3	$307.7	1.0
Most Optimistic Scenario	$3087.7	$454.7	6.8

15.4 Investment Prioritisation Method Profile

The preferred option has been assessed against the Investment Prioritisation Method (IPM) for the 2021-24 NLTP. This assessment, outlined in Table 15-7, recommends a very high/high/low rating, which results in a NLTP priority order of 2.

Table 15-7: Investment Prioritisation Method Alignment (2021-24)

Factor	Performance	Rating
GPS Alignment **Priority:** Better Travel Options	The Very High criteria requires a >10% increase in percentage of the population living within 500m of a bus stop where service frequency is at least two buses per hour (30min headway or less).	VERY HIGH

[26] The CUBE model provides outputs for the morning peak, interpeak, and afternoon peak, which are annualised. The base case economic assessment therefore does not count the benefits available from the significant evening and weekend improvements, making it inherently conservative. This test allows the impact of their inclusion to be tested.

Factor	Performance	Rating
Benefit: Impact on Access to Opportunities	The Preferred Package exceeds this target by providing: • 12% increase in urban population living within 500m of bus stop with service headways of 30min or less during the weekday interpeak. • 47% increase in urban population living within 500m of bus stop with service headways of 30min or less at the weekend. • 52% increase in urban population living within 500m of bus stop with service headways of 15min or less.	
Scheduling **Factor:** Interdependency	The High criteria requires the activities to be part of a programme, package or investment, and delivery in the 2021-24 NLTP is required to enable further implementation of that programme. Non delivery of the proposed activity in the 2021-24 NLTP has a significant impact on realising the estimated benefits i.e. benefits will be delayed. The costs for implementing the Preferred Programme will fall in the 2024-27 NLTP and beyond, however work is needed during the 2021-24 NLTP to ensure that the changes can be implemented as quickly as possible within subsequent NLTPs. Non-delivery of the Preferred Programme within the 2024-27 NTLP (with pre-implementation during the 2021-24 NLTP), will have a significant impact on realising the benefits of the Shaping Future Dunedin Transport programme, which included a target for 8% journey to work trips to be taken by bus 2030.Improving the fare and frequency elements of public transport was expected to deliver most of this mode shift, and without this investment this benefit will not be realised. The investment proposal is estimated to deliver 6.9% public transport journey to work mode share in 2029-30, and 8.3% in 2034-35.	HIGH
Efficiency	The investment proposal has a BCR of 2.5, which corresponds to an efficiency rating of Low.	LOW
Priority Order		2

15.5 Appraisal Summary

An Appraisal Summary Table for the preferred option, along with the shortlist incremental BCR and BCRs, are provided in Appendix M. This summarises information from the wider economic case, which has been conducted in accordance with the MBCM and NMBCM. The AST includes a summary of the monetised and non-monetised benefits and whole of life costs.

FINANCIAL CASE

16 Preferred Option Cost

The 50th and 95th percentile cost and revenue estimates for the preferred option are shown in Table 16-1 and Table 16-2. The first three columns provide the breakdown for the next three LTP, RLTP, and NLTP periods. The final year of the 10-year LTP planning period and the total for each element over that period are shown in the last two columns. Table 16-3 outlines the additional investment required above the Do Minimum under 50th percentile costs, which will be funded as improvements through this business case. Appendix G outlines the basis of the cost requirements. Appendix N provides further detail for the Do Minimum, preferred option, and the additional investment required to fund the preferred option for each year of this period. All costs are in 2023 dollars.

Table 16-1: Preferred Option 50th Percentile Cost Estimate ($m)

$m	2024-27	2027-30	2030-33	2034-35	Total
Fare revenue	($2.61)	($3.54)	($4.06)	($1.45)	($11.65)
Fare substitute	($4.98)	($4.98)	($4.98)	($1.66)	($16.61)
Gross operating cost	$94.86	$135.52	$148.07	$51.34	$429.78
Capital cost	$2.00	$0.00	$0.00	$0.00	$2.00
Total cost to funders	**$89.27**	**$127.00**	**$139.02**	**$48.24**	**$403.52**

Table 16-2: Preferred Option 95th Percentile Cost Estimate ($m)

	2024-27	2027-30	2030-33	2034-35	Total
Fare revenue	($2.61)	($3.54)	($4.06)	($1.45)	($11.65)
Fare substitute	($4.98)	($4.98)	($4.98)	($1.66)	($16.61)
Gross operating cost	$118.57	$169.40	$185.08	$64.18	$537.23
Capital cost	$2.50	$0.00	$0.00	$0.00	$2.50
Total cost to funders	**$113.48**	**$160.87**	**$176.04**	**$61.07**	**$511.47**

Table 16-3: Preferred Option Additional Investment – 50th Percentile ($m)

	2024-27	2027-30	2030-33	2034-35	Total
Fare revenue (reduction)	$4.74	$3.81	$3.29	$1.00	$12.84
Fare substitute	$0.00	$0.00	$0.00	$0.00	$0.00
Gross operating cost (increase)	$25.35	$61.75	$69.78	$24.20	$181.08
Capital cost (increase)	$2.00	$0.00	$0.00	$0.00	$2.00
Total cost to funders (increase)	**$32.09**	**$65.56**	**$73.07**	**$25.20**	**$195.91**

The following assumptions have been made in determining costs:

- Rollout of fare and service changes will take place as described in Section 29.
- Patronage will reduce to 2021-22 financial year levels by the start of the rollout period, reflecting the effective fare increase to most customers following the end of the half-price fares scheme.
- Fares will be held at the current levels (Do Minimum), or the new fare implemented in the 2024-25 financial year (preferred option), and not increase with inflation.

- The SuperGold and Community Connect fare substitutes will continue and be capped at current levels and not increase with inflation[27].
- Gross costs, which are based on FY23/24 requisition values, will increase at a rate of 2% per annum, reflecting current contract costs and operational cost inflation (longer term costs are dependent on the outcome of subsequent tender processes).
- Up to four extra bays will be installed in or near the Great King Street bus interchange in the first year of the roll-out, and some expansion of city centre bus stops and end of route layover will be needed.

17 Funding Sources

The preferred option represents an increase in capital and operating costs. Existing and Potential Funding sources are presented in Table 17-1.

Existing funding sources include the usual public transport funding sources of passenger fares, regional council local share from rates and debt funding, and taxpayer funding via the National Land Transport Fund (NLTF), which is administered by Waka Kotahi through the NLTP. The Preferred Package represents a significant increase in these costs. To minimise these costs, ORC will urgently pursue the recommended potential supplementary funding sources shown. Supplementary funding sources were fully investigated as reported in Appendix O.

Table 17-1: Existing and Potential Funding Sources

Status	Funding Source	Description	Comment
Existing	Passenger Fares	Payments by passengers through fares, paid via Bee Card or directly on the bus.	Revenue determined by fare levels and number of paying passengers (patronage).
	ORC	Targeted rate on households within certain distance of existing bus routes, covering 49% of costs once fare revenue has been subtracted.	Funding allocation included in Otago LTP and RLTP, representing the 'local share'.
	NLTF	Taxes apportioned through the NLTF and administered by Waka Kotahi.	Waka Kotahi approval pending decision on business case. FAR is 51%.
	SuperGold / Community Connect	Crown Funding	Community Connect (extension) inputs uncertain as scheme only recently introduced (July 2023).
Potential Supplementary Sources	ORC	Increase rating for public transport and/or review current 'targeted rate' calculation to spread costs across larger number of households.	Requires review of the existing rating system to fairly spread the cost of public transport across all potential beneficiaries.
	DCC	Local authority could rate for PT and pass the income stream to ORC.	Supported by stakeholders and included in SFDT PBC. In recent years there has appeared to be political will at DCC to provide further subsidy to ORC to improve public transport in Dunedin.
	DCC parking charges	Local authority could hypothecate parking income for public transport and pass this income to ORC.	
	ZCA parking charges	Parking revenue from ZCA partners hypothecated for public transport	

ORC will urgently initiate discussions, with the goal of entering formal co-funding arrangements with DCC as its SFDT partner, and with the Zero Carbon Alliance employer organisations. ORC will look to its precedent arrangement with Queenstown Lakes District Council, another territorial authority in its regional jurisdiction, to begin co-funding discussions with DCC.

[27] SuperGold funding has long been capped. The newly launched Community Connect scheme is based around an average adult passenger fare and has been initially funded on a per-passenger basis. Waka Kotahi have indicated that funding from both fare substitute sources may reduce if a lower adult fare is introduced, but have been unable to confirm this, so it has been assumed that both will continue at current levels (not increase or reduce) over the 10-year planning period. This has been identified as a funding risk.

Table 17-2 shows the potential funding implication for the project partners and the NLTP of the additional investment requirement of the preferred option based on current funding arrangements, by NLTP period. The values in the table have been calculated at the standard FAR (51% from the NLTF). It assumes the worst-case scenario, that no additional funding streams are available and fare revenue primarily contributes to the cost of maintenance and operations.

Table 17-2: Funding Share (50th Percentile Cost Estimate)

($million)	2024-27	2027-30	2030-33	2034-35	Total
ORC (49%)	$15.72	$32.12	$35.80	$12.35	$96.00
Waka Kotahi (51%)	$16.36	$33.43	$37.27	$12.85	$99.92
Total	**$32.09**	**$65.56**	**$73.07**	**$25.20**	**$195.91**

18 Funding Risks

The following is a high-level summary of the key financial risks:

- The 2023 General Election results may result in a change in direction or priorities, which may affect available funding.
- The investment required or investment sources are not available when needed, resulting in a delay or inability to implement all or part of the investment proposal.
- Operating costs are higher than expected, resulting in the need for more funding or reduction in service provided.
- Inflation / PT index increases faster than anticipated, increasing costs, and resulting in an inability to fully deliver the project without additional budget.
- The political appetite for rates levels changes, resulting in long-term affordability issues.
- Waka Kotahi may not approve funding due to other competing priorities.
- Fare revenue is less than anticipated, resulting in increased costs to ORC and Waka Kotahi.

The risk management approach is discussed in the Management Case. A risk register is in Appendix P.

19 Overall Affordability

The investment represents good value for money with a BCR of 2.5. The preferred package is affordable, although there will need to be rates increases and additional funding through the NLTP. The supplementary funding sources represent an excellent method to offset these additional costs and will be pursued by ORC with urgency.

An Otago Regional Council briefing was held on 23 August 2023 to clearly articulate the service level improvements and associated costs. Councillors noted the potential for significant additional funding, and noted this would be consulted on through the Long Term Plan consultation in early 2024, to confirm rates funding. The Councillors did not raise any red flags relating to funding.

The recommended adult Bee Card flat fare of 50 cents is lower than the current flat fare of $2. However, the low fares contribute strongly to mode shift and are essential to enable the Connecting Dunedin partners to achieve the 8% public transport mode share that has been committed to through the adoption of the SFDT PBC. If fares were to remain at the current level, there would need to be significantly higher investment in frequencies to achieve the same 8% mode share, and it is unlikely that this would be fundable, or implementable by 2030, as significant preparation would be required both by bus operators and in terms of investment in supporting infrastructure.

COMMERCIAL CASE

20 Procurement Plan

ORC will be the main delivery agent for the preferred option, reflecting its planning and investment role in public transport services. DCC also has a role in delivery of the preferred option through delivery and on-going management additional bus stops which are needed within or near the bus hub to manage the increased number of buses that will arrive at any given time, as a result of the increased frequencies and size of bus fleet.

The investment proposal will be procured in alignment with the ORC's Transport Activity Procurement Strategy 2021 (Procurement Strategy) and the ORC Procurement and Contract Management Policy May 2022. The Procurement Strategy will be updated to reflect the service contracts let as part of this investment proposal.

The Procurement Strategy aligns with Waka Kotahi's Procurement Manual, and aims to achieve best value for money, competitive and efficient markets, and fair competition amongst suppliers. It is written to align with the current PTOM framework, which is expected to be replaced by the Sustainable Public Transport Framework (SPTF). While the SPTF would allow it, ORC currently does not have plans to change the makeup of units or assume asset ownership. There is no indication that the implementation of SPTF would result in any changes to PT units.

The Procurement Strategy lists the current public transport units and their contract durations. Contracts are due to expire in 2025, 2026 and 2028. The Procurement Strategy currently states that public transport service improvements, as part of the Shaping Future Dunedin programme (including the preferred option), will predominantly be undertaken by negotiating variations to existing service contracts. It will be updated to reflect the preference to implement service changes as services are re-tendered. This approach will allow testing of the market and ensure value for money. The exception is for Unit 3, which has recently been retendered and is due for renewal in 2031. As Unit 3 contains primary routes, it is recommended that service improvements are negotiated to be implemented at the same time as Unit 5 in 2025.

21 Required Services

Public transport operators will be contracted to deliver the public transport service improvements. This will be procured as per Section 20, and is likely to include requirements relating to the provision and maintenance of the bus fleet, driver workforce and operations personnel, experience operating urban bus networks and meeting key performance indicators.

All other services relating to the project are expected to be undertaken by existing ORC and DCC staff, including their transport, finance, communications, and marketing teams. Some specialist skills (such as legal advice) may be required; this will be assessed and considered as the need arises.

22 Contract Provisions

The outline activity plan contained in Section 29 includes the estimated timing for the tender process and contract renewals. As the preferred option will be implemented in phases to align with contact expiry dates, the tender process for each contract should begin approximately 18 months before contract expiry. The tender process should include (but is not limited to) the following activities:

- Pre-procurement:
  - Procurement plan approved.
  - Public transport service information developed (timetables, routes, vehicle specifications).
  - Tender documents developed and approved.
  - Advance notice published on GETS (Government Electronic Tender Service).
- Tender.
- Tender evaluation.
- Post-evaluation.

23 Potential for Risk Sharing

Contracts will be prepared, re-tendered or varied in accordance with the relevant legislative requirements that apply at the time. PTOM promotes a partnering approach between councils and public transport operators. The model includes incentives for both parties to encourage better public transport and commercial outcomes.

At some point PTOM will be replaced by the Sustainable Public Transport Framework (SPTF). While the details of SPTF are not yet known, it intends to priories mode shift, fair and equitable treatment of employees, and improved environment and health outcomes.

The SPTF has the following objectives:

- Public transport services support mode-shift from private motor vehicles, by being integrated, reliable, frequent, accessible, affordable, and safe.
- Employment and engagement of the public transport workforce is fair and equitable, providing for a sustainable labour market and sustainable provision of public transport services.
- Well-used public transport services reduce the environmental and health impact of land transport, including by reducing reliance on single-occupancy vehicles and by using zero-emission technology.
- Provision of services supports value for money and efficiency from public transport investment while achieving the first three objectives.

The SPTF legislative and operational reforms will be progressed over the course of 2022 and 2023. Following the reforms, the SPTF will be implemented through future service planning and delivery.

24 Commercial Risks

The following is a high-level summary of the key commercial risks:

- Bus operators may be unable to secure enough drivers or buses, resulting in partial non-delivery of the investment proposal.
- The increased scale of units may make the contracts unable to be delivered by the current suppliers in the market, resulting in inability to deliver the full network.
- The tender may not attract a large number of respondents, resulting in decreased market competition and lower value for money.

The risk management approach is discussed in the Management Case. A risk register is in Appendix P.

MANAGEMENT CASE

25 Governance Arrangements

ORC will oversee delivery of the preferred option and will be responsible for providing political oversight and achievement of the benefits and outcomes outlined in this SSBC.

Connecting Dunedin is a collaborative transport partnership between Waka Kotahi, DCC and ORC. It represents the views of the three partners and will influence the project via the project sponsor, ORC.

ORC will be the project sponsor and will be responsible for the success of the project. This includes the fare and service level components of the improvements, as well as marketing and information.

ORC will also be a delivery partner, and is responsible for new services, contract management, operations, information campaigns and marketing. ORC funds the supply and installation of bus stops and shelters, and DCC is responsible for their installation and maintenance. Bus operators will be responsible for delivering services.

Figure 25-1 outlines the relationships between the parties involved in governance and delivery of the preferred option.

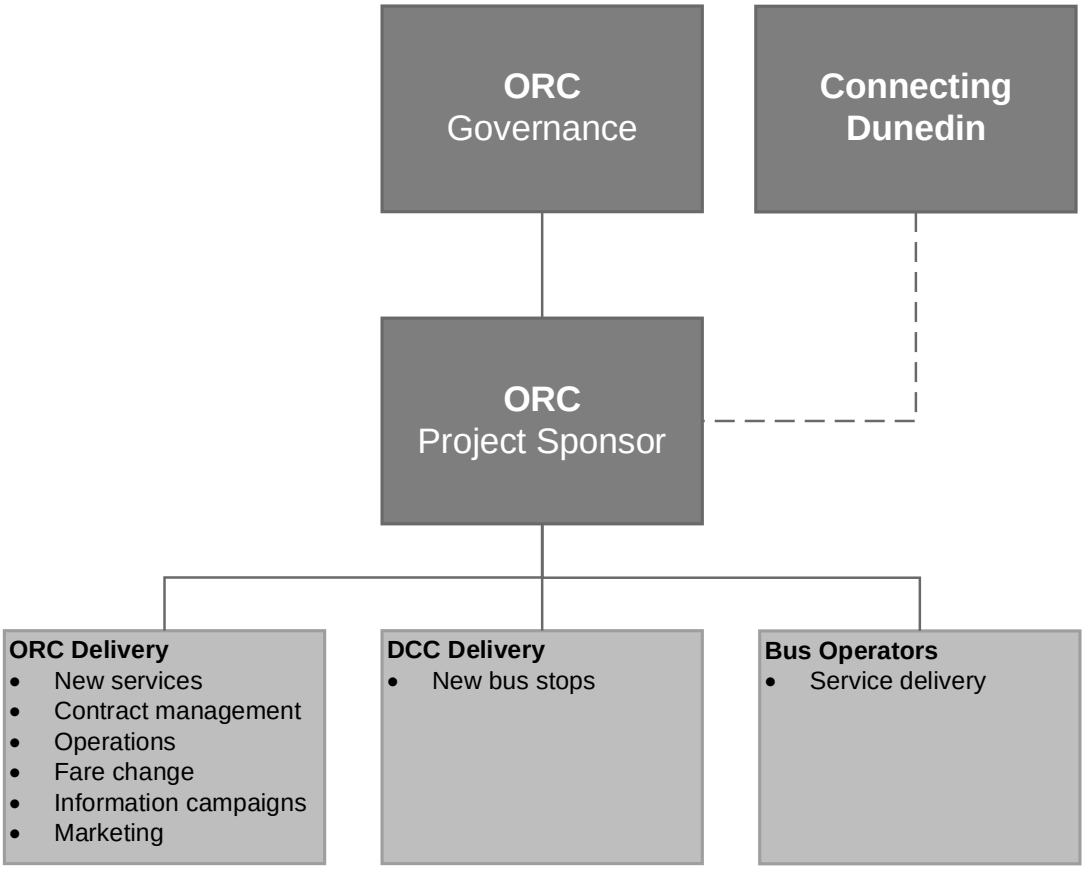


Figure 25-1: Governance Arrangements

26 Management Structure

ORC will be responsible for the delivery of the preferred option, using existing ORC staff. Key roles and responsibilities will be assigned by the ORC Transport Manager.

ORC will be responsible for the management of contracts with bus operators, including retendering units with improved service levels as they come up for renewal, and contract negotiation for the contract that is proposed to be varied. ORC may call on expert advice from external consultants or subject matter experts as required (e.g., legal advice in relation to contract variations).

DCC will own and be responsible for the maintenance of infrastructure assets included in the preferred option (2-4 additional stops at or near the bus hub).

ORC and DCC will work collaboratively to ensure there is alignment between each council's area of responsibility. This relates both the delivery of the preferred option (bus services, infrastructure, fares, information) as well as other related initiatives for the region (parking pricing, bus priority).

27 Reporting Arrangements

The following reporting arrangements are expected:

- Operational reporting will be provided from the operator to ORC. This regular reporting will cover performance including patronage, complaints, service delays, cancellations, KPI performance, operational issues, and opportunities.
- Governance reporting lines will align with the governance arrangements described in Section 25.
- ORC officers will monitor the cost of the services and future costing implications alongside the ORC finance team. This will feed into the council's annual plan and long-term plan processes, which is over seen by ORC.
- ORC will be report to Waka Kotahi on an annual basis. This will be conducted through Waka Kotahi's Transport Investment Online tool, for which Waka Kotahi has predetermined requirements for reporting on. ORC officers will complete these requirements as requested by Waka Kotahi.

28 Stakeholder Engagement Plan

In the lead up to fare change and service level implementation dates, ORC will undertake wider public engagement to inform the community of the upcoming changes and promote the new services. This engagement will be led by the ORC communications team, who will work closely with key partners to help promote the new service through a variety of media channels. The estimated timing of these activities are show in Table 29-1 below.

29 Outline Activity Plan

The process for delivering this investment is planned to commence upon completion of this business case. Table 29-1 summarises the key milestones for the investment delivery including indicative timing.

This business case will need to be endorsed by the ORC's Public Transport and Active Travel Committee or by the full Council. The Public Transport and Active Travel Committee meet quarterly. The only remaining meeting this year will be held on 8 November 2023. Council meetings are held monthly. The business case would need to be presented to ORC's Regional Transport Committee for information only.

The business case will then need to be approved by the Waka Kotahi Board. Board meetings are held monthly, apart from June and October.

Table 29-1: Key Milestones

Proposed Key Milestones	Description	Estimated Timing
New Do Minimum Fares Implemented	Free fares for under 13s and half-priced fares for 13–24-year-olds introduced	1 July 2023
Peer review	Peer review of business case	25 September 2023
ORC Endorsement	Public Transport and Active Travel Committee or Council approves business case Findings presented to the Otago Regional Transport Committee (RTC) for information	By end of 2023
Waka Kotahi Funding Endorsement	Waka Kotahi Board or Value, Outcome and Standards (VOS) Committee endorse business case	By end of 2023
ORC Update Procurement Strategy	To provide supporting policy documentation and ensure value for money	Early 2024
ORC consult through RPTP, LTP and RLTP Processes	Statutory process for rates increase	April-May 2024
Funding committed	ORC's LTP and the National Land Transport Programme	Mid 2024

Proposed Key Milestones	Description	Estimated Timing
Contract Variation (Unit 3)	Begin the contract variation process to enable improved services levels for Unit 3 from 1 July 2025. Consider extending the contract to align it with the Unit 5 contract cycle.	Early 2024
Contract Tender (Unit 5)	Unit 5 contract tendered with the improved service levels.	Early 2024
Fare Change Publicity / Engagement	On the lead up to the fare change implementation, ORC will undertake publicity and engagement with the public to inform them of the upcoming changes.	Mid 2024
Fare Implementation	50c flat fare (Adult Bee Card) implemented.	1 September 2024
Supporting Infrastructure	Process to determine options and construct new bus shelters.	2024-25
Contract Tender (Units 1 and 2)	Unit 1 and Unit 2 contracts tendered with the improved service levels.	Early 2025
Service Level Publicity / Engagement	On the lead up to the implementation of service level changes, ORC will undertake publicity and engagement with the public to inform them of the upcoming changes. This will need to be done for each of the three implementation phases.	2025-28
Service Implementation Begins (Units 3 and 5)	Unit 3 contract variation brings in improved service levels. Unit 5 contract commences with the improved service levels.	Mid 2025
Service Implementation (Units 1 and 2)	Unit 1 and Unit 2 contracts commence with the improved service levels.	Late 2026
Contract Tender (Unit 4)	Unit 4 contract tendered with the improved service levels.	Early 2027
Service Implementation Completed (Unit 4)	Unit 4 contract commences with the improved service levels.	Mid 2028

30 Benefits Realisation Management Plan

Table 30-1 contains the proposed Benefits Management Plan. It identifies who is responsible for monitoring each benefit and what information sources to use.

It is proposed that ORC monitor all benefits, with input from the Climate Change Commission and DCC where required. Monitoring should begin at the commencement of the preferred programme. In theory, the monitoring of benefits realised will demonstrate the value of investment in public transport and may help to secure additional funding in the future.

Table 30-1: Benefits Management Plan

Benefit	Non-Monetised Benefit Measure	Responsibilities	Source
Improve access to work/education by public transport	Percentage of urban population living within 500m of bus stops with public transport that runs every 15 minutes during the morning peak	ORC	Bus stops Bus routes and timetables Stats NZ Census population data
	Percentage of urban population living within 500m of bus stops with public transport that runs every 30 minutes during the weekday interpeak	ORC	Bus stops Bus routes and timetables Stats NZ Census population data
	Percentage of urban population living within 500m of bus stops with public transport that runs every 30 minutes during the weekend daytime	ORC	Bus stops Bus routes and timetables Stats NZ Census population data
Mode shift from private vehicles	Public transport mode share for journey to work and education	ORC (input from ZCA)	NZ Census travel to work and travel to education data

Benefit	Non-Monetised Benefit Measure	Responsibilities	Source
to public transport			ZCA Staff Travel Surveys
	Annual public transport boardings	ORC	On-bus ticketing data Stats NZ Census population data
Carbon emissions from light vehicle fleet	Light vehicle carbon emission saving	ORC (Input from DCC)	Dunedin CUBE model DCC Citywide Emissions Inventory

31 Risk Management

Table 31-1 provides a summary of the highest risks (threats and opportunities). Appendix P provides a detailed risk register that includes all the risks identified, the threat or opportunity likelihood and consequence rating, and residual risk. Threat and opportunity ratings were determined using Waka Kotahi's Risk Management Practice Guide (Minimum Standard Z/44).

The risk has been assigned to the organisation with the greatest influence to manage the likelihood or consequence of the risk, and mitigation measures have been identified. In each case, the senior responsible owner is required to ensure that arrangements for the management of risk are in place, together with the appointment of a risk manager at the appropriate time.

Risks must be regularly and frequently reviewed, and the register updated throughout the course of the proposed investment.

The highest residual risk rating is 'high' and applies to one of the risks identified. Seventeen other risks were identified as 'medium'. These risks relate to patronage projections (planning), conveying information (customer), government direction (political), cost, availability and approval of the investment required (financial), and resourcing, partnerships, and market competition (delivery).

The greatest potential opportunities relate to policy lever changes, effective public communications, and provision of easy-to-understand information. With careful execution, public-facing materials can be used to encourage uptake of public transport at the time the preferred network is implemented.

Table 31-1 below summarises the highest rated residual risks and opportunities.

Table 31-1: Summary of Risks and Opportunities

Risk/Opportunity	Risk Owner	Mitigation	Residual Threat Rating	Residual Opportunity Rating
Planning				
Risk/opportunity that policy levers change (e.g., parking strategy, congestion charging), resulting in lower/higher uptake of public transport.	ORC	Communicate with policy makers regularly to understand potential future changes; be flexible to adapt services to respond to changes.	MEDIUM	HIGH
Risk/opportunity that population growth is lower / higher than expected, resulting in lower/higher population served and benefits.	ORC / Waka Kotahi	Use the latest population growth predictions available; undertake sensitivity testing to examine the implications of lower / higher growth.	MEDIUM	MEDIUM
Risk/opportunity that tertiary education enrolments are lower / higher than predicted, resulting in lower/higher patronage.	ORC	Monitor patronage trends; consider adapting routes or reducing frequency on affected services to respond to a severe, long-term reduction in patronage.	MEDIUM	MEDIUM
Risk/opportunity that the COVID-19 pandemic results in different travel patterns than expected (e.g., lower peak demand due to uptake of flexible working).	ORC	Monitor patronage daily profile trends; consider reallocating service frequency depending on demand.	MEDIUM	MEDIUM
Risk that the COVID-19 pandemic results in lower patronage growth than predicted.	ORC	Monitor patronage trends; consider reducing frequency on affected services to adapt to a severe, long-term reduction in patronage.	MEDIUM	N/A
Customer				
Risk that inadequate public communications cause confusion and results in mode-shift away from public transport.	ORC	Execute an effective public communication strategy that shares the information needed via a range of different mediums; there is an opportunity to encourage public transport uptake through public communications at the time of implementation.	MEDIUM	HIGH
Political				
Risk/opportunity that changes in government policy results in different public transport priorities.	ORC	Communicate regularly with policy makers to understand the potential future direction; be flexible about implementing further enhancements to encourage lower carbon transport modes.	MEDIUM	MEDIUM
Financial				
Risk/opportunity that the 2023 General Election results in a change in direction or priorities, which may affect available funding.	Waka Kotahi		HIGH	MEDIUM

Risk/Opportunity	Risk Owner	Mitigation	Residual Threat Rating	Residual Opportunity Rating
Risk that investment required, or investment sources are not available when needed, resulting in a delay or inability to implement all or part of the investment proposal.	ORC / Waka Kotahi	Ensure the project costs are included in RLTP and NLTP budget allocations. If necessary, postpone the commencement of the investment proposal.	MEDIUM	N/A
Risk that operating costs are higher than expected, resulting in the need for more funding or reduction in service provided.	ORC	Engage with the market early to understand the likely cost range; consider reducing service frequency or span if needed to reduce costs.	MEDIUM	N/A
Risk that inflation/PT index increases faster than anticipated, increasing costs, and resulting in an inability to fully deliver the project without additional budget.	ORC / Waka Kotahi	Use sensitivity testing to understand the impact of higher than anticipated inflation; monitor the PT index and adjust budgets accordingly.	MEDIUM	N/A
Risk that the political appetite for rates levels changes, resulting in long-term affordability issues.	ORC	Communicate the impact of rates increases/decreases on the delivery of the investment proposal and the council's balance sheet.	MEDIUM	N/A
Risk that Waka Kotahi will not approve funding due to other competing priorities.	ORC / Waka Kotahi	Engage with Waka Kotahi throughout the development of the business case to ensure an acceptable investment proposal is developed and gauge the likely priority of the proposal.	MEDIUM	N/A
Risk that fare revenue is less than anticipated, resulting in increased costs to ORC and Waka Kotahi.	ORC / Waka Kotahi	Undertake sensitivity testing to understand the impact of lower fare revenue; budget based on a slightly conservative fare revenue outcome.	MEDIUM	N/A
Delivery				
Risk that the operator is unable to secure enough drivers or buses, resulting in partial non-delivery of the investment proposal.	ORC / Bus Operators	Undertake a robust procurement process to ensure the preferred bus operator has sufficient resources to deliver; if no operators meet this threshold, consider breaking up the contract to be delivered by multiple operators.	MEDIUM	N/A
Risk/opportunity that the increased scale of units makes the contracts unable to be delivered by the current suppliers in the market, resulting in inability to deliver the full network / attracts more suppliers, resulting in better market response.	ORC	Engage with the market early to understand the likely interest and ability to deliver. Consider changes to implementation phasing to match the market's ability to deliver.	MEDIUM	MEDIUM
Risk that ORC and DCC do not work together to prioritise the implementation of new bus stop infrastructure, resulting in potential crowding and access issues.	ORC / DCC	Ensure there is regular communication between ORC and DCC; appropriate resourcing to execute implementation.	MEDIUM	N/A
Risk that the tender does not attract a large number of respondents, resulting in decreased market competition and lower value for money.	ORC	Issue advance notice to market / ROI early; provide regular updates to registered suppliers; provide sufficient time for potential tenderers to prepare a suitable tender.	MEDIUM	N/A

32 Next Steps

This SSBC provides a clear case for investment in the Dunedin public transport system over the next 15 years, as summarised in the Appraisal Summary Table in Appendix M. Subject to confirmation of funding, implementation of the preferred option fare reduction will commence in September 2024. Service levels will be implemented in phases (aligning with unit renewals) beginning from mid-2025 and completed in mid-2028. The rollout will provide a significant improvement in the frequency and quality of the region's public transport network, which will in turn deliver access and sustainability benefits that ensure good value for investors.

The immediate next steps which need to be completed over the coming year are shown in Table 32-1.

Table 32-1: Next Steps

Action	Timeframe	Party
Council approves business case	Late 2023	ORC
Waka Kotahi endorses business case	End 2023	Waka Kotahi
Actively pursue supplementary funding sources	Mid 2024	ORC
Confirm costs - update bus network, including timetables, in Remix and reconfirm the resource requirements (buses, hours, kms, supporting infrastructure)	Late 2023	ORC
Update procurement plan	Late 2023	ORC
Commence contract variation and pre-procurement processes for operator procurement	2024 - 2026	ORC
Confirm the communications approach to present the vision for the network to the community	Early 2024	ORC
Develop the project plan for an update of the Otago Regional Public Transport Plan	Early 2024	ORC
Consult through LTP and RLTP	Mid 2024	ORC

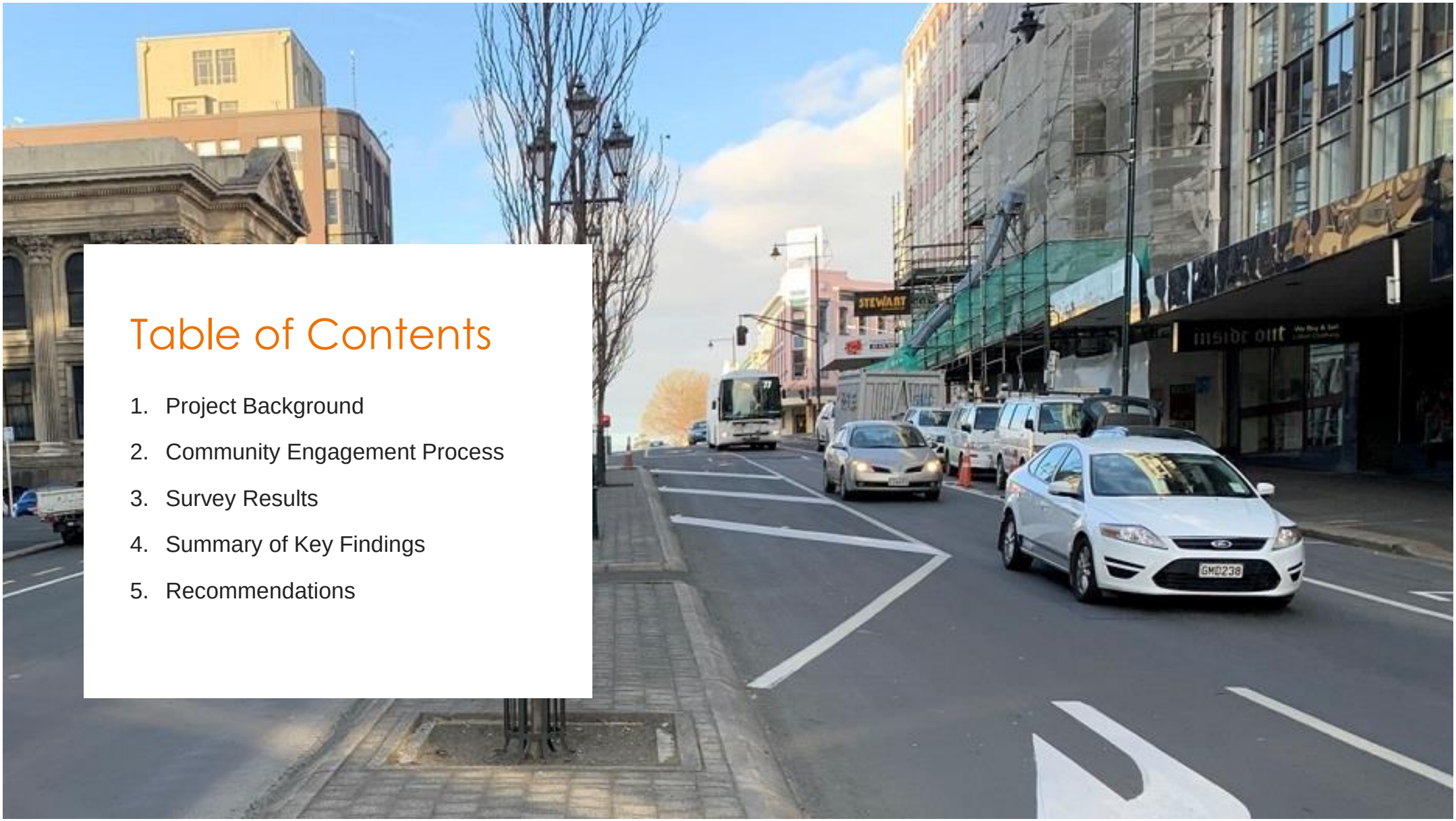
Appendices

Appendix A Engagement Survey Report

Stantec

Otago Regional Council
Shaping Future Dunedin Transport

Fares and Frequency Single Stage Business Case Survey Summary Report



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Project Background

Driven by Connecting Dunedin, The Shaping Future Dunedin Transport (SFDT) programme identifies changes to the Dunedin transport network to support the location of the New Dunedin Hospital, whilst at the same time providing a future focused and accessible transport system.

The SFDT programme has set a target of 8% bus use for the journey to work by 2030, which will require a transformational shift in how people travel. Travel disruption is expected as a result of construction activities on SH1 as the new hospital is built, and this will lead to travel delays. This is the perfect opportunity to support people to change mode. The SFDT preferred programme includes a full range of activities of which the Fares and Frequency Single Stage Business Case (FFBC) is just one.

The purpose of the FFBC is to identify an appropriate public transport (PT) fares and frequency service offering for Dunedin's future, encourage mode shift and access, and contribute to the SFDT PT target and Dunedin's zero carbon goals. In order to understand the community's needs/wants for the bus service, a public feedback survey was conducted to gather this information.

Community Engagement Process

An opportunity was provided between 10 November and 24 November 2022 for the community to give feedback on their travel modes for work/education, bus service spans, frequencies and fare structure as well as what would encourage them and their family to use the bus more.

A survey was hosted on ORC's 'Your Say' website which was promoted via media releases, newspaper articles, social media, ORC online channels, and bus posters.

Demographics

A total of 1,795 responses were received via the survey. Out of the total respondents:

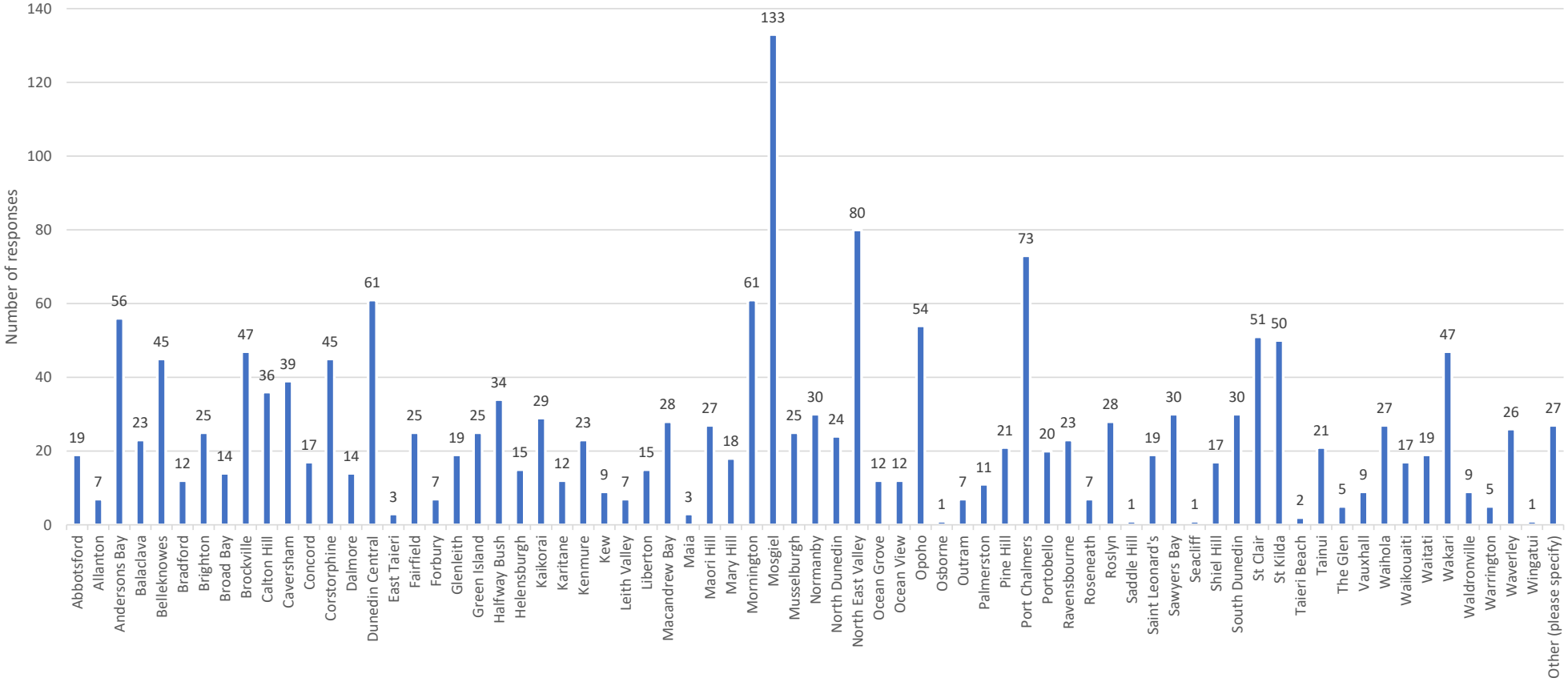
- 1% were aged under 15 years
- 24% were between 15 and 29 years
- 34% between 30 and 45 years
- 34% between 46 and 64 years
- 7% were 65 years or older

Facebook and Facebook ads were the most common sources of where respondents heard about the survey.

Survey Results

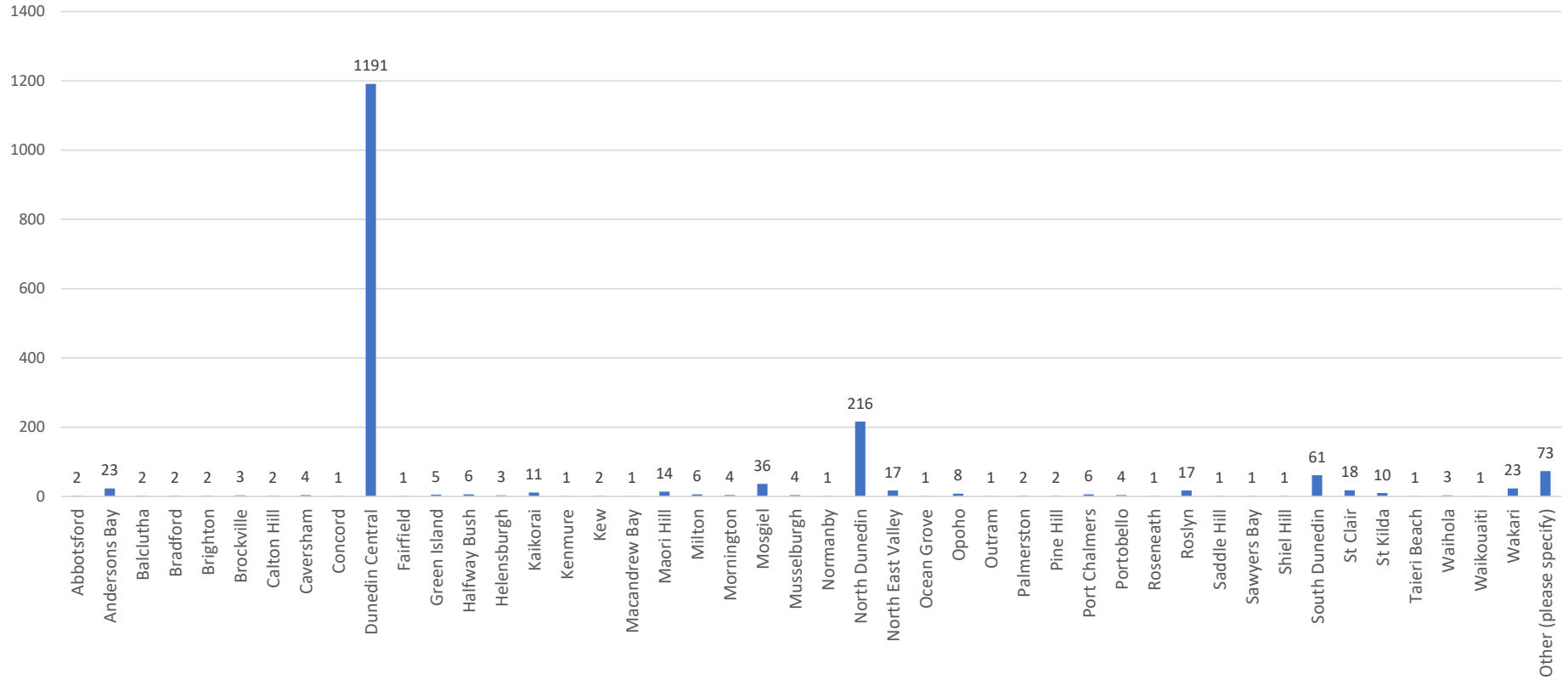
Travel starting point

Survey respondents were asked '***From which suburb/area do you usually travel from to get to work/education?'*** The responses to this are shown in the graph below.



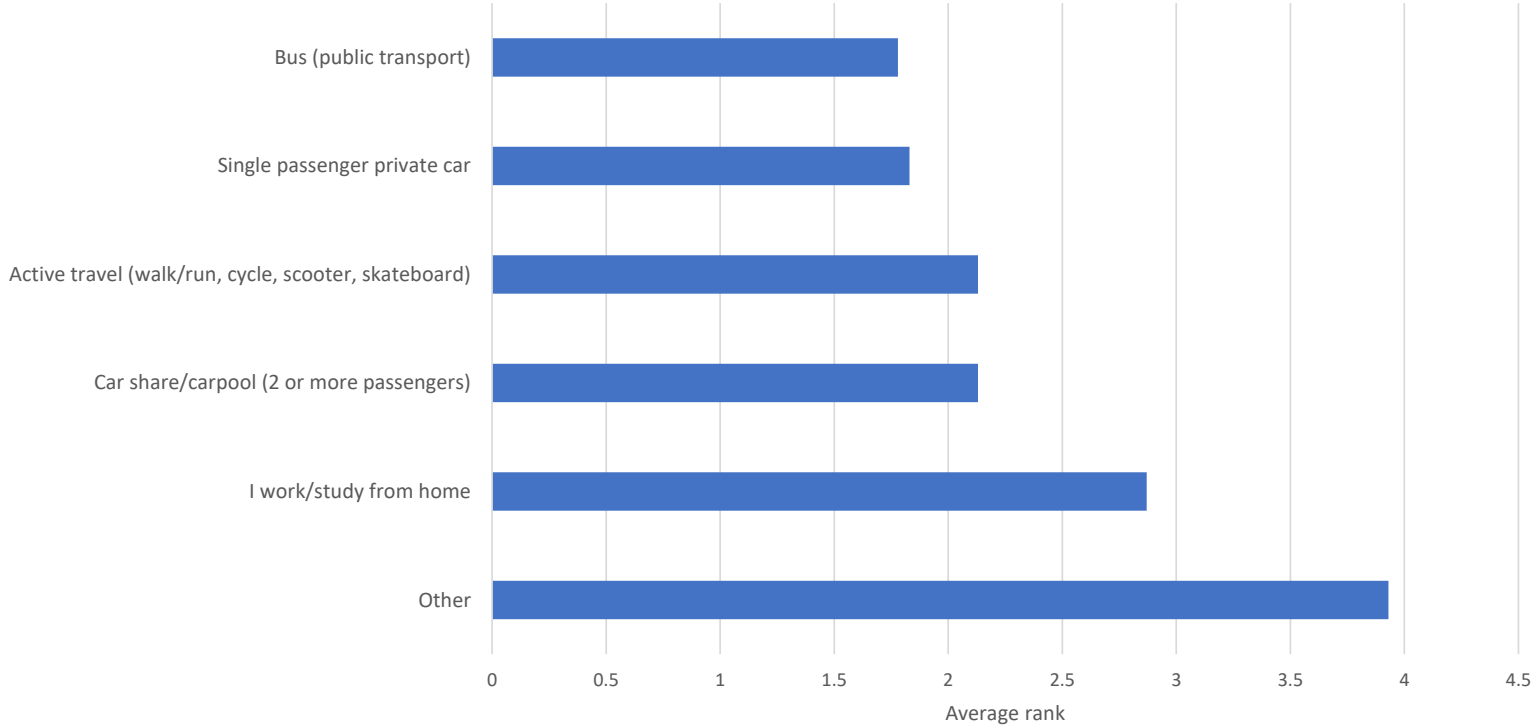
Travel destination

Survey respondents were asked '***Where do you travel to for work/education?'*** The responses to this are shown in the graph below.



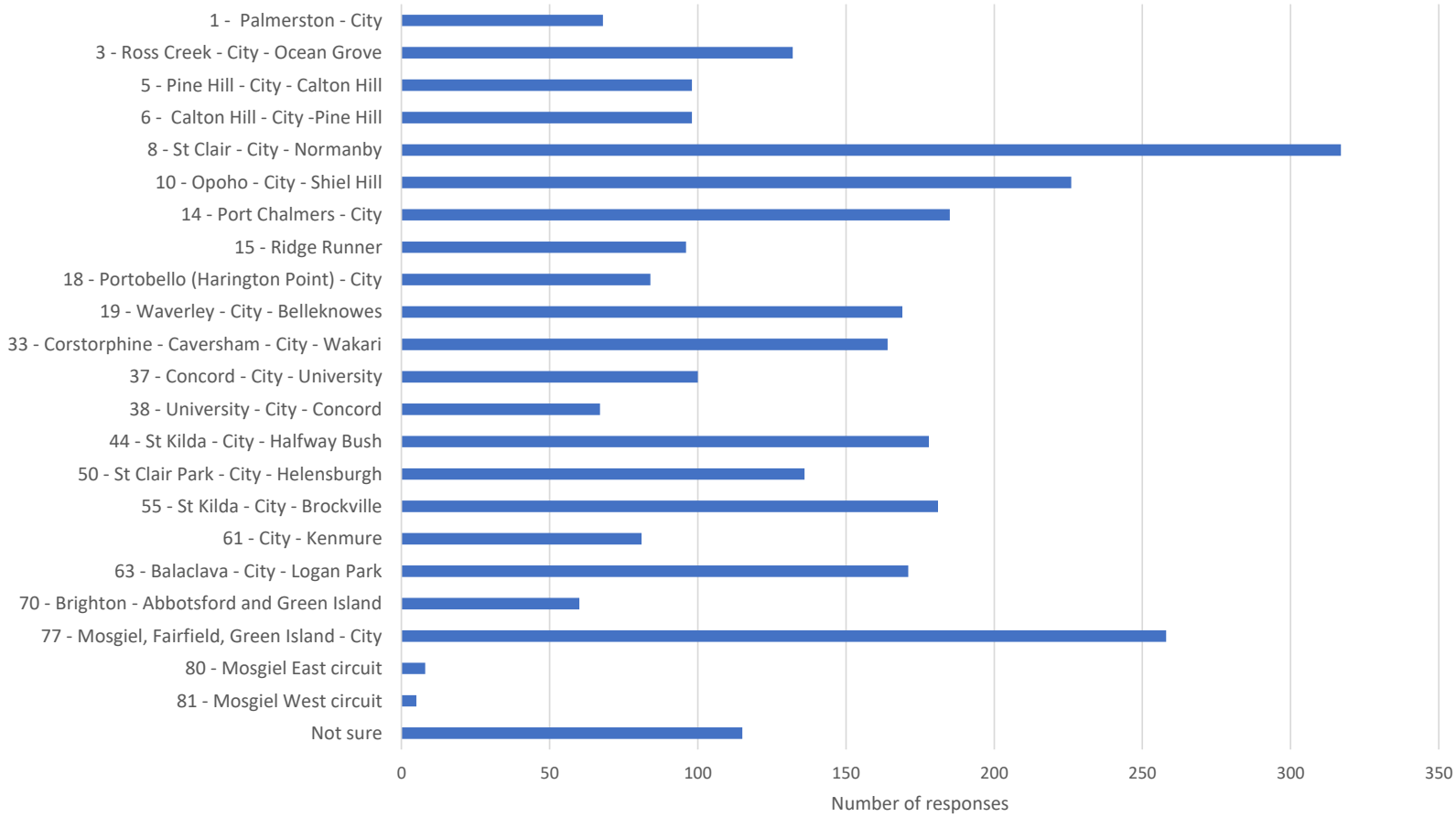
Mode of transport

When asked '***What is your most often used mode of transport to work/education?'*** survey respondents ranked their most used modes of transport, with 1 being their most often used mode. Respondents did not rank any modes that they did not use.



Bus routes

Survey respondents were asked '***Which bus route do you mainly use, or would use, to travel to work/education?'*** Note that people were allowed to choose more than one route.



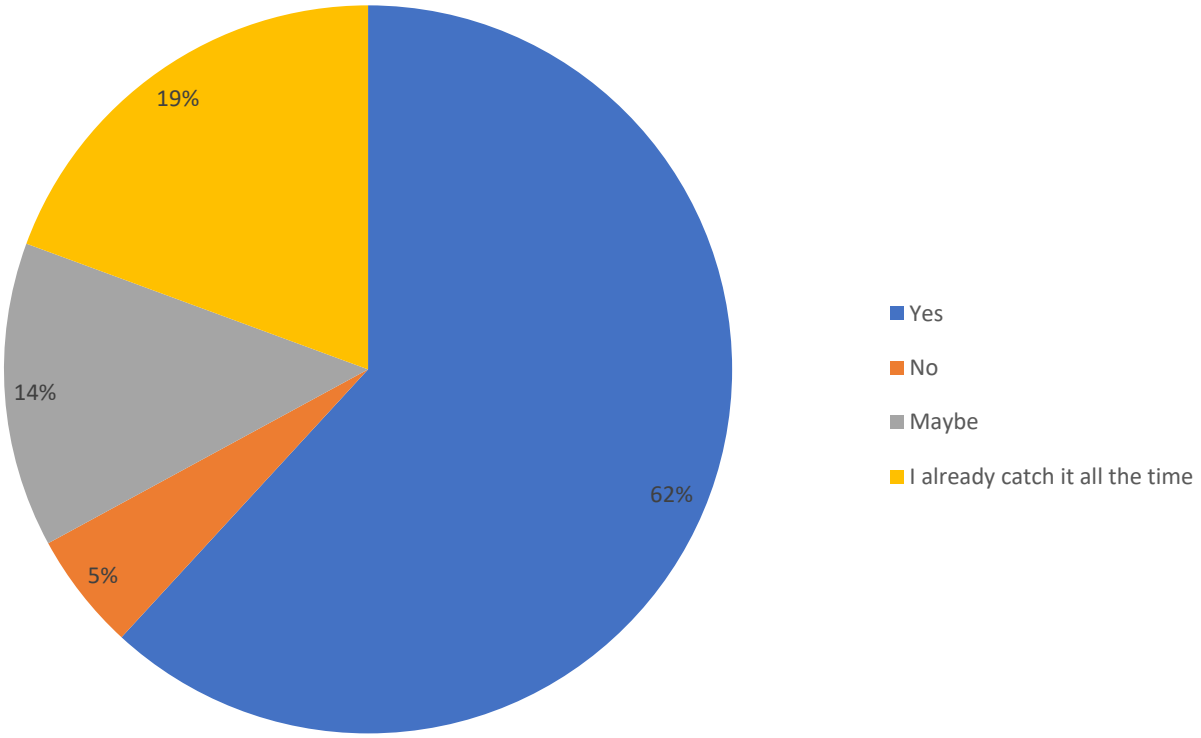
Summary of people's work/education travel journeys

Out of the 1,795 survey responses received:

- Most common suburbs people depart from are Mosgiel (7.4%), North East Valley (4.5%), Port Chalmers (4.1%)
- Most common destinations people travel to for work/education are Dunedin Central (66.4%) and North Dunedin (12%)
- Most often used modes of transport for work/education journeys are bus followed by private car (single passenger only)
- The most used bus routes are routes 8, 10 and 77

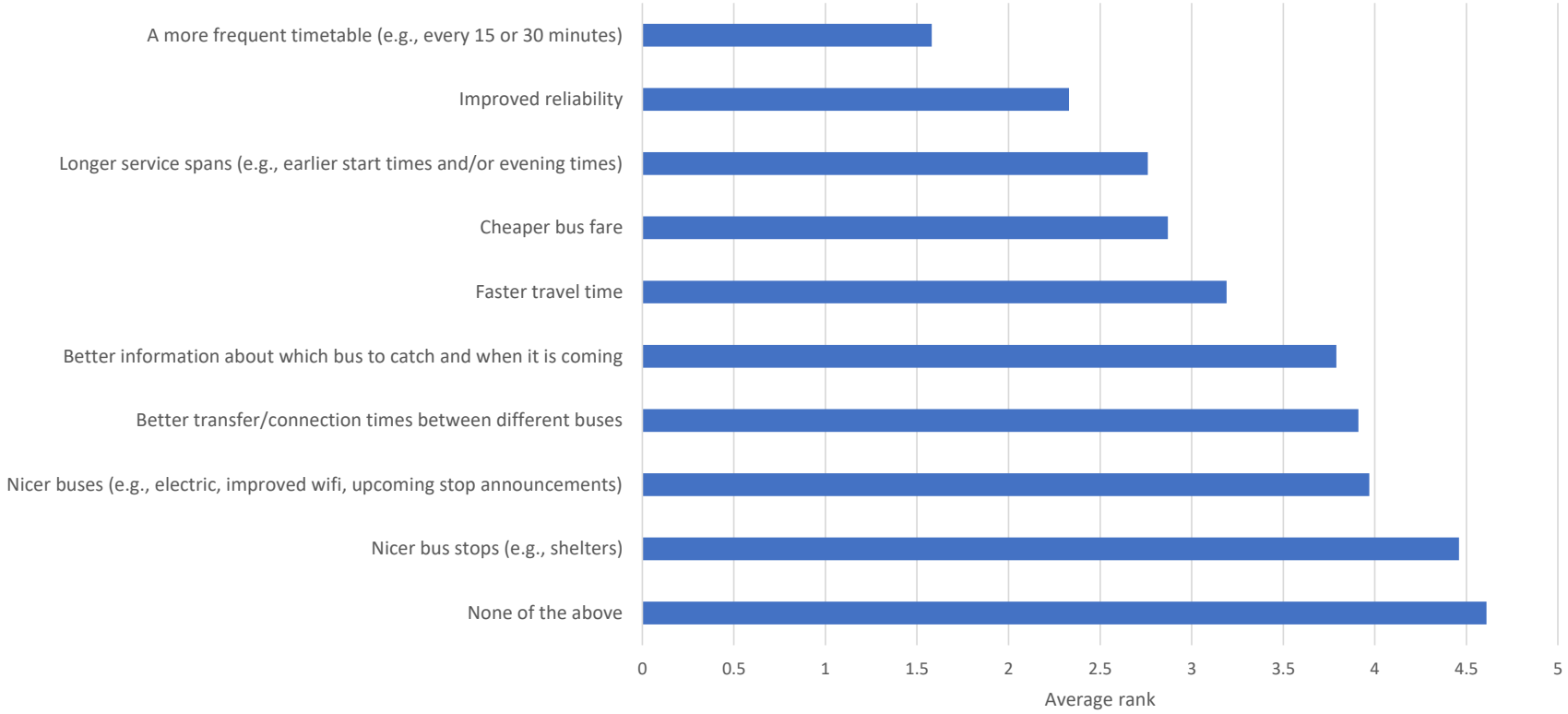
Travel more by bus

When asked '***Would you consider travelling to your place of work/education by public transport, or if you already catch the bus, would you consider catching it more often?***' around 75% of the survey respondents (1,346 people) said they would or might consider travelling more often by bus to their place of work/education.



Options to encourage bus use

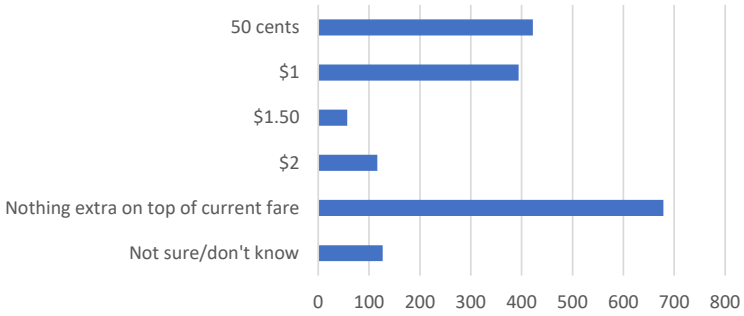
When asked '***Which of the following options would encourage you to use the bus, or use the bus more?***' a more frequent timetable, improved reliability and longer services spans were on average the top 3 options chosen that would encourage people to use the bus more.



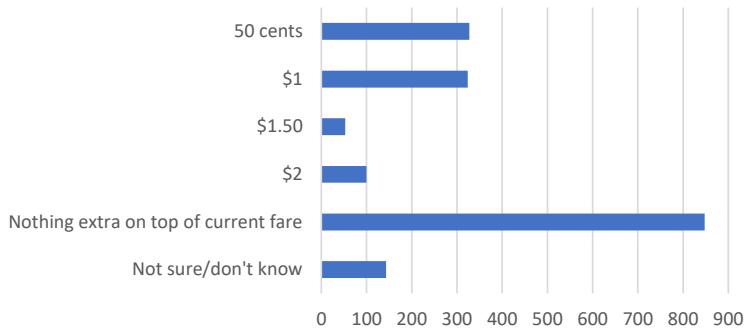
Willingness to pay for improvements

Survey respondents were asked '***For each of the following options, what is the most you would be willing to pay on top of the current $2 Bee Card single adult fare, to encourage you to use the bus?'*** The responses for each of the options are as below and on the next page.

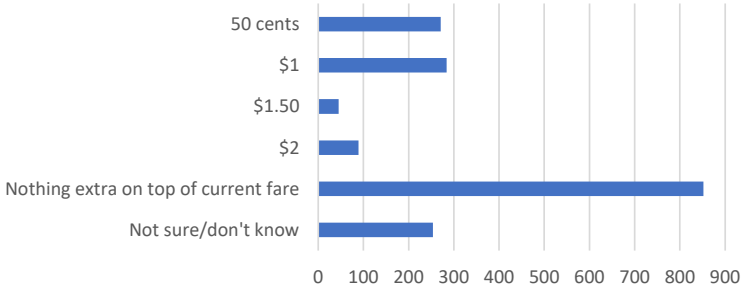
A more frequent timetable, e.g., every 15 or 30 mins



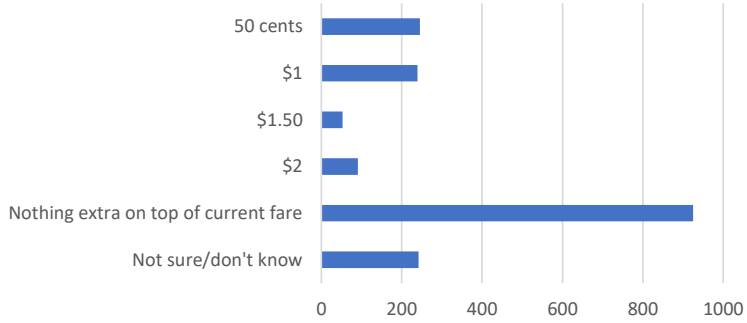
Improved reliability



Longer service spans, e.g., earlier start times and/or evening times

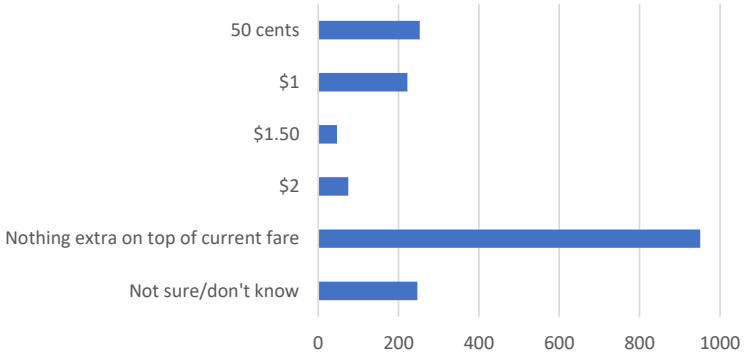


Faster travel time

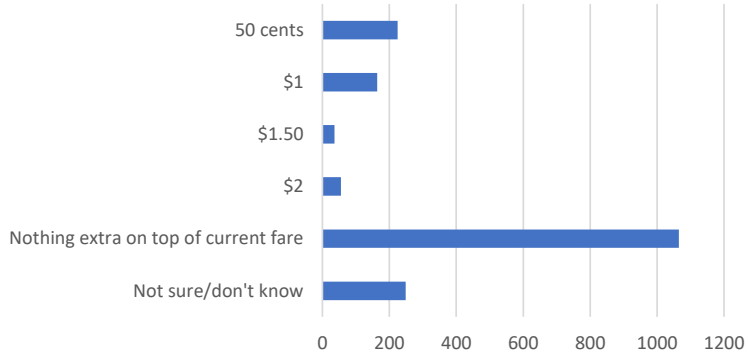


Willingness to pay for improvements

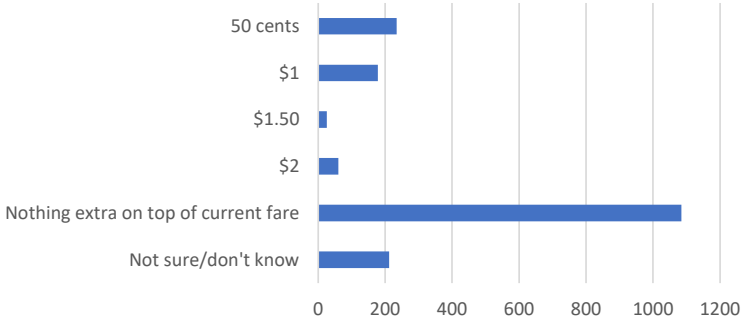
Nicer buses (e.g., electric, wifi, usb charging)



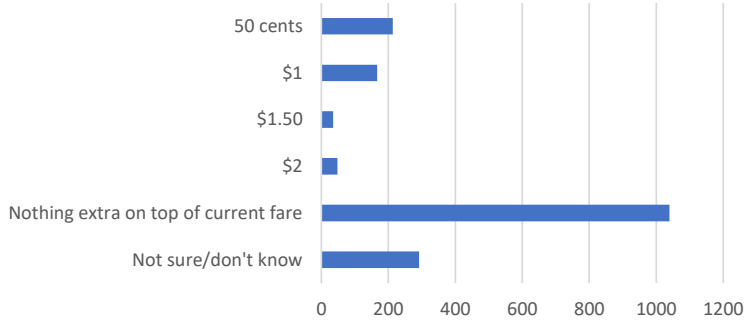
Nicer bus stops (e.g., shelters)



Better information about which bus to catch and when it is coming



Better transfer/connection times between different buses



Willingness to pay for improvements summary

Out of the eight options provided, people are more willing to pay for:

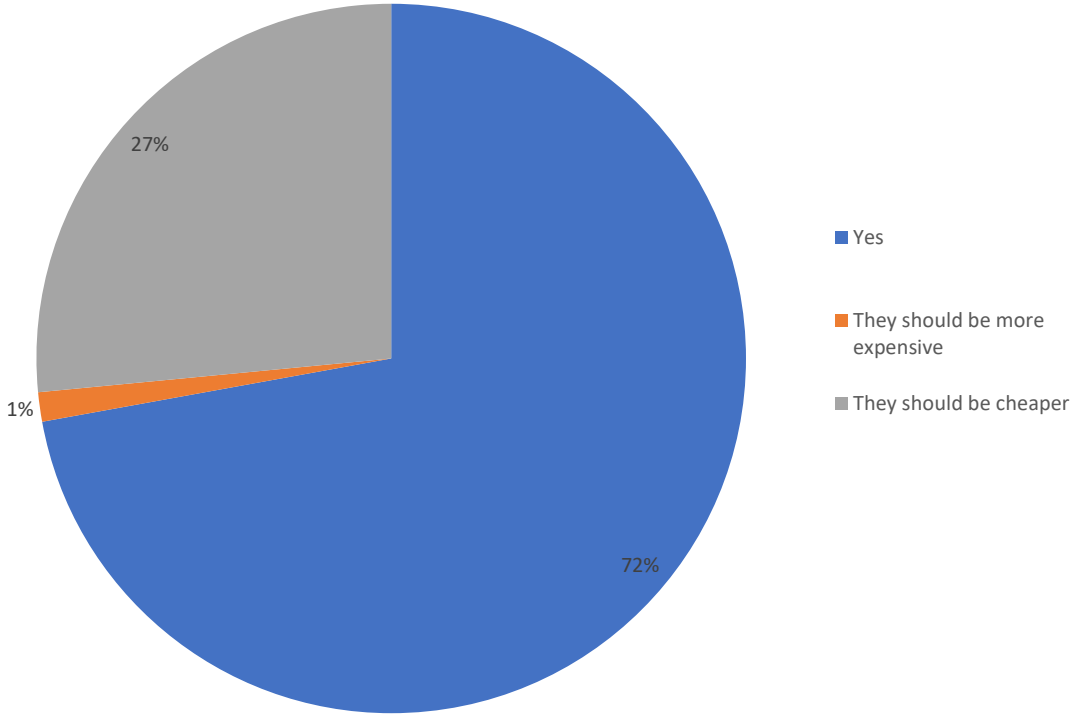
- A more frequent timetable (24% would pay 50 cents, 22% would pay $1)
- Improved reliability (18% would pay 50 cents, 18% would pay $1)
- Longer service spans (15% would pay 50 cents, 16% would pay $1)

More than 50% of the respondents would not be willing to pay extra on top of the current fare for:

- Faster travel time (52%)
- Nicer buses (53%)
- Nicer bus stops (59%)
- Better information (60%)
- Better transfers (58%)

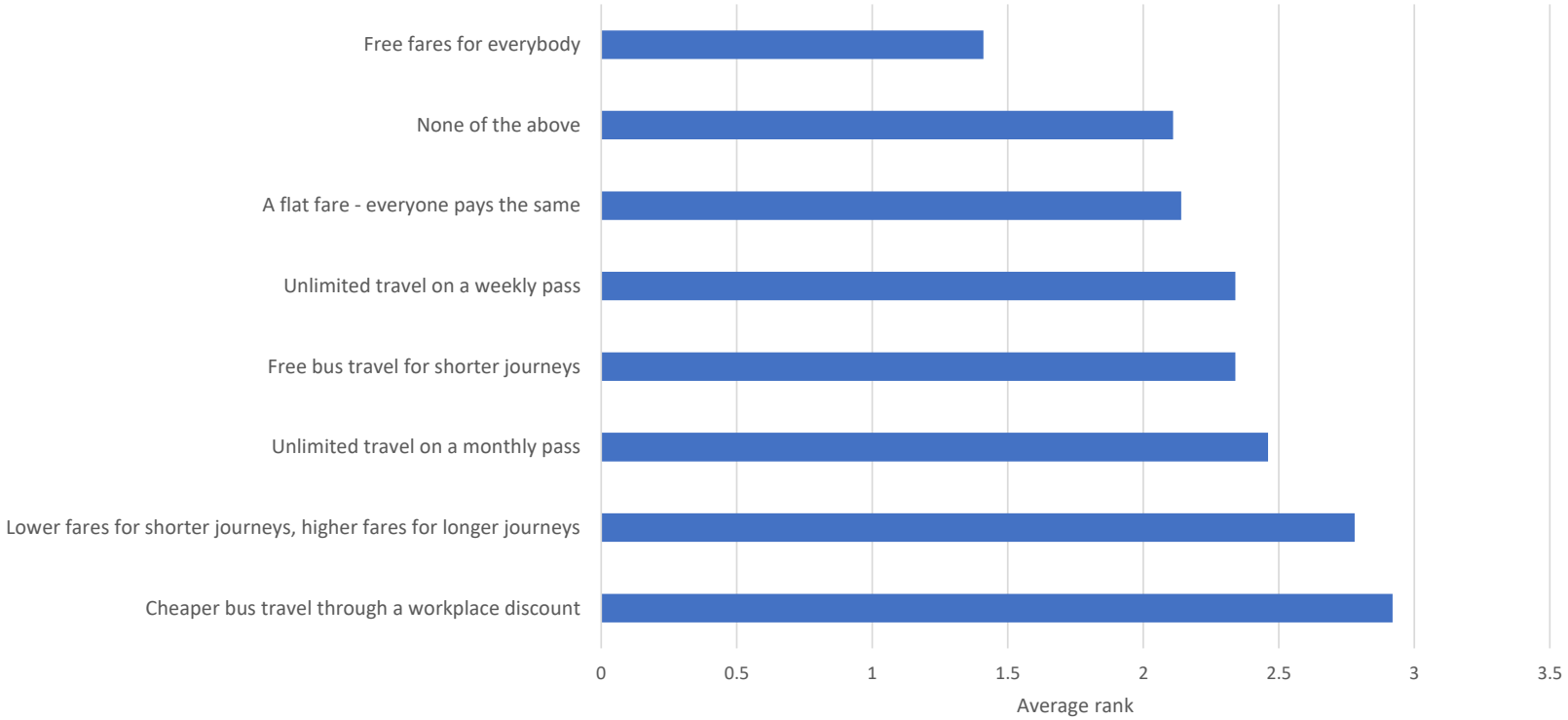
Current bus fare

When asked '***Are you happy with the current bus fares?'*** approximately 72% of the respondents said they were happy with the current $2/$3 adult bus fare. About 27% think they should be cheaper, while about 1% think they should be more expensive than the current price.



Fare options

When asked '***Which of the following fare options would most encourage you or your family members to travel more by bus?***' free fares for everybody was on average the top ranked option that would encourage people (or their family) to travel more by bus.



Route service spans

Survey respondents were asked '***What times would you prefer your main bus route to work/education to start and finish? (both during weekdays and weekends)?***' The table below and on the following page shows the most suggested start and finish times for each bus route.

Route	Most suggested start and finish times
1- Palmerston	7am or 7:30am until 4pm or 4:30pm everyday
3- Ross Creek	6am until 11pm or 12am everyday
5- Pine Hill	6am until 11pm or 12am everyday
6- Calton Hill	6am until 11pm everyday
8- Saint Clair	6am until 11pm everyday
10- Opoho	6am until 11pm or 12am weekday, 7am until 12am weekend
14- Port Chalmers	6am until 12am weekday, 7am or 8am until 12am weekend
15- Ridge Runner	7am until 10pm everyday
18- Portobello	6am until 11pm or 12am everyday
19- Waverley	6am until 11pm or 12am everyday
33- Corstorphine	6am until 11pm or 12am everyday

Route service spans

The table below continues from the previous page, showing the most suggested start and finish times for each bus route. Almost all bus routes were suggested to have the earliest bus start at 6 or 7am and the last bus around 11pm or 12am.

Route	Most suggested start and finish times
37- Concord	7am until 11pm or 12am everyday
38- University	7am until 10pm everyday
44- St Kilda	6am until 11pm or 12am everyday
50- St Clair Park	6am until 12am everyday
55- St Kilda	6am until 12am everyday
61- City	6am or 7am until 11pm everyday
63- Balaclava	6am until 11pm everyday
70- Brighton	7am until 11pm everyday
77- Mosgiel	6am until 11pm everyday
80- Mosgiel East	8am until 7pm everyday

Willingness to pay for increased frequency

Responses to '*Which bus route do you mainly use, or would use, to travel to work/education?*' were charted against correlating responses to '*What is the most you would be willing to pay on top of the current $2 bee card single adult fare, to encourage you to use the bus?'* for the more frequent timetable option.

This was completed to investigate whether the current route frequencies impacted on survey respondent's willingness to pay more for increased frequencies. The results of this analysis is provided over the next few pages.

The bus routes are grouped into the following categories*:

- Targeted – Palmerston route
- Rapid – 15 min peak frequency, applies to route 63 and 8
- Frequent – 20 min peak frequency, applies to routes 5, 6, 10 and 11
- Regular – 30 min peak frequency, applies to the remaining routes

**as defined in the Regional Land Transport Plan 2021-31*

Willingness to pay for increased frequency

Nothing extra

- Most routes had between 40-50% of the respondents saying they would not be willing to pay extra for increased frequency
- *1-Palmerston* targeted route had the smallest proportion of people not willing to pay extra for increased frequency (29%)

50 cents and $1 extra

- Rapid routes had about 30% of respondents who would pay 50 cents extra while regular routes had around 20-25%. However, most regular routes had a higher proportion of respondents who would pay $1 more (22-29%), while rapid and frequent services had between 11-21% willing to pay $1 more
- Targeted routes had a lower proportion of respondents who would pay 50 cents more (16%) as there was a considerably larger share (33%) of people who would consider paying $1 extra

Willingness to pay for increased frequency

$1.50 extra

- There was little correlation between route type and willingness to pay $1.50 extra. Rapid, frequent, and regular routes all had low responses for this option (between 1-6%)
- Route *1-Palmerston* had the highest proportion at 7%

$2 extra

- There was little correlation between the type of route (targeted, frequent, regular) and the proportion of respondents who would pay $2 extra for increased frequency. Most routes had a low respondent rate for $2 extra (between 4-9%)
- The routes with the highest proportion of respondents who would pay $2 extra were *1-Palmerston* (15%) and *70-Brighton* (14%)

Willingness to pay for increased frequency summary

- For each of the bus routes (except *3-Ross Creek)* just over half of the respondents are willing to pay extra for increased frequency
- Most popular choice across the bus routes is either 50 cents or $1
- *70-Brighton*, *18-Portobello, 77-Mosgiel, 50-St Clair Park, 5-Pine Hill, and 6-Calton Hill* all have slightly higher proportion of respondents willing to pay either $1.50 or $2 extra in comparison to other routes
- Respondents on regular services are more willing to pay $1 than others on rapid and frequent services (except for route *3- Ross Creek* as an outlier)
- *1-Palmerston* has high rates of willingness to pay extra, with $1 extra being the most popular choice

Key themes from additional comments

Frequency (36.25%)

- Schedule increase to **a 15-minute regular service** was widely supported
- Early morning shift workers (from a range of locations) did not have an available **early morning service** to work eg. nurses, hospital staff
- Many participants also **wanted increased weekend and late evening/night services** for both recreation and shift work
- **After-work and after-school peak times** were often mentioned as lacking frequency. Some also identified that the busses could be staggered at these times to make sure a range of routes were covered within this peak period.
- The lack of frequency around peak times and the consequential longer journey home was cited as a key reason for not using PT

Key themes from additional comments

Reliability (21%)

- Services often **leaving early or late** from the schedule
- Bus drivers **missing stops**
- Lack of communication/updates of **cancellations** & live-tracking issues

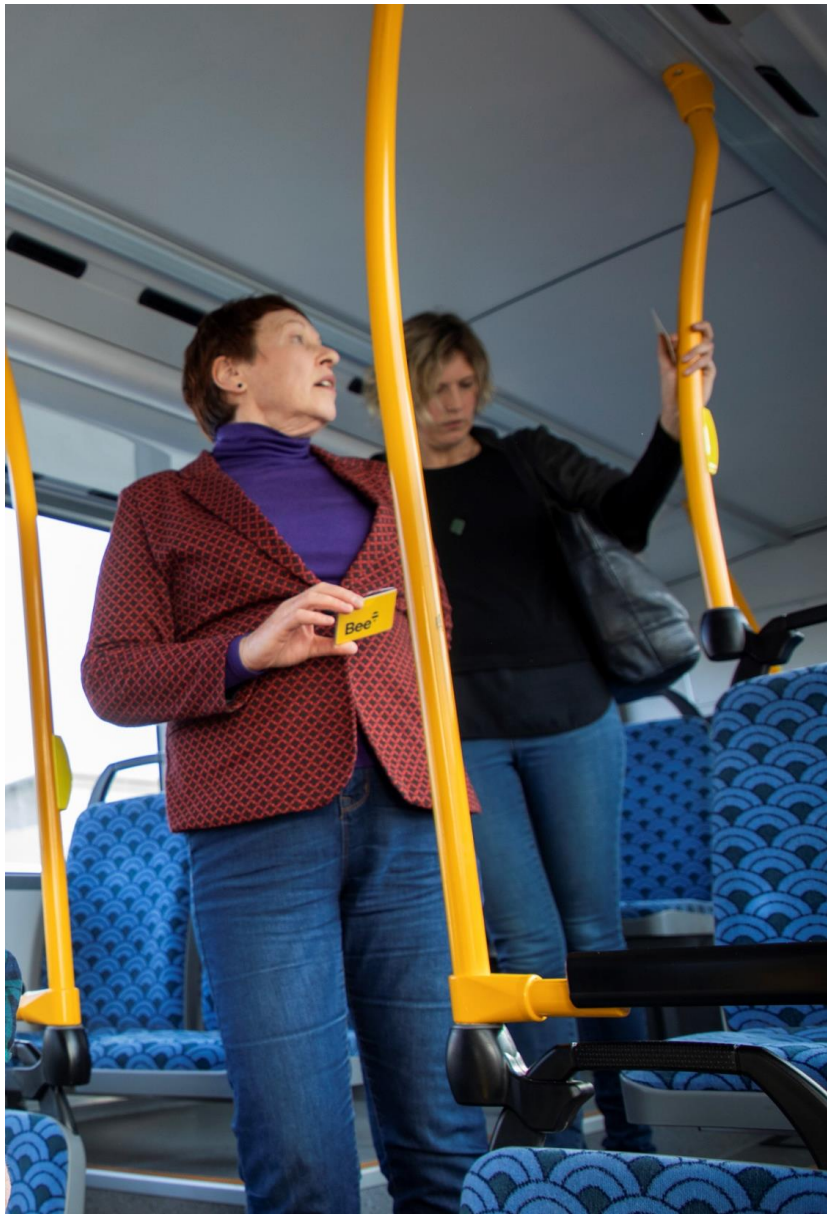
Cost

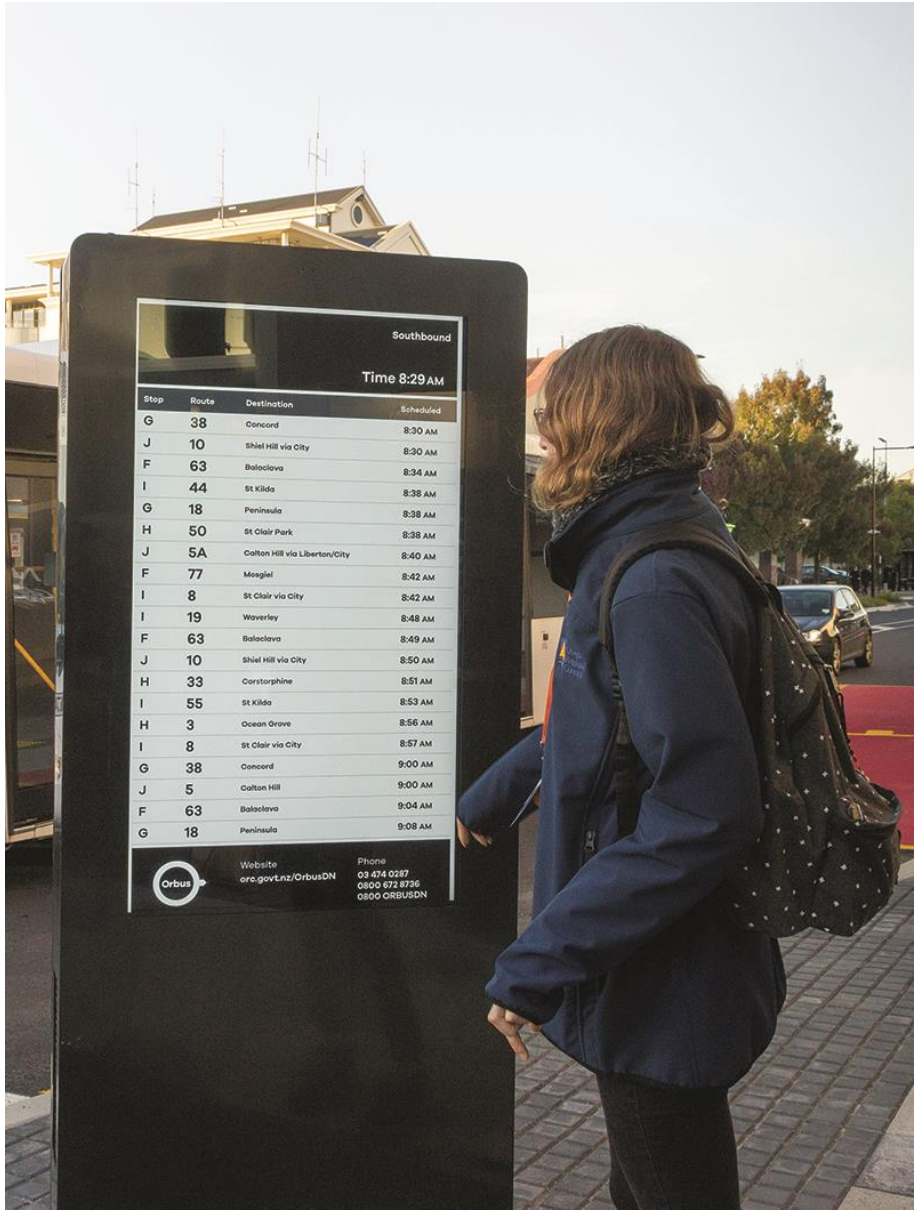
- **Family subsidies** to encourage PT mode shift
- Pension/student/communities services subsidy
- Subscription-based fare model e.g. weekly pass
- **Rates increase** supported by some
- Overall, respondents supported a **low-cost option** to incentivise regular PT use

Key themes from additional comments

Route improvement

- **Cruise ship congestion** on PT is a key issue for the Port Chalmers route and peak school and work times have been identified as needing additional services to Port Chalmers.
- **Mosgiel express service**
- **Pressure on North Coast bus routes** (especially peak school times) from Warrington/Waitati has been identified, with overcrowding (safety) being a key issue
- Increased service to Waihola, Outram





Key themes from additional comments

Inadequate infrastructure

- Harassment, bullying and violence at bus hub
- Improved seating and rain/wind protection at shelters
- Accessibility on buses is limited: Users unsure which buses on the schedule can kneel
- Heating/cooling and better WiFi
- Small buses were widely supported for off-peak times

Lack of legibility

- Idea of tracking map is popular, but its current technology is unreliable
- **Tracking should be accessible** to elderly and users who may not have access to personal technology
- Live timetables on bus, bus stops or bus hubs, showing schedule updates and cancellations

Summary of key findings

Bus Frequency

- Increased frequency is the most popular option that would encourage people to use the bus more often
- Respondents widely supported increased frequencies (such as 15min intervals) for most routes, particularly during peak times and late nights/weekends

Bus Service Span

- Suggested service spans for almost all bus routes were consistent, with 6 or 7am start until 11pm or 12am finish for weekdays and weekends
- Reasons for longer service spans include accommodating for hospital and shift workers early morning and late evening, and having later buses for recreational purposes and safety

Bus fare and willingness to pay

- Respondents are more willing to pay extra (50cent/$1) for increased frequency compared to other improvements such as improved reliability or longer service spans
- About 70% of respondents are happy with the current fare and a low-cost fare option is widely supported
- Free fares for all was the most encouraging option for people and their families to use the bus more often

Appendix B RPTP Service Frequency Compliance

Route #	Route Description	RPTP Service Type	RPTP Peak Frequency Target	Compliance with RPTP Frequency Target	Weekday AM / PM Peak Headway (minutes)	Weekday Interpeak Headway (minutes)	Weekday Evening Headway (minutes)	Weekend Day / Evening Headway (minutes)
1	Palmerston – City. City - Palmerston	Targeted	N/A Weekdays Only	Complies	4hrs	4hrs	N/A	8hrs45min
3	Ross Creek - City - Ocean Grove. Ocean Grove - City - Ross Creek	Regular	30min	Complies	30min	30min	60min	60min
5	Pine Hill - City - Calton Hill	Frequent	20min	Does not comply	20min	40min	60min	60min
6	Calton Hill - City - Pine Hill	Frequent	20min	Does not comply	20min	40min	60min	60min
8	St Clair - City – Normanby. Normanby - City - St Clair	Rapid	15min	Does not comply	15min	15min	30min	30min
10	Opoho - City - Shiel Hill	Frequent	20min	Does not comply	20min	40min	60min	60min
11	Shiel Hill - City - Opoho	Frequent	20min	Does not comply	20min	40min	60min	60min
14	Port Chalmers – City, City - Port Chalmers	Regular	30min	Complies	20min	30min	60min	60min
15	Ridge Runner Northbound Ridge Runner Southbound	Regular	30min	Complies	30min	60min	60min	60min
18	Portobello (Harington Point) – City, City - Portobello (Harington Point)	Regular	30min	Does not comply	20min	60min	62min	60min
19	Waverley - City – Belleknowes. Belleknowes - City - Waverley	Regular	30min	Complies	30min	30min	60min	60min
33	Corstorphine - Caversham - City – Wakari. Wakari - City - Caversham - Corstorphine	Regular	30min	Complies	30min	30min	60min	60min
37	Concord - City - University	Regular	30min	Complies	30min	30min	60min	60min
38	University - City - Concord	Regular	30min	Complies	30min	30min	60min	60min
44	St Kilda - City - Halfway Bush. Halfway Bush - City - St Kilda	Regular	30min	Complies	30min	30min	60min	60min
50	St Clair Park - City – Helensburgh. Helensburgh - City - St Clair Park	Regular	30min	Complies	30min	30min	60min	60min
55	St Kilda - City – Brockville. Brockville - City -	Regular	30min	Complies	30min	30min	60min	60min

Route #	Route Description	RPTP Service Type	RPTP Peak Frequency Target	Compliance with RPTP Frequency Target	Weekday AM / PM Peak Headway (minutes)	Weekday Interpeak Headway (minutes)	Weekday Evening Headway (minutes)	Weekend Day / Evening Headway (minutes)
	St Kilda							
61	City – Kenmure. Kenmure - City	Regular	30min	Complies	30min	30min	60min	60min
63	Balaclava - City - Logan Park. Logan Park - City - Balaclava	Rapid	15min	Does not comply	15min	15min	30min	30min
70	Brighton - Abbotsford and Green Island. Green Island - Abbotsford and Brighton	Regular	30min	Complies	30min	60min	60min	60min
77	Mosgiel, Fairfield, Green Island – City. City - Green Island, Fairfield, Mosgiel	Regular	30min	Does not comply	30min	30min	30min	120min
80	Mosgiel East circuit	Regular	40min (weekday only)	Does not comply	40min	40min	40min	N/A
81	Mosgiel East circuit	Regular	40min (weekday only)	Does not comply	40min	40min	40min	N/A

Appendix C RPTP Service Span Compliance

Route #	Route Description	RPTP Service Type	Compliance with 2021 RPTP	Weekday Span	Saturday Span	Sunday Span
1	Palmerston – City. City - Palmerston	Targeted	Complies	07:00-16:45	08:00-17:45	08:00-16:45
3	Ross Creek - City - Ocean Grove. Ocean Grove - City - Ross Creek	Regular	Complies	06:32-20:32	07:32-23:32	08:32-19:32
5	Pine Hill - City - Calton Hill	Frequent	Does not comply	06:30-22:11	08:11-22:11	08:11-19:11
6	Calton Hill - City - Pine Hill	Frequent	Does not comply	06:25-22:02	08:02-22:02	09:02-18:02
8	St Clair - City – Normanby. Normanby - City - St Clair	Rapid	Does not comply	06:05-22:20	08:20-23:50	08:20-20:20
10	Opoho - City - Shiel Hill	Frequent	Does not comply	06:50-22:21	08:21-22:21	09:21-19:21
11	Shiel Hill - City - Opoho	Frequent	Does not comply	06:30-23:12	08:12-22:12	09:12-18:12
14	Port Chalmers – City, City - Port Chalmers	Regular	Complies	06:10-21:10	08:10-23:10	09:31-17:31
15	Ridge Runner Northbound Ridge Runner Southbound	Regular	Complies	06:06-22:06	08:06-23:06	09:06-17:06
18	Portobello (Harington Point) – City, City - Portobello (Harington Point)	Regular	Complies	06:57-21:59	07:59-23:05	07:59-19:59
19	Waverley - City – Belleknowes. Belleknowes - City - Waverley	Regular	Complies	06:15-22:15	07:15-23:15	08:15-20:15
33	Corstorphine - Caversham - City – Wakari. Wakari - City - Caversham - Corstorphine	Regular	Complies	06:02-22:32	08:32-23:32	09:32-18:32
37	Concord - City - University	Regular	Complies	06:20-21:20	08:20-22:20	09:20-18:20
38	University - City - Concord	Regular	Complies	06:52-20:52	08:52-22:52	08:52-17:52
44	St Kilda - City - Halfway Bush. Halfway Bush - City - St Kilda	Regular	Complies	06:00-21:30	07:30-23:30	08:30-19:30
50	St Clair Park - City – Helensburgh. Helensburgh - City - St Clair Park	Regular	Complies	06:20-22:50	07:50-22:50	08:50-17:50
55	St Kilda - City – Brockville. Brockville - City - St Kilda	Regular	Complies	06:15-22:00	07:00-23:00	08:00-19:00
61	City – Kenmure. Kenmure - City	Regular	Complies	06:58-22:58	08:58-23:58	09:58-18:58
63	Balaclava - City - Logan Park. Logan Park - City - Balaclava	Rapid	Does not comply	06:13-21:58	07:28-23:28	07:58-19:28
70	Brighton - Abbotsford and Green Island. Green Island - Abbotsford and Brighton	Regular	Complies	06:25-19:25	08:25-19:25	08:25-17:25
77	Mosgiel, Fairfield, Green Island – City. City - Green Island, Fairfield, Mosgiel	Regular	Complies	06:00-20:00	08:00-22:30	08:00-21:00

Route #	Route Description	RPTP Service Type	Compliance with 2021 RPTP	Weekday Span	Saturday Span	Sunday Span
80	Mosgiel East circuit	Regular	Does not comply	08:00-18:00	N/A	N/A
81	Mosgiel East circuit	Regular	Does not comply	08:20-17:40	N/A	N/A

Appendix D PT Infrastructure Assessment (highest boarding stops)

Journey comfort is an important consideration for an attractive bus service. The quality of bus stop infrastructure will set the tone of the customer experience. Bus stops can provide physical comfort through adequate space, seating and protection from the weather; or emotional comfort - being able to relax with sufficient information about their pending journey.

The supporting infrastructure at Dunedin's bus stops is variable. Waka Kotahi draft Public Transport Design Guidance indicates the minimum infrastructure requirement at bus stops depending on the classifications of the bus stop. Figure 1 shows the difference between shelters at two of Dunedin's most frequently used bus stops. The variance in shelter style is clear, but there is also a distinct lack of facilities that support a comfortable, attractive public transport service in both shelters.

Figure 1: Bus Stop Infrastructure in Green Island (left) and Logan Park (right)

To understand how well Dunedin's bus stops compare to design guidance recommendations, Bee Card data was analysed to determine which bus stops have the highest number of boardings and/or the largest number of transfers. These are the bus stops at which the highest quality infrastructure would be expected to ensure that the best experience possible.

Table 1 below lists the bus stops (excluding Bus Hub stops) with the highest numbers of boardings and/or transfers for the period from September 2020 to October 2022, and previously identified 'superstop' locations, together with a high-level summary of supporting infrastructure. Images of these stops are included below.

Table 1: Bus Stops with the highest number of boardings (excludes Bus Hub stops) [1]

Stop Name	Boardings	Design Guidance Recommendations					
		Timetable	Network Map	Lighting	Seating	Shelter	Bin
Princes Street, 151	92,268	✓			✓	✓*	
George Street, Golden Centre	66,360	✓			✓	✓*	
Gordon Road, Clocktower	**58,538**	✓			✓		
King Edward Street, 135	**55,725**	✓		✓**			✓

[1] Bee Card boardings and transfers from September 2020 to October 2022 (excludes cash tickets)

Stop Name	Boardings	Design Guidance Recommendations					
		Timetable	Network Map	Lighting	Seating	Shelter	Bin
SH88, Logan Park	52,227	✓			✓	✓	
Bank Street opposite Dolphin Street	**47,143**	✓			✓	✓	✓
North Road, 30	**45,969**	✓			✓	✓*	
George Street, 459	42,301	✓		✓**			✓
Green Island Super Stop (Inbound)	**41,411**	✓			✓	✓	✓
Mosgiel Terminus	39,578	✓			✓	✓	
Green Island Super Stop (Outbound)	**36,671**	✓				✓	
Hillside Road, 169	**35,166**	✓			✓	✓	
Clyde Street, 66	**31,613**	✓		✓**	✓	✓	

*Shelter is from street veranda, not bus stop specific

**Street lighting, not shelter lighting

The analysis shows none of the high use stops tick all of the boxes for bus stop infrastructure in the design guidance. The fourth and eighth most popular stops only have a timetable and a bin, with no shelter or seat. All locations had signage required to identify the bus stop, but few provided assurance about what routes the stop supported, when the bus was due and, most importantly particularly for transfers, if the bus was coming or had already passed the stop. This information gap does not give people confidence to use public transport services. The bus stop infrastructure does not consistently provide a quality customer experience or a good first impression of the bus service.

Appendix E Early Assessment Sifting Tool

Early Assessment Sifting Tool Template

Early Assessment Sifting Tool: Excel template The Early Assessment Sifting Tool (EAST) supports an initial 'coarse screening' of alternatives and options. The EAST is designed to quickly and robustly rule out alternatives and options, allowing for a more manageable subsequent Multi Criteria Analysis exercise.

Project Overview

Date:	24/01/2023	**Business case phase:**	Single stage business case	**Do minimum:**	Dunedin's bus routes, service spans, service frequencies, fares and bus stop infrastructure as of March 2023, additional peak and peak express services to Mosgiel, some new school routes, minor route changes and six superstops.
Project name:	Dunedin Fares and Frequency	**Problem/opportunity statem**	Public transport is not attractive enough compared to other travel options, particularly in growth areas, leading to low utilisation and mode share		

Investment objective: Attractive and competitive

Alternative or option details						Investment objective	Practical Feasibility		Key risks and uncertainties	Fatal flaws		Summary of decision made	
Category	Type		Unique identifier	Name of alternative/option	Description of alternative/option	Attractive and competitive public transport for people travelling to work and education	Affordability	Public Acceptability				Summary of decision made	Progress or discontinue this alternative/option?
FARES	Flat Fare		1	Flat Fare - Free	Free fares across the entire network.	5. High	1. Low	2	Free fares city-wide will be very expensive and is likely to require a rates increase in addition to alternative funding streams.	Yes	Intervention not feasible due to low affordability.	Discontinued due to fatal flaw.	Discontinue
			2	Flat Fare - Reduce	Reduced price flat fare.	4	1. Low	3	Reduced fares city-wide will be very expensive and is likely to require a rates increase in addition to alternative funding streams.	Yes	Intervention not feasible due to low affordability.	Discontinued due to fatal flaw.	Discontinue
			3	Flat Fare - Maintain (Do Minimum)	No change to current flat fare price	4	2	3	Additional budget allocation or alternative funding streams may be needed.	No		Progress to long list.	Progress
			4	Flat Fare - Increase	Slightly increased price flat fare	3	3	3	Small increase of 50c assumed.	No		Progress to long list.	Progress
			5	Flat Fare - Increase +	Significantly increased price flat fare.	2	4	3	A significant increase in fares city-wide is likely to make public transport less attractive and less competitive.	Yes	Intervention does not support the investment objective.	Discontinued due to fatal flaw.	Discontinue
	Zones (Inner / Outer / Palmerston)	Inner Zone (<7km)	108	Central City Zone - Free	Free fares within the Central City Zone (Gardens Corner to Hillside Road).								Progress
			6	One Zone Fare - Free	Free fares for One Zone Trips.	5. High	1. Low	2	Free fares for one zone trips will be very expensive and is likely to require a rates increase in addition to alternative funding streams.	Yes	Intervention not feasible due to low affordability.	Discontinued due to fatal flaw.	Discontinue
			7	One Zone Fare - Reduce	Reduced fares for One Zone trips.	4	2	3	Additional budget allocation or alternative funding streams may be needed.	No		Progress to long list.	Progress
			8	One Zone Fare - Maintain	No change to the current fare price for One Zone trips.	4	2	3	Additional budget allocation or alternative funding streams may be needed.	No		Progress to long list.	Progress
			9	One Zone Fare - Increase	Slightly increased fares for one zone trips.	3	3	3	Customers may reject any fare increase.	No		Progress to long list.	Progress
			10	One Zone Fare - Increase +	Significantly increased fares for One Zone trips.	2	4	2	A significant increase in fares for One Zone trips is likely to make public transport less attractive and less competitive.	Yes	Intervention does not support the investment objective.	Discontinued due to fatal flaw.	Discontinue
		Outer Zone	11	Two Zone Fare - Free	Free fares for Two Zone trips.	5. High	1. Low	2	Free fares for Two Zone trips will be very expensive and is likely to require a rates increase in addition to alternative funding streams.	Yes	Intervention not feasible due to low affordability.	Discontinued due to fatal flaw.	Discontinue
			12	Two Zone Fare - Reduce	Reduced fares for Two Zone trips.	4	2	3	Additional budget allocation or alternative funding streams may be needed.	No		Progress to long list.	Progress
			13	Two Zone Fare - Maintain	No change to the current fare price for Two Zone trips.	4	2	3	Additional budget allocation or alternative funding streams may be needed.	No		Progress to long list.	Progress
			14	Two Zone Fare - Increase	Slightly increased fares for the Outer Zone.	3	3	3	Customers may reject any fare increase.	No		Progress to long list.	Progress
			15	Two Zone Fare - Increase +	Significantly increased fares for the Outer Zone.	2	4	2	A significant increase in fares in the Outer Zone is likely to make public transport less attractive and less competitive.	Yes	Intervention does not support the investment objective.	Discontinued due to fatal flaw.	Discontinue
		Palmerston	16	Three Zone Fare - Free	Free Fares to Palmerston.	5. High	1. Low	2	Free fares to Palmerston will be very expensive and is likely to require a rates increase in addition to alternative funding streams.	Yes	Intervention not feasible due to low affordability.	Discontinued due to fatal flaw.	Discontinue
			17	Three Zone Fare - Reduce	Reduced price fares to Palmertson.	4	1. Low	2	Reduced fares to Palmerston will be very expensive and is likely to require a rates increase in addition to alternative funding streams.	Yes	Intervention not feasible due to low affordability.	Discontinued due to fatal flaw.	Discontinue
			18	Three Zone Fare - Maintain	No change to the current fares to Palmerston.	4	2	3	Additional budget allocation or alternative funding streams may be needed.	No		Progress to long list.	Progress
			19	Three Zone Fare - Increase	Slightly increased fares to Palmerston.	3	3	3	Customers may reject any fare increase.	No		Progress to long list.	Progress
			20	Three Zone Fare - Increase +	Significantly increased fares to Palmerston.	3	4	3	Customers may reject any fare increase.	No		Progress to long list.	Progress

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33		Per km fare		21	Per km fare - Reduce	Fares based on km travelled. Reduce the price/km compared to current average price/km.	2	2	2	Per km fares make it difficult to understand the cost of a potential journey. Some journeys will increase in price, some will reduce.	Yes	Intervention does not support the investment objective.	Discontinued due to fatal flaw.	Discontinue
34				22	Per km fare - Maintain	Fares based on km travelled. Use the current average price/km.	2	2	3	Per km fares make it difficult to understand the cost of a potential journey. Some journeys will increase in price, some will reduce.	Yes	Intervention does not support the investment objective.	Discontinued due to fatal flaw.	Discontinue
35				23	Per km fare - Increase	Fares based on km travelled. Increase the price/km compared to the current average price/km.	2	3	3	Per km fares make it difficult to understand the cost of a potential journey. Some journeys will increase in price, some will reduce.	Yes	Intervention does not support the investment objective.	Discontinued due to fatal flaw.	Discontinue
36		Off-Peak Discount (overlay)		24	Off-Peak Discount	Discounted fares for off-peak travel.	2	2	3	An off-peak discount increases complexity to the fare system and will reduce affordability unless coupled with an increase in base fares, which will make public transport less attractive.	Yes	Intervention does not support the investment objective.	Discontinued due to fatal flaw.	Discontinue
37		Free Travel for Targeted Groups		100	Free peak travel for SuperGold Card holders	Free peak travel for SuperGold Card holders.	2	4	3	SuperGold Card holders are less likely to be working or studying. This intervention may not sufficiently support the investment objective.	Yes	Intervention does not support the investment objective.	Discontinued due to fatal flaw.	Discontinue
38				101	Free travel for under 18s	Free travel for under 18s.	4	3	4	Free fares for under 18s may be costly due to the large user group it benefits.	No		Progress to long list.	Progress
39				102	Free travel for disabled people	Free travel for disabled people.	2	3	3	Access for disabled people is supported by the Total Mobility scheme. This intervention may be administratively burdensome without sufficiently supporting the investment objective.	Yes	Intervention does not support the investment objective.	Discontinued due to fatal flaw.	Discontinue
40		Fare Capping		103	Fare capping	Fares are limited to a daily, weekly, monthly or annual maximum charge.	4	2	4	Fare capping may be costly depending on the fare cap level chosen.	No		Progress to long list.	Progress
41	FREQUENCY	Service Class: Frequent	Weekday Peak	25	Frequent - Weekday Peak - 10min	10min headways for Frequent services in the weekday peak	5. High	1. Low	4	Turn up and go frequency is very attractive but expensive, and would likely require a rates increase in addition to alternative funding streams.	Yes	Intervention not feasible due to low affordability.	Discontinued due to fatal flaw.	Discontinue
42				26	Frequent - Weekday Peak - 15min	15min headways for Frequent services in the weekday peak	4	2	4		No		Progress to long list.	Progress
43				27	Frequent - Weekday Peak - 20min	20min service headways for the Frequent class in the weekday peak.	2	3	2	20min headways are difficult to remember, making it harder to plan potential journeys and predict services.	Yes	Intervention does not support the investment objective.	Discontinued due to fatal flaw.	Discontinue
44				28	Frequent - Weekday Peak - 30min	30min service headways for the Frequent class in the weekday peak.	1. Low	4	1. Low	30min headways in the peak for the Frequent service class are poor and unattractive.	Yes	Intervention does not support the investment objective. Intervention is not feasible due to low public acceptability.	Discontinued due to fatal flaw.	Discontinue
45				29	Frequent - Weekday Peak - 60min	60min service headways for the Frequent class in the weekday peak.	1. Low	4	1. Low	60min headways in the peak for the Frequent service class are very poor and unattractive.	Yes	Intervention does not support the investment objective. Intervention is not feasible due to low public acceptability.	Discontinued due to fatal flaw.	Discontinue
46			Weekday Interpeak	30	Frequent - Weekday Interpeak - 10min	10min service headways for the Frequent class in the weekday interpeak.	5. High	1. Low	3	Turn up and go frequency is very attractive but expensive, and would likely require a rates increase in addition to alternative funding streams.	Yes	Intervention not feasible due to low affordability.	Discontinued due to fatal flaw.	Discontinue
47				31	Frequent - Weekday Interpeak - 15min	15min service headways for the Frequent class in the weekday interpeak.	5. High	3	4		No		Progress to long list.	Progress
48				32	Frequent - Weekday Interpeak - 20min	20min service headways for the Frequent class in the weekday interpeak.	2	3	2	20min headways are difficult to remember, making it harder to plan potential journeys and predict services.	Yes	Intervention does not support the investment objective.	Discontinued due to fatal flaw.	Discontinue
49				33	Frequent - Weekday Interpeak - 30min	30min service headways for the Frequent class in the weekday interpeak.	2	4	2	30min headways in the interpeak for the Frequent service class are poor and unattractive.	Yes	Intervention does not support the investment objective.	Discontinued due to fatal flaw.	Discontinue
50				34	Frequent - Weekday Interpeak - 60min	60min service headways for the Frequent class in the weekday interpeak.	1. Low	4	1. Low	60min headways in the interpeak for the Frequent service class are very poor and unattractive.	Yes	Intervention does not support the investment objective.	Discontinued due to fatal flaw.	Discontinue
51			Weekday and Weekend Evenings	35	Frequent - Evenings - 10min	10min service headways for the Frequent class in the weekday and weekend evenings.	5. High	1. Low	3	Turn up and go frequency is very attractive but expensive, and would likely require a rates increase in addition to alternative funding streams.	Yes	Intervention not feasible due to low affordability.	Discontinued due to fatal flaw.	Discontinue
52				36	Frequent - Evenings - 15min	15min service headways for the Frequent class in the weekday and weekend evenings.	5. High	3	4		No		Progress to long list.	Progress
53				37	Frequent - Evenings - 20min	20min service headways for the Frequent class in the weekday and weekend evenings.	2	3	3	20min headways are difficult to remember, making it harder to plan potential journeys and predict services.	Yes	Intervention does not support the investment objective.	Discontinued due to fatal flaw.	Discontinue
54				38	Frequent - Evenings - 30min	30min service headways for the Frequent class in the weekday and weekend evenings.	3	4	3		No		Progress to long list.	Progress
55				39	Frequent - Evenings - 60min	60min service headways for the Frequent class in the weekday and weekend evenings.	1. Low	4	1. Low	60min headways in the evenings for the Frequent service class are poor and unattractive.	Yes	Intervention does not support the investment objective. Intervention is not feasible due to low public acceptability.	Discontinued due to fatal flaw.	Discontinue
56				40	Frequent - Weekend - 10min	10min service headways for the Frequent class in the weekends.	5. High	1. Low	3	Turn up and go frequency is very attractive but expensive, and would likely require a rates increase in addition to alternative funding streams.	Yes	Intervention not feasible due to low affordability.	Discontinued due to fatal flaw.	Discontinue
57				41	Frequent - Weekend - 15min	15min service headways for the Frequent class in the weekends.	5. High	3	4		No		Progress to long list.	Progress

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58			Weekend Day	42	Frequent - Weekend - 20min	20min service headways for the Frequent class in the weekends.	2	3	3	20min headways are difficult to remember, making it harder to plan potential journeys and predict services.	Yes	Intervention does not support the investment objective.	Discontinued due to fatal flaw.	Discontinue
59				43	Frequent - Weekend - 30min	30min service headways for the Frequent class in the weekends.	2	4	3	30min headways on the weekends for the Frequent service class are unattractive.	Yes	Intervention does not support the investment objective.	Discontinued due to fatal flaw.	Discontinue
60				44	Frequent - Weekend - 60min	60min service headways for the Frequent class in the weekends.	1. Low	4	1. Low	60min headways on the weekends for the Frequent service class are poor and unattractive.	Yes	Intervention does not support the investment objective.	Discontinued due to fatal flaw.	Discontinue
61		Service Class: Regular	Weekday Peak	45	Regular - Weekday Peak - 10min	10min service headways for the Regular class in the weekday peak.	5. High	1. Low	3	Turn up and go frequency is very attractive but expensive, and would likely require a rates increase in addition to alternative funding streams.	Yes	Intervention not feasible due to low affordability.	Discontinued due to fatal flaw.	Discontinue
62				46	Regular - Weekday Peak - 15min	15min service headways for the Regular class in the weekday peak.	5. High	2	4		No		Progress to long list.	Progress
63				47	Regular - Weekday Peak - 20min	20min service headways for the Regular class in the weekday peak.	2	3	3	20min headways are difficult to remember, making it harder to plan potential journeys and predict services.	Yes	Intervention does not support the investment objective.	Discontinued due to fatal flaw.	Discontinue
64				48	Regular - Weekday Peak - 30min	30min service headways for the Regular class in the weekday peak.	3	4	3		No		Progress to long list.	Progress
65				49	Regular - Weekday Peak - 60min	60min service headways for the Regular class in the weekday peak.	1. Low	5. High	1. Low	60min headways in the peak for the Regular service class are poor and unattractive.	Yes	Intervention does not support the investment objective.	Discontinued due to fatal flaw.	Discontinue
66			Weekday Interpeak	50	Regular - Weekday Interpeak - 10min	10min service headways for the Regular class in the weekday interpeak.	5. High	1. Low	2	Turn up and go frequency is very attractive but expensive, and would likely require a rates increase in addition to alternative funding streams.	Yes	Intervention not feasible due to low affordability.	Discontinued due to fatal flaw.	Discontinue
67				51	Regular - Weekday Interpeak - 15min	15min service headways for the Regular class in the weekday interpeak.	5. High	2	2		No		Progress to long list.	Progress
68				52	Regular - Weekday Interpeak - 20min	20min service headways for the Regular class in the weekday interpeak.	2	3	3	20min headways are difficult to remember, making it harder to plan potential journeys and predict services.	Yes	Intervention does not support the investment objective.	Discontinued due to fatal flaw.	Discontinue
69				53	Regular - Weekday Interpeak - 30min	30min service headways for the Regular class in the weekday interpeak.	3	4	4		No		Progress to long list.	Progress
70				54	Regular - Weekday Interpeak - 60min	60min service headways for the Regular class in the weekday interpeak.	1. Low	5. High	1. Low	60min headways in the interpeak for the Regular service class are poor and unattractive.	Yes	Intervention does not support the investment objective. Intervention is not feasible due to low public acceptability.	Discontinued due to fatal flaw.	Discontinue
71			Weekday and Weekend Evenings	55	Regular - Evenings - 10min	10min service headways for the Regular class in the weekday and weekend evenings.	5. High	1. Low	2	Turn up and go frequency is very attractive but expensive, and would likely require a rates increase in addition to alternative funding streams.	Yes	Intervention not feasible due to low affordability.	Discontinued due to fatal flaw.	Discontinue
72				56	Regular - Evenings - 15min	15min service headways for the Regular class in the weekday and weekend evenings.	5. High	2	2		No		Progress to long list.	Progress
73				57	Regular - Evenings - 20min	20min service headways for the Regular class in the weekday and weekend evenings.	2	3	3	20min headways are difficult to remember, making it harder to plan potential journeys and predict services.	Yes	Intervention does not support the investment objective.	Discontinued due to fatal flaw.	Discontinue
74				58	Regular - Evenings - 30min	30min service headways for the Regular class in the weekday and weekend evenings.	3	4	4		No		Progress to long list.	Progress
75				59	Regular - Evenings - 60min	60min service headways for the Regular class in the the weekday and weekend evenings.	1. Low	5. High	1. Low	60min headways in the evenings for the Regular service class are poor and unattractive.	Yes	Intervention does not support the investment objective. Intervention is not feasible due to low public acceptability.	Discontinued due to fatal flaw.	Discontinue
76			Weekend	60	Regular - Weekend - 10min	10min service headways for the Regular class in the weekends.	5. High	1. Low	2	Turn up and go frequency is very attractive but expensive, and would likely require a rates increase in addition to alternative funding streams.	Yes	Intervention not feasible due to low affordability.	Discontinued due to fatal flaw.	Discontinue
77				61	Regular - Weekend - 15min	15min service headways for the Regular class in the weekends.	5. High	2	2		No		Progress to long list.	Progress
78				62	Regular - Weekend - 20min	20min service headways for the Regular class in the weekends.	2	3	3	20min headways are difficult to remember, making it harder to plan potential journeys and predict services.	Yes	Intervention does not support the investment objective.	Discontinued due to fatal flaw.	Discontinue
79				63	Regular - Weekend - 30min	30min service headways for the Regular class in the weekends.	3	4	4		No		Progress to long list.	Progress
80				64	Regular - Weekend - 60min	60min service headways for the Regular class in the weekends.	1. Low	5. High	1. Low	60min headways in the weekends for the Regular service class are poor and unattractive.	Yes	Intervention does not support the investment objective.	Discontinued due to fatal flaw.	Discontinue
81		Service Class: Access	Weekday Peak	65	Access - Weekday Peak - 60min	60min service headways for the Access class in the weekday peak.	4	3	3		No		Progress to long list.	Progress
82				66	Access - Weekday Peak - 120min	120min service headways for the Access class in the weekday peak.	3	3	3		No		Progress to long list.	Progress
83			Weekday Interpeak	67	Access - Weekday Interpeak - 60min	60min service headways for the Access class in the weekday interpeak.	4	3	3		No		Progress to long list.	Progress
84				68	Access - Weekday Interpeak - 120min	120min service headways for the Access class in the weekday interpeak.	3	3	3		No		Progress to long list.	Progress
85			Weekday and	69	Access - Evenings - 60min	60min service headways for the Access class in the weekday and weekend evenings.	4	3	3		No		Progress to long list.	Progress

	B	C	D	E	F	G	H	I	J	K	L	M	N	O
86			Weekend Evenings	70	Access - Evenings - 120min	120min service headways for the Access class in the weekday and weekend evenings.	3	3	3		No		Progress to long list.	Progress
87			Weekend	71	Access - Weekend - 60min	60min service headways for the Access class in the weekends.	4	3	3		No		Progress to long list.	Progress
88				72	Access - Weekend - 120min	120min service headways for the Access class in the weekends.	3	3	3		No		Progress to long list.	Progress
89	SERVICE SPAN	Service Class: Frequent	Weekday	73	Frequent - Weekday - 6am-11:30pm	6am-11:30pm weekday service span for the Frequent class.	5. High	4	4		No		Progress to long list.	Progress
90				74	Frequent - Weekday - 6am-11pm	6am-11pm weekday service span for the Frequent class.	4	4	3	6am-11pm weekday span for the Frequent class is not long enough to be attractive. It does not meet the needs of shift workers in the central city.	No		Discontinued for being very similar to Intervention 73.	Discontinue
91			Weekend	75	Frequent - Weekend - 6am-11:30pm	6am-11:30pm weekend service span for the Frequent class.	5. High	4	4		No		Progress to long list.	Progress
92				76	Frequent Weekend - 6am-11pm	6am-11pm weekend service span for the Frequent class.	4	4	3	6am-11pm weekend span for the Frequent class is not long enough to be attractive. It does not meet the needs of shift workers in the central city.	No		Discontinued for being very similar to Intervention 75.	Discontinue
93				77	Frequent - Weekend - 7am-11pm	7am-11pm weekend service span for the Frequent class.	2	4	3	7am-11pm weekend span for the Frequent class is not long enough to be attractive. It does not meet the needs of shift workers in the central city.	Yes	Intervention does not support the investment objective.	Discontinued due to fatal flaw.	Discontinue
94		Service Class: Regular	Weekday	78	Regular - Weekday - 6am-11:30pm	6am-11:30pm weekday service span for the Regular class.	5. High	3	3		No		Progress to long list.	Progress
95				79	Regular - Weekday - 6am-10pm	6am-10pm weekday service span for the Regular class.	2	4	4	6am-10pm weekday span for the Regular service class is not long enough to be attractive. It does not meet the needs of shift workers in the central city.	Yes	Intervention does not support the investment objective.	Discontinued due to fatal flaw.	Discontinue
96				80	Regular - Weekday - 7am-7pm	7am-7pm weekday service span for the Regular class.	2	5. High	2	7am-7pm weekday span for the Regular service class is not long enough to be attractive. It does not meet the needs of shift workers in the central city. Requires a change to the RPTP target hours of operation.	Yes	Intervention does not support the investment objective.	Discontinued due to fatal flaw.	Discontinue
97			Weekend	81	Regular - Weekend - 6am-11:30pm	6am-11:30pm weekend service span for the Regular class.	5. High	3	3		No		Progress to long list.	Progress
98				82	Regular - Weekend - 6am-10pm	6am-10pm weekend service span for the Regular class.	2	4	4	6am-10pm weekend span for the Regular service class is not long enough to be attractive. It does not meet the needs of shift workers in the central city.	Yes	Intervention does not support the investment objective.	Discontinued due to fatal flaw.	Discontinue
99				83	Regular - Weekend - 8am-8pm	8am-8pm weekend service span for the Regular class.	2	5. High	2	8am-8pm weekend span for the Regular service class is not long enough to be attractive. It does not meet the needs of hospital shift workers. Requires a change to the RPTP target hours of operation.	Yes	Intervention does not support the investment objective.	Discontinued due to fatal flaw.	Discontinue
100		Service Class: Access	Weekday	84	Access - Weekday - 7am-7pm	7am-7pm weekday service span for the Access class.	4	3	4		No		Progress to long list.	Progress
101				85	Access - Weekday - 7am-5pm	7am-5pm weekday service span for the Access class.	2	4	3	7am-5pm weekday span does not support the needs of workers.	Yes	Intervention does not support the investment objective.	Discontinued due to fatal flaw.	Discontinue
102			Weekend	86	Access - Weekend - 7am-7pm	7am-7pm weekend service span for the Access class.	4	3	4		No		Progress to long list.	Progress
103				87	Access - Weekend - 8am-6pm	8am-6pm weekend service span for the Access class.	2	4	3	8am-6pm weekend span does not support the needs of workers.	Yes	Intervention does not support the investment objective.	Discontinued due to fatal flaw.	Discontinue
104	EXPRESS BUSES (overlay)	Mosgiel	Weekday	104	Mosgiel Express - Extended Peak	Express services running every 30min in the weekday peak periods (7am-9am; 3pm-6pm) from Mosgiel to the central city.								Progress
105			All Day Every Day	88	Mosgiel Express - All Day Every Day	Express services running every 30min all day from Mosgiel to the central city.	4	2	2	The public may not support all day express services.	No		Discontinued due to low affordability and low public acceptability.	Discontinue
106		Port Chalmers	Weekday Peak	89	Port Chalmers Express - Weekday Peak Hour	Express services running every 30min in the weekday peak hours (7:30am-8:30am; 4:30pm-5:30pm) from Port Chalmers to the central city.	4	2	3		No		Progress to long list.	Progress
107				105	Port Chalmers Express - Extended Peak	Express services running every 30min in the weekday peak periods (7am-9am; 3pm-6pm) from Port Chalmers to the central city.								Progress
108			All Day Every Day	90	Port Chalmers Express - All Day Every Day	Express services running every 30min all day from Port Chalmers to the central city.	3	1. Low	2	All day express services are very expensive for marginal time savings and less access for bypassed suburbs.	Yes	Intervention not feasible due to low affordability.	Discontinued due to fatal flaw.	Discontinue
109			Weekday Peak	91	Portobello Express - Weekday Peak Hour	Express services running every 30min in the weekday peak hours (7:30am-8:30am; 4:30pm-5:30pm) from Portobello to the central city.	4	2	3		No		Progress to long list.	Progress

	B	C	D	E	F	G	H	I	J	K	L	M	N	O
110		Portobello		106	Portobello Express - Extended Peak	Express services running every 30min in the weekday peak periods (7am-9am; 3pm-6pm) from Portobello to the central city.								Progress
111			All Day Every Day	92	Portobello Express - All Day Every Day	Express services running every 30min all day from Portobello to the central city.	3	1. Low	2	All day express services are very expensive for marginal time savings and less access for bypassed suburbs.	Yes	Intervention not feasible due to low affordability.	Discontinued due to fatal flaw.	Discontinue
112		Brighton	Weekday Peak	93	Brighton Express - Weekday Peak Hour	Express services running every 30min in the weekday peak hours (7:30am-8:30am; 4:30pm-5:30pm) from Brighton to the central city.	4	2	3		No		Progress to long list.	Progress
113				107	Brighton Express - Extended Peak	Express services running every 30min in the weekday peak periods (7am-9am; 3pm-5pm) from Brighton to the central city.								Progress
114			All Day Every Day	94	Brighton Express - All Day Every Day	Express services running every 30min all day from Brighton to the central city.	3	1. Low	2	All day express services are very expensive for marginal time savings and less access for bypassed suburbs.	Yes	Intervention not feasible due to low affordability.	Discontinued due to fatal flaw.	Discontinue
115		Palmerston	Weekday Peak	95	Palmerston Express - Weekday Peak	Express services running every 30min in the weekday peak hours (7:30am-8:30am; 4:30pm-5:30pm) from Palmerston to the central city.	3	2	1. Low	No time saving without bypassing Karitane and Warrington.	Yes	Intervention not feasible due to low public acceptability.	Discontinued due to fatal flaw.	Discontinue
116			All Day Every Day	96	Palmerston Express - All Day Every Day	Express services running every 30min all day from Palmerston to the central city.	2	1. Low	1. Low	No time saving without bypassing Karitane and Warrington. All day express services are very expensive and reduce access for bypassed suburbs.	Yes	Intervention not feasible due to low affordability and low public acceptability.	Discontinued due to fatal flaw.	Discontinue
117		ROUTES		97	Route Improvements - City Centre	Improve legibility of bus routes through city centre	3	4	4		No		Progress to long list.	Progress
118				98	Route Improvements - Brighton, Green Island, Abbotsford	Improve services to Brighton, Green Island and Abbotsford	4	3	3		No		Progress to long list.	Progress
119				99	New Route - Airport	New airport service	4	2	4		No		Progress to long list.	Progress

Appendix F Levers Tool Technical Note

Stantec

Technical Note

Project:	Dunedin Fares and Frequency SSBC	**Project No:**	310205283
From:	Doug Weir	**Date:**	13 September 2023

Revision Schedule

Revision No.	Date	Description	Prepared by	Quality Reviewer	Independent Reviewer	Project Manager Final Approval
1	13/09/23	Final	Doug Weir	Susan Lilley	Sarah Connolly	Susan Lilley

RE: FFBC Levers Tool

Purpose

The purpose of this technical note is to describe the 'Levers Tool' used in the Dunedin Fares and Frequencies SSBC (FFBC) project, including the methodology for development and the outputs that were generated to inform business case optioneering.

Introduction

The FFBC project required the assessment of a large number of different fare and service level packages for the Dunedin public transport (PT) network. Stantec developed the project-specific spreadsheet-based Levers Tool to assist with this assessment. The Levers Tool enabled potential patronage, mode share, fare revenue, and the gross cost impact of each option to quickly be determined.

The FFBC Levers Tool utilises a similar assessment methodology to that used by similar assessment tools developed by Stantec for the Auckland Public Transport Improvements Single Stage Business Case and the Nelson-Tasman PT Review in the last three years, both of which had a bus network focus and were peer reviewed for those projects.

Use of the tool was complemented by the Dunedin CUBE Transport Model at the medium and short list stages of the FFBC project, which provided comparable mode share results, as described in the business case.

Methodology

The Levers Tool uses standard public transport fare and service demand elasticities to test the performance of different combinations of fares and service level improvements, as well as to test the impact of staging changes. It consists of the following primary elements:

1. A **Summary input/output sheet** that allows the Do Minimum, fare and service level package, degree of staging (type of roll-out), base patronage, and lower and upper bound short run fare and service level demand elasticity inputs to be varied. The default lower and upper bound fare and service level demand elasticity values tested are based on the short run values provided in Table 81 of Waka Kotahi's Monetised Benefits and Costs Manual (MBCM). Ranges of -0.3 to -0.6 for fares and +0.3 to +0.6 for service levels have been utilised, which are consistent with New Zealand and international evidence and are applicable to Dunedin. The input/output sheet also presents fare, service, and combined total lower, mid, and upper range outputs, as well as percentage uplift off the base, for the 2029-30, 2034-35, and 2038-39 financial years.

   The mid-range output and uplift values have been used in the business case.

2. An **Allocation sheet**, which draws from and feeds the Summary sheet. It also separately calculates the fare impact and service level impact of improvements, utilising changes in the weighted average fare and service levels (see below), the low and high demand elasticity values, and the base patronage value. Patronage year ramps up over an 11-year period from the point at which a phase of a package has been implemented in accordance with guidance in Section 4.4 of the MBCM, moving from 60% of the short run impact in the first year, 80% in the second year, and 120% in the third year, before increasing at 10% increments over subsequent years to the full long run impact of double the short run impact. Ramp-up over seven years was also tested for economic sensitivity testing. The long run impact has been applied to both service levels and fares, given the transformational nature of the improvements as a package. This approach to ramp-up is consistent with the approach used in the peer reviewed projects named above.

3. An **Average Fare sheet**, which calculates a weighted average fare for each fare sub-package, including the Do-Minimum, and feeds the Allocation sheet. The weighted average fares apply a weighting by fare product and zone. This is drawn from Bee Card data and utilises the five-zone base in the ticketing system, to different combinations of fares that include differing fare zones and levels (including for different groups), as well as alternative approaches like fare capping. It assumes that the primary product types remain available (i.e. adult cash, Bee Card etc.). The weighted average fare sub-packages can be combined with any service level sub-package.

4. A **Bus Km sheet**, which calculates a service kilometre (km) value for each service level sub-package, including the Do-Minimum, and also feeds the Allocation sheet. Annual bus km are calculated for each route using the number of trips for that route in each sub-package and the route distance provided, with the total varying by package. This sheet includes the PT Unit that each route is allocated to. This enables staging for individual units to be tested in the Allocation sheet, and route classification (Frequent etc.), which allows a route's service classification to be changed. The service level sub-packages can be combined with any weighted average fare sub-package.

Outputs

For optioneering at all phases set out in the FFBC Economic Case, the primary Levers Tool outputs were the uplift values. These were applied directly as an uplift to the current journey to work mode share to get a sense of the degree to which a package of fare and service improvements would be likely to achieve the 8% mode shift goal, at the 2030 target year and also at later years. This allowed decision makers to consider options that might directly achieve the target value at the target year, as well as those that might achieve it at a later year and lower cost.

The patronage outputs from the tool and weighted average fares and service km elements were also used to separately assess the fare revenue and gross operating cost for each package, as outlined in the Cost Assessment appendix.

Appendix G Cost Assessment

Stantec

Technical Note

Project:	Dunedin Fares and Frequency SSBC	**Project No:**	310205283
From:	Doug Weir	**Date:**	9 October 2023

Revision Schedule

Revision No.	Date	Description	Prepared by	Quality Reviewer	Independent Reviewer	Project Manager Final Approval
1	09/10/23	Final	Doug Weir	Susan Lilley	Sarah Connolly	Susan Lilley

RE: FFBC Cost Assessment

Purpose

The purpose of this technical note is to describe the cost assessment approach used in the Dunedin Fares and Frequencies SSBC (FFBC) project.

Introduction

The FFBC project required costs to be assessed for a large number of different fare and service level packages, both at the option assessment stage and then for the economic and financial assessments of the preferred option. Operational costs were assessed for the Do Minimum and each package. Operational cost components included fare revenue, revenue from fare substitutes, gross operating cost, and from these, the net operating cost. Infrastructure costs were assessed for the preferred option only, and related to minor capacity enhancements although they are a minor component of the overall investment requirement.

Operational Costs

The Levers Tool (see separate appendix) was used to provide a number of key elements for the assessment of operational costs. Levers Tool patronage and weighted average fare outputs for each package were combined to determine the revenue impact of the respective packages. Levers Tool service kilometre outputs for each package were combined with unit costs derived from Otago Regional Council (ORC) contract cost data to determine the gross operating cost of the respective packages.

Gross operating cost unit costs changed during the business case process, reflecting changes to ORC's operating cost projections. At the optioneering stage, a gross cost per service kilometre based on 2022-23 gross cost estimates for the 2023-24 financial year was used, while a gross cost per service kilometre based on 2023-24 reset costs was used for the preferred option. The 2023-24 reset gross cost unit rate of $5.34 per kilometre (per annum) is significantly higher than earlier unit rate of $4.31 per kilometre (a 24% increase), reflecting the impact of inflation and driver wage uplifts, and this change resulted in a higher gross operating cost for the preferred option than had been assessed at the optioneering stage. The higher rate was not assessed for the discounted options but would have had a similar cost uplift.

Operational costs were built up in accordance with Waka Kotahi's Cost Estimation Manual. The Base Estimate for each option used projected gross operating costs, developed as described above, and a low revenue estimate developed from the low patronage output from the Levers Tool. The 50th Percentile (P50) Expected Estimate for each option assumed mid-level patronage from the Levers Tool output range, and a corresponding medium revenue estimate, along with the projected gross operating costs as described above. It was deemed appropriate to use the same gross operating costs for both estimates, as there is a high degree of certainty around bus contract costs, recent price inflation and driver wage

uplifts are built into the revised unit costs, future inflation is indexed by Waka Kotahi, and the transition to zero emission fleets is not materially changing contract costs as fleet transition takes place across the country. The 95th Percentile (P95) Estimate allows for a 25% uplift in P50 gross operating costs, while holding patronage and associated revenue at the Levers Tool mid-point. P50 operational costs were used for option assessment and for the economic and financial assessments of the preferred option. P95 costs were only developed for the preferred option.

A single year assessment approach was used for operational cost estimation purposes during the optioneering stages, and a longer time series approach used for the detailed costing of the preferred option. This allowed costs to be easily assessed for a wide range of options, while providing accurate economic inputs and financial outputs for the preferred option. For the former approach, all service changes were assumed to be fully implemented to ensure that full annual operating costs were reflected, while revenue reflected the degree of annual revenue generated at that point of time, taking account of patronage ramp up effects. For the preferred option, annual operating costs stepped up as service improvements rolled out over time, reflecting the proposed staged implementation, and revenue ramped up in accordance with the degree of service being provided at each step.

In line with Waka Kotahi guidance, preferred option gross operating costs included escalation (at a rate of 2% per annum) for the Financial Case but excluded it for the Economic Case. Preferred option per passenger fare revenue was assumed to not increase with inflation (i.e. to gradually reduce over time in real terms). Fare substitute revenue (e.g. from the SuperGold and Community Connect funding schemes) were assumed to be capped at current levels[1].

It was originally intended that ORC's Remix public transport planning software would be used to provide detailed assessments of vehicle kilometre, vehicle hour, and peak vehicle requirements for the preferred option, and in turn enable calculation of detailed cost estimates using appropriate standard unit rates. Unfortunately, ORC's Remix network was out of date and there was insufficient resource to update it within the available timeframe. P50 and P95 costs were consequently based on the $5.34 per kilometre unit rate, which essentially incorporates all of these costs components. Tests confirmed vehicle hours and peak vehicle requirements would increase at a broadly similar rate to vehicle kilometres, indicating that the per kilometre unit rate-based costing approach was appropriate. However, it is recommended that the Remix tool be updated and used to confirm costs at the pre-implementation stage, in association with detailed timetable development. There will be an opportunity to match final service levels to available budget when detailed timetabling is undertaken (particularly early morning and late evening frequencies).

Infrastructure Costs

Minimal infrastructure is required to implement the proposed preferred option service changes. Testing showed that it would be desirable to provide a minimum of two additional bus bays in the vicinity of the Great King Street bus hub to ensure that the interchange remains fluid at peak times, and that it may be appropriate to provide an additional pair to better manage reliability. Costs for four additional bays were therefore included in the preferred option cost estimates. A $300,000 per stop Base Estimate unit cost was allowed for, which includes professional services and construction, based on recent Superstop construction in Dunedin.

It is unclear whether any additional infrastructure will be required to support additional frequencies, and further work will be needed to confirm the on-the-ground impact when detailed timetables are developed. However, a $400,000 Base Estimate allowance was made to allow for the cost of extending bus stops in the central city outside of the bus hub to allow for higher bus volumes (i.e. for changes to parking restrictions and line markings) and for minor changes to suburban termini to cater for additional layovers if these are required (likely also just bus stop extensions).

The P50 Estimate assumes a 25% contingency on the $1,600,000 Base Estimate. The P95 cost estimate allows for a 25% funding risk contingency uplift on P50 costs. All infrastructure is assumed to be implemented in the 2024-25 financial year, ahead of the service level improvements.

[1] Note that Community Connect funding had not been confirmed when this business case was completed. Fare substitute costs are consequently an estimate only and subject to change (up or down). For the business case, they are assumed to be capped at current levels on an ongoing basis, and to not increase with either the projected increase in patronage or reduce with the fare reductions proposed under the preferred option. Waka Kotahi have advised that changes to fare levels could change the level fare substitute funding.

Appendix H Multi-Criteria Analysis Justification

Assessment Criteria	Scoring Justification
Service Levels	All packages had the same service span, but different frequencies. Packages 1, 2, 8 and 10 scored highest because they provided higher frequencies. The other packages also scored well as they provided an improvement over Do Minimum frequency.
Fares	Packages were scored according to the weighted average fare. Packages 8, 9 and 15 scored highest because they provided the lowest (free) fares. Packages 2, 12 and 13 scored poorest because they provided the highest fare average weighted fare. Other packages scored in between depending on the average weighted fare.
Legibility	Packages were scored according to how easy they would be to understand – for example complex fare or frequency structures would result in a lower score for legibility. Packages 1, 2, 8, 9 and 10 scored highest because they had more consistent frequencies (across time of day and day of week) and consistent fares. The Do Minimum scored poorest because service spans and frequencies are not consistent across service types, time of day or day of week. Package 13 also scored poorly because of the variation in frequencies across time of day and day of week, and complicated fare structure.
Supports Growth Areas	Packages which provide improved service levels to growth areas within the wider Mosgiel urban area were given higher scores. Packages 1, 2, 8 and 9 scored highest because they improve frequencies for targeted services to growing residential areas and fares are not zonal, so access from the wider Mosgiel urban area remains affordable.
Climate Change Mitigation	Packages were given a higher score for climate change mitigation if they were expected to deliver a greater increase in patronage and most mode shift from single occupant car trips. Packages 1, 8, 9 and 10 scored highest because they result in the highest patronage.
Net Operating Cost	Packages 1, 2, 8 and 10 scored poorest (-3) because they provide the highest frequencies and service kms, resulting in net operating costs around three times higher than the Do Minimum. All other packages scored -2 as they all offer significant service level improvements over the Do Minimum, resulting in much higher costs. However net operating costs are around double the Do Minimum, rather than three times higher.
Public Acceptability	Most of the packages scored well because of the greatly improved service levels. Package 2 scored poorly because the flat fare of $2.50 is higher than the current flat fare of $2. ORC faced significant opposition to the $2 flat fare as people travelling within zone one had to pay more. Increasing the fares again is therefore expected to create opposition. Packages 12 and 13 scored poorly because of their complicated zonal fare structure and because they have a higher average weighted fare than the other packages.
Achievability	Packages 1, 2, 8 and 10 scored poorest because they provide the highest frequencies and service kms, resulting in the most bus drivers required, which will present a challenge for delivering the improved services. All packages scored negatively because of the significant increase in service levels and resulting bus driver requirement, which will be one of the main challenges in delivery.
Value for Money	Packages 3, 4, 5, 6, 7, 9 and 15 scored highest because the ratio of increased mode share to net cost is poor indicating poor value for money – less mode share is achieved even with a higher investment.

Appendix I Connecting Dunedin Report

Dunedin Public Transport

Fares and Frequencies

Single Stage Business Case

Update for Connecting Dunedin, 1 May 2023

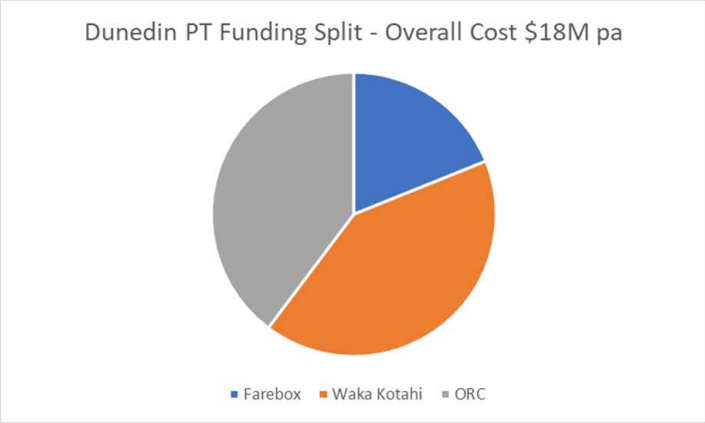
Contents:

1

1. Fares and Frequencies Business Case Overview

Scope:

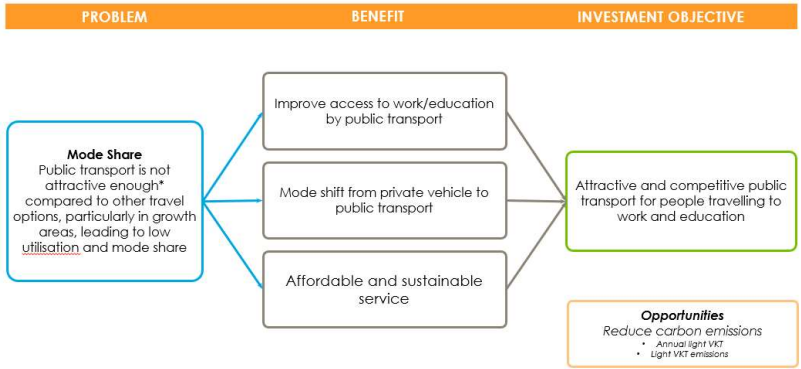
- Identify the best, most cost effective, mix of fare and frequency changes to achieve target of 8% people taking public transport for the journey to work in 2030
- Improvements to public transport in Dunedin will require investment to achieve patronage growth. Explore different funding streams to identify funding options which could supplement the current approach.



Outcome Statement and Investment Logic Map:

- Agreed at stakeholder workshop (17 October 2022)

Outcome Statement: Increase bus patronage particularly for journeys to work/education by delivering an affordable bus service that incentivises use



* There are multiple barriers for people who might want to use the bus more often - inadequate service span, long journey times, unreliability, fares, lack of legibility, inadequate infrastructure and some lack of frequency

Summary of Evidence

Element	Sub-Element	Summary
Public transport is not attractive enough	Frequency	Customers want higher frequencies (main driver for 53% when asked about taking the bus) 40% of routes not meeting the target frequency in the Regional Public Transport Plan
	Reliability and Legibility	High rate of bus 'no show' (up to 12%) - reduced customer confidence Routes have different frequencies depending on time of day / day of week - confusing One-way routes in the city centre and suburbs - confusing
	Service Span	Service span (first bus/last bus) varies by route and by day Services do not arrive in the city early enough or leave late enough (shift workers)
	Journey Times	Bus journeys take 2-3 times longer than driving - discourages use
	Comfort	Bus stops of inconsistent quality (missing shelters, seating, network maps, lighting)
	Fares	Although low, will still be a barrier for some. Lack of discount fare products targeting certain groups or rewarding high use customers
Low utilisation	Patronage	$2 flat fare increased patronage - led to $98k/month reduction in fare revenue
Low mode share	Public transport mode share	Dunedin PT mode share lower than national average (3.8% vs 4% for JTW, 5% vs 7% for JTE) Survey showed 75% of people would consider taking the bus more

2. Business Case Background and Drivers

Shaping Future Dunedin Transport Programme Business Case

The Connecting Dunedin partners committed to establish the best long-term transport and urban mobility system for Dunedin to:

- Enable integration of the new hospital with the city.
- Stimulate economic growth and regeneration.
- Provide for safe and accessible people friendly streets.
- Improve city liveability.

Public transport target:

- Increase in people using public transport for the journey to work from 3.4% (2018) to 8% (2030) through delivery of suite of PT, Park & Ride and parking changes.

Climate Change (Zero Carbon) Amendment Act

- commitment to zero carbon by 2050

First Emissions Reduction Plan

- Reduce reliance on cars and support people to walk, cycle and use public transport
- Reduce kilometres travelled by light vehicles (VKT) by 20% by 2035

DCC goal – net zero carbon by 2030

Emerging Government Policy Statement for Transport for 2024-27

- Overarching focus on reducing emissions

3. Community Engagement Results

Community Feedback Survey

- 10-24 November 2022
- Hosted on ORC's 'Your Say' website
- Widely promoted through Zero Carbon Alliance partners
- Asked for feedback on service spans, frequencies and fare structure, and what would encourage them and their family to use the bus more
- 1,792 responses received, 93% were aged below 65 years
- See Summary Engagement Report for detail and key findings

Key Findings:

- 75% of respondents said they would consider catching the bus or catching it more often to work/education
- Top 3 options that would encourage this: more frequent timetable, improved reliability, longer service spans

Willingness to Pay

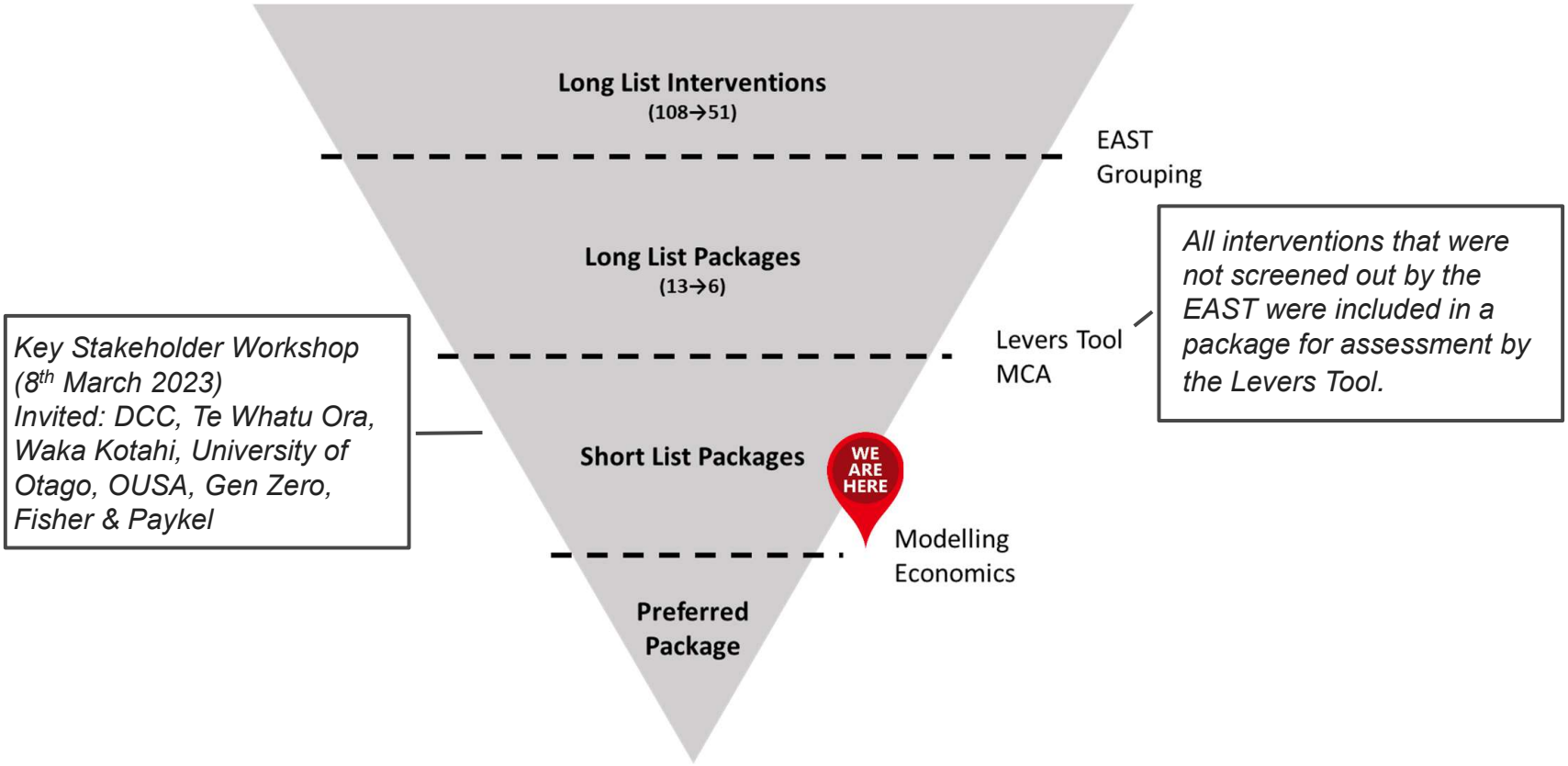
People more willing to pay extra on top of current fare for:

- More frequent timetable (24% would pay 50 cents, 22% would pay $1)
- Improved reliability (18% would pay 50 cents, 18% would pay $1)
- Longer service spans (15% would pay 50 cents, 16% would pay $1)

More than 50% of the respondents would **not** be willing to pay extra on top of the current fare for:

- Faster travel time (52%)
- Nicer buses (53%)
- Nicer bus stops (59%)
- Better information (60%)
- Better transfers (58%)

4. Package Options



Key considerations (combined to create multiple packages)

- Tested at stakeholder workshop – indicated strong preference for free travel, identified 8 extra packages

A. Fares

- System: flat fare, two-zone, three-zone, four-zone (free city zone), per km
- Level: lower, same or higher fares compared to current
- Overlays: off-peak discount, free travel for targeted groups, fare capping

B. Frequency / headways

- The number of services per hour / time between services
- Set by route or service class
- Ideally consistent across time of day and day of week

C. Span

- Time of the first service into the city and last service departing the bus hub at the end of the day
- Set by route or service class
- Ideally consistent across the week (weekday / weekend)

D. Express buses

- Additional services that only call at key stops (e.g., park and ride, superstops) to reduce journey times
- Not suitable for all routes
- Usually only used in peak demand periods

Reviewed service categories:

- Currently 4 categories: Rapid (2), Frequent (4), Regular (16), Targeted (1)
- Simplify to: Frequent (6), Regular (14), Access (3)

Long List Results – Levers Tool + Multi-Criteria Analysis used to exclude some

Long List Option						Investment Objective			Opportunities and Impacts		Implementability			
						50%			20%		30%			
Package	Description	Indicative Mode share 2030 (%)	Additional mode share (%)	Additional net cost (m) (extra funding that would be needed)	ratio of mode share/net cost diff	Service Level	Fares	Legibility	Supports growth areas	Climate change mitigation	Net Operating Cost ($m)	Public Acceptability	Achievability	Value for money (reflects column F)
Do Minimum	$2 flat fare, existing cash fare and concessions Existing freq and service spans Mosgiel Express 15m peak bus for #77	3.4%	0.0%	0.0%	0	0	0	-2	0	0	0	0	0	0
Package 1	15 min all day and 60m for access 2 zones - $1.50 and $2	8.6%	5.2	$35.8	0.145	3	1	3	3	3	-3	2	-2	1
Package 2	15 min all day and 60m for access $2.50 flat fare	7.5%	5.2	$34.7	0.150	3	-1	3	3	2	-3	-1	-2	1
Package 3	15 min / 30 min (15 peak) / 60 min $1 flat fare, free under 18s	7.3%	4.9	$21.6	0.227	2	2	2	2	2	-2	3	-1	3
Package 4	15 min / 30 min (15 peak) / 60 min free / $1 / $1.50 /$2	7.1%	4.7	$21.4	0.220	2	2	0	2	2	-2	3	-1	3
Package 5 (excl as too sim to P3)	15 min / 30 min (15 peak) / 60 min $1 flat fare	7.1%	4.7	$21.3	0.221	2	2	2	2	2	-2	3	-1	3
Package 6	15 min / 30 min (15 peak) / 60 min $1.50 / $2	6.5%	4.1	$20.9	0.196	2	1	1	2	2	-2	3	-1	2
Package 7	15 min / 30 min (15 peak) / 60 min $2 flat fare, fare cap 6 trips per week	6.3%	3.9	$20.7	0.188	2	1	2	2	2	-2	2	-1	2
Package 8	15 min all day and 60m for access Free fares	10.3%	6.9	$39.8	0.173	3	3	3	3	3	-3	3	-2	2
Package 9	15 min / 30 min (15 peak) / 60 min Free fares	8.2%	4.8	$23.2	0.207	2	3	3	3	3	-2	3	-1	3
Package 10	15 min all day and 60m for access $2 flat fare with fare cap	8.4%	5.0	$35.5	0.141	3	1	3	2	3	-3	3	-2	1
Package 11	15 min / 30 min (15 peak) / 60 min free (city+zone1) / $1.50 /$2	7.3%	3.9	$21.6	0.181	2	2	0	1	2	-2	3	-1	2
Package 12	15 min / 30 min (15 peak) / 60 min $2 (city+zone 1)/ $4 / $10	5.7%	2.3	$20.7	0.111	2	-1	0	0	1	-2	-1	-1	0
Package 13	15 min but with 30 m eve and we / 30 min (15 peak) / 120 min $2 / $4 / $10 (city+zone 1)	5.3%	1.9	$18.1	0.105	2	-1	-1	0	1	-2	-1	-1	0
Package 14	15 min but with 30 m eve and we / 30 min (15 peak) / 120 min $1 fare	6.7%	3.3	$18.5	0.178	2	2	1	1	2	-2	3	-1	2
Package 15	15 min but with 30 m eve and we / 30 min (15 peak) / 120 min free fare	7.8%	4.4	$20.2	0.218	2	3	1	2	2	-2	3	-1	3

Confirmed Medium List – for Modelling

Medium List Package Options				
Package	**Description** **Frequency**: Frequent (6) / Regular (14) / Access (3), presented in that order **Fares** Zones: inner / outer / further out, in that order	**Indicative Mode Share (all trips) in 2030 (%)**	**Additional net cost pa (m) (extra funding that would be needed)**	**Value for Money (ratio of mode share change/net cost change)**
Do Minimum	Existing frequency and service spans $2 flat fare, existing cash fare and concessions Mosgiel Express, 15m peak bus for #77	3.4%	0	0
Package 3	15 min / 30 min (15 peak) / 60 min $1 flat fare, free under 18s	7.3%	$21.6	0.227
Package 4	15 min / 30 min (15 peak) / 60 min free / $1 / $1.50 /$2	7.1%	$21.4	0.220
Package 8	15 min all day and 60m for access Free fares	10.3%	$39.8	0.173
Package 9	15 min / 30 min (15 peak) / 60 min Free fares	8.2%	$23.2	0.207
Package 10	15 min all day and 60m for access $2 flat fare with fare cap	8.4%	$35.5	0.141
Package 13	15 min but with 30 m eve and we / 30 min (15 peak) / 120 min $2 / $4 / $10 (city+zone 1)	5.3%	$18.1	0.105
Package 15	15 min but with 30 m eve and we / 30 min (15 peak) / 120 min free fare	7.8%	$20.2	0.218

5. Funding Options – which are right for this FFBC?

- Current net operating cost is $14-15m pa. As an example, package 3 (mid price) costs an estimated **additional** $22m.

Who Pays?	Mechanism
Car drivers	Parking charges
	Congestion pricing
	Regional fuel tax
Ratepayers (DCC)	General contribution
Ratepayers (ORC)	Redesign existing targeted rate
Visitors	Cruise ship charge
	Accommodation taxes
	Disposable Bee Cards for tourists
Venue customers	Events charge
Customers	Farebox recovery
	Increase cash fare

Key:

Short List (high priority - most impact)
Short List (next priority - lower impact)

Process:

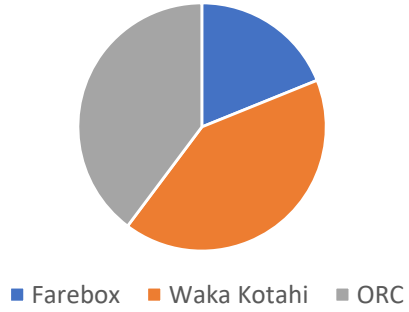
- Interviewed ZCA partners
- Developed long list, input from stakeholders, advantages and disadvantages, scope
- Identified short list of those which can have most impact, least risk (highlighted)

Who Pays?	Mechanism
Tertiary institutions / students, Te Whatu Ora, Other Major Employers	Discounted or free travel for tertiary staff/students, hospital visitors/staff, employees Other financial contribution
Advertisers or JC Decaux, Adshel	Bus shelter advertising
	In bus advertising
Developers	Development contributions
	Transport Fund
Businesses	Targeted rate on commercial and retail properties in the central city

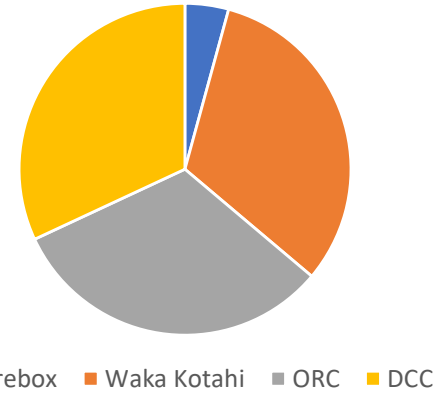
Example Funding Splits

- Using Package 3 as an example
- Many different cost share options are possible
- Potential for other third parties to also contribute
- Detailed cost estimate will be completed for the Preferred Option when this is confirmed

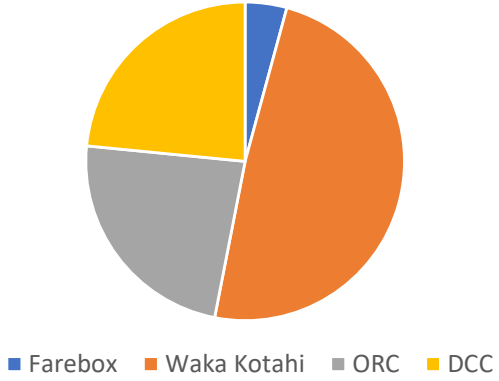
Current - Gross Operating Cost $18M pa



Package 3 - DCC/ORC/NZTA Equal Share – Indicative Gross Operating Cost $38M pa



Package 3 - NZTA 51%, DCC/ORC 49% (half each) – Indicative Gross Operating Cost $38M pa



Potential Funding Options

Package 3 example: increase in net operating cost is circa $22M pa

- This additional funding could be made up from NLTP, ORC redesign of targeted rate to increase and apply more broadly across the region or to all Dunedin households
- Plus contribution from DCC and other third parties. Table provides example of generating revenue through increasing parking charges, although other mechanisms are available eg rates.

Parking Asset	Spaces (DCC Parking RoadMap 2020)	Additional charge	Weeks pa	Revenue estimate
DCC leased spaces	603	$10/week	52	$0.3M
DCC on street spaces less than 4hr	1143	$1 per hour Assume 3 visits per day, 6 days a week NB this is quite low occupancy	50	$1.0M
DCC on street spaces 4hr-all day	1055	$5 per day 6 days a week	50	$1.6M
DCC off street spaces	1044	$1 per hour Assume 3 visits per day, 6 days a week	50	$0.9M
University leased spaces	2000 *estimate	$10/week	52	$1.0M
TOTAL				**$4.8M**

6. Indicative Next Steps

Finish Business Case (now – June 2023)

- Finish modelling of medium list to confirm best options for mode shift, patronage, VKT reductions, travel times (7 options)
- Use modelling outputs and Levers Tool to confirm short list of 3 options for economic assessment - by 5 May
- Confirm preferred option - 26 May
- Finalise business case – June 2023

- **Funding Conversations: now – August 2023**
  - Establish pathway now to formally agree with DCC a contribution for PT (noting it could be zero) eg through Connecting Dunedin, mode shift Committee, or other
  - Ensure other PT projects from SFDT are working towards same goal e.g. parking management, Princes Street bus priority.
  - NZTA Board to consider business case
  - Commence conversations with major employers and develop pilot scheme
- **ORC (and DCC?) Process:**
  - Consider ahead of LTP budget meetings
  - ORC (and DCC?) consult through LTP – March/April 2024
  - Funding confirmed in LTP(s) and NLTP – July 2024
- **Procurement Process –** from July 2023
- **ORC - Implementation –** from July 2024

Appendix J CUBE Model Outputs

Package	Total Patronage (All Routes)		Light VKT		PT Mode Share		PT Mode Share (Home to Work)		Change in Mode Share, Light Vehicles and Active Modes		Network Delay (vehicles-hours)		CO2-e, tonnes		PM2.5 E, grams	
	2028	2038	2028	2038	2028	3038	2028	2038	2023	2038	2028	2038	2028	2038	2028	2038
Do Minimum	12,965	13,282	2,929,912	3,156,256	1.9%	1.9%	4.0%	3.9%			89,965	97,804	172	155	10505	3643
Package 3	27,843	28,472	2,879,995	3,104,713	4.0%	4.0%	7.0%	7.0%	-2.1%	-2.1%	88,186	95,971	173	156	10903	3785
Package 4	31,106	31,816	2,879,552	3,103,531	4.5%	4.5%	7.2%	7.2%	-2.6%	-2.6%	87,999	95,766	173	156	10905	3785
Package 5	27,843	28,472	2,879,995	3,104,713	4.0%	4.0%	7.0%	7.0%	-2.1%	-2.1%	88,186	95,971	173	156	10903	3785
Package 8	51,217	52,446	2,796,095	3,020,079	7.2%	7.2%	10.4%	10.3%	-5.3%	-5.3%	85,397	93,092	172	155	11125	3866
Package 9	46,431	47,555	2,816,325	3,040,279	6.6%	6.7%	9.9%	9.9%	-4.8%	-4.8%	86,007	93,702	170	154	10794	3747
Package 10	21,520	21,970	2,899,580	3,124,502	3.1%	3.1%	5.9%	5.8%	-1.2%	-1.2%	88,926	96,739	177	159	11305	3929
Package 13	15,150	15,499	2,927,767	3,153,758	2.2%	2.2%	4.6%	4.6%	-0.3%	-0.3%	89,793	97,647	175	158	10945	3799
Package 15	46,026	47,072	2,818,022	3,040,459	6.6%	6.6%	9.8%	9.8%	-4.7%	-4.7%	86,017	93,713	170	153	10752	3730

Appendix K Short List Economic Assessment

Stantec

Technical Note

Project:	Dunedin Fares and Frequency SSBC	**Project No:**	310205283
From:	Doug Weir	**Date:**	9 October 2023

Revision Schedule

Revision No.	Date	Description	Prepared by	Quality Reviewer	Independent Reviewer	Project Manager Final Approval
1	09/10/23	Final	Doug Weir	Susan Lilley	Sarah Connolly	Susan Lilley

RE: FFBC Short List Economic Assessment

Purpose

The purpose of this technical note is to describe the economic assessment approach used during the short list stage of the Dunedin Fares and Frequencies SSBC (FFBC) project.

Introduction

The FFBC project required a high-level economic assessment to be undertaken for the six shortlisted options - packages 4, 5, 9, 15, 16a, and 16b. A simplified assessment approach was taken to quickly determine indicative single year benefit cost ratios (BCRs) and incremental BCRs at that stage of the optioneering process. A comprehensive economic assessment was subsequently undertaken for the preferred option, as documented in the separate appendix.

Approach

The simplified economic assessment of the shortlisted options used benefits and costs for an indicative undiscounted single future year (nominally 2034-35), to develop indicative BCRs and incremental BCRs and enable comparison and selection of the shortlisted options. This approach assumed that the option was fully implemented, with the full range of associated benefits being available and all costs in place, as described below.

The short list benefits were developed by MRCagney and are outlined in the separate Preferred Option Economic Assessment appendix. The benefits come from emissions (CO, CO2, NOx, PM2.5, and VOC), travel time savings, and health, and draw on the 2028 outputs from the Dunedin CUBE Transport Model. The emissions benefits draw on decreased emissions from light and heavy vehicles, assuming a light and heavy vehicle fleet consistent with VEPM 6.2 and zero tailpipe emissions from buses (reflecting the government zero emission fleet mandate). Travel time benefits come from decreased travel time for private vehicles and public transport (PT) users, and health benefits come from increased walking to access PT. Assumptions around annualisation and walking speed changed between the first-round short list analysis and the latter second-round analysis (see below), resulting in a reduction in available benefits.

The cost assessment approach and assumptions are also documented in a separate appendix. At this stage of the process, costs were operational only, and included full gross operating costs, fare revenue, and from these, net operating costs. Gross operating costs were assessed at a unit rate of $4.31 per kilometre.

Outputs

Indicative single future year incremental BCRs and full BCRs were assessed at two short list stages, initially for a first-round short list assessment for package options 4, 5, 9, and 15 only, and then in a second round, which included the first four options and packages 16a and 16b. Changes to some benefit assumptions and minor cost updates resulted in

changes to the incremental and full BCRs between the two rounds. The outputs of the second round that informed final decision making are outlined below.

Incremental BCRs were developed in accordance with Waka Kotahi's Monetised Benefits and Costs Manual, with the package options being arranged from lowest to highest cost for assessment (in the following order: 16a, 16b, 5, 4, 15 and 9). Annual costs above the Do Minimum ranged from $16.2 million for Package 16a to $22.9 million for Package 9. Corresponding annual benefits above the Do Minimum ranged from $35.5 to $79.8 million. Package 16b was found to perform better than 16a, with a positive incremental BCR of 13.2. Packages 5 and 4 performed worse than 16b with negative incremental BCRs. Package 15 performed better than 16b with a positive incremental BCR of 11.3. Package 9 did not meet the target incremental BCR of 1.0, despite having a positive incremental BCR when compared to Package 15. Package 15 was therefore found to be the best performing, with Package 16b being the next best option and the best option with a paid fare.

Package 15 was found to have the best performing indicative full single year BCR, with a BCR of 4.0. Package 9 was the second-best performing option with a BCR of 3.5. Package 16b was next best performing option with a full single year BCR of 3.1 and was again found to be the best option with a paid fare.

Appendix L Preferred Option Economic Assessment

MRCagney

BETTER TRANSPORT • BETTER PLACES • BETTER CHOICES

Dunedin Fares and Frequency Economic Analysis

Final

Prepared for: Stantec

Prepared by: MRCagney (NZ) Ltd

Document Information

Project Name	Dunedin Fares & Frequency Review
Status	Final Revision 1
Client	Stantec
MRC Reference	NZ3293

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Quality Assurance Register

Issue	Description	Prepared by	Authorised by	Assured by	Date
1	Draft Final Report	SM	JV	RLG	6 September 2023
2	Final Report	SM	JV	ACF	18 September 2023
3	Final Revision 1	SM	JV	ACF	4 October 2023

Contents

Tables

Glossary

Term	Meaning
BCR	Benefit-Cost Ratio
NPV	Net Present Value
PT	Public Transport
VOC	Volatile Organic Compounds

1 Introduction

In late 2022, Otago Regional Council asked for a realistic and cost-effective public transport (PT) improvement programme option to be identified to increase the use of bus service in Dunedin – especially for commuting to school and work.

Several options were developed, and the short list of possibilities was provided to MRCagney for economic analysis. In earlier stages of the business case work, preliminary economic results were used to help identify the preferred option which is analysed in detail in this report.

The preferred option (known as Option 16B) consists of:

- Fares:
  - From 1 July 2024 the adult Bee Card fare will be 50 cents.
- Frequencies:
  - Primary services: 15-minute headways 7am-7pm seven days a week, 30-minute headways before 7am and after 7pm.
  - Secondary services: 15-minute headways during weekday peak, 30-minute headways at all other times.
  - Targeted services: Current service levels.
- Span:
  - Primary and Secondary services: 6am-11:30pm (the first inbound service will arrive at the bus hub by or before 6am, the last outbound service will depart at or after 11:30pm).
  - Targeted services: Current service span.

The structure of this report is the following:

- Section 2 briefly describes the analysis performed for the short-list options which was used to help determine the preferred option.
- Section 3 describes the benefits measured and provides estimates of their value for the preferred option.
- Section 4 describes the costs of the preferred option.
- Section 5 compares the benefits to the costs and provides sensitivity tests.
- Section 6 provides a brief summary.

2 Short-list Analysis

MRCagney was provided with Stantec's traffic modelling for the short-list options. For each option, the benefits of the modelled output were monetised using preliminary assumptions about annualisation factors, walking distances, and other factors that were later refined. Six options were analysed – Options 4, 5, 9, 15, 16A, and 16B. Each of these had a different combination of service levels and fare structures. Table 1 and Table 2 show a summary of the benefits monetised for the year 2028 for each of the six options. These results were provided to the project team to help determine the preferred option.

2.1 First round of short-list analysis

Initially, four options were considered, and the results provided to the project team. The results of this initial analysis are shown in Table 1.

In this table, several preliminary assumptions were made, some of which were later refined after feedback from Waka Kotahi and the wider project team. Initially, we assumed that daily benefits to light and heavy vehicles have an annualisation factor of 343 and benefits to PT have an annualisation factor of 288 (this factor is further explained in the sensitivity test section 5.2.13).

We further assumed that pedestrians have a walking speed of 5 km per hour. Speed of walking assumptions matter because the results from the traffic modelling give walking times (not distance), but Waka Kotahi guidance on the value of increased walking is in terms of distance. This assumption of walking speed allows for an estimate of walking distance.

Finally, each of these benefits was monetised using guidance from version 1.6.1 the Monetised Benefits and Costs Manual (MBCM) published[1] June 2023 and update factors[2] published April 2023.

The emissions benefits come from decreased emissions from light and heavy vehicles, assume a light and heavy vehicle fleet consistent with VEPM 6.2, and assume zero tailpipe emissions from buses. Travel time benefits come from decreased travel time for private vehicles and PT users and health benefits come from increased walking to access PT.

Table 1 Initial short-list benefits, 2028 model year, used to help determine preferred option

Benefit category		**Benefit ($m), 2028 model year**			
	Option ->	4	5	9	15
Emissions	CO	0.00	0.00	0.00	0.00
	CO2	0.19	0.19	0.42	0.42
	NOX	1.12	1.12	2.52	2.50
	PM2.5	0.03	0.03	0.06	0.06
	VOC	0.00	0.00	0.00	0.00
	Travel time	5.68	5.25	9.27	9.36
	Health	43.98	36.93	85.87	84.79
	Total	**51.0**	**43.5**	**98.1**	**97.1**

The results shown in Table 1 were delivered to the project team in May 2023 and were used as a point of discussion. These figures are undiscounted benefit estimates for a single year (2028).

2.2 Second round of short-list analysis

Following the discussion around the results in Table 1, two more "short-list" options (16A and 16B) were developed for analysis. Additionally, some of the initial assumptions were refined. The annualisation factor for all benefits was assumed to be 288, with the rationale that light and heavy vehicles would not get a benefit on

[1] https://www.nzta.govt.nz/assets/resources/monetised-benefits-and-costs-manual/Monetised-benefits-and-costs-manual.pdf

[2] https://www.nzta.govt.nz/assets/resources/monetised-benefits-and-costs-manual/Update-factors-14-April-2023.pdf

days that PT did not also get benefits. Additionally, the walking speed assumption was revised down to 4 km per hour to be consistent with Stantec's traffic modelling assumptions. This effectively means that the calculated distances walked to access PT are shorter (and consequently have less benefit) than in the first round of analysis.

These two changes in assumptions explain why the benefits of options 4, 5, 9, and 15 changed between the first and second round of analysis despite the options remaining identical. The results of this updated analysis are shown in Table 2. These results were presented to the project team in August 2023 and were used as part of the decision-making process to determine the recommended option, which is the focus of the remainder of this report.

Table 2 Final short-list benefits, 2028 model year, used to help determine preferred option

Benefit category		**Benefit ($m), 2028 model year**					
	Option ->	4	5	9	15	16A	16B
Emissions	CO	0.00	0.00	0.00	0.00	0.00	0.00
	CO2	0.16	0.16	0.35	0.35	0.15	0.24
	NOX	0.94	0.94	2.12	2.10	0.91	1.46
	PM2.5	0.02	0.02	0.05	0.05	0.02	0.03
	VOC	0.00	0.00	0.00	0.00	0.00	0.00
	Travel time	5.32	4.93	8.59	8.67	4.90	6.53
	Health	35.18	29.54	68.70	67.83	29.53	47.02
	Total	**41.6**	**35.6**	**79.8**	**79.0**	**35.5**	**55.3**

3 Evaluation of Benefits for the Preferred Option

Benefits of the preferred option can be classed into four main categories:

- Emissions
  - CO
  - CO_2
  - NOx
  - $PM_{2.5}$
  - Volatile organic compounds (VOC)
- Time savings
  - Car passengers
  - PT passengers
- Health benefits
- Tax benefits / increased labour supply

Each of these benefits was monetised using guidance from MBCM version 1.6.1 and are based on outputs from Stantec's modelling for the business case.

The modelling used for this analysis is for the year 2038, when the full impacts of the changes to fares and frequencies are expected to be well in place. To modify the benefits to be applicable to earlier (and later) years, these benefits are adjusted by population growth, speed of uptake of PT (how quickly passengers respond to the improvements), and level of uptake of PT (how much passengers respond to the improvements).

3.1 Assumptions

Underlying the benefit calculations are a list of assumptions, many of which are sensitivity tested in Section 4. These assumptions include:

- Analysis period of 40 years.
- Discount rate of 4%.
- Annualisation factor[3] of 245 (the number of working days in a year, defined by Waka Kotahi).
- An 11-year ramp-up period – i.e., the benefit of the improved frequency and reduced fares takes 11 years to be fully realised. This is the speed of passenger uptake of the new services.
- PT users have a "medium" response to changes in fares and frequencies.
- The population of Dunedin grows at the Stats NZ medium projection rate.
- The shadow price of carbon comes from the medium price series in the MBCM.
- The rule of half has been applied in all applicable calculations.

3.2 Emissions benefits

When more people use PT and trips are diverted from the private vehicle fleet to the bus fleet (which is assumed to be fully electrified in Dunedin by 2027), emissions are reduced. The monetary value of emissions reductions come from Table 9 and Table 11 in the MBCM and are updated to 2022 values using the Waka Kotahi 2022 update factors.

Table 3 shows the discounted value of emissions reductions due to the preferred option. These benefits are the present value of a 40-year flow of benefits and are reported in 2022 dollars. The total benefit of reduced emissions is approximately $11.7 million over the 40-year analysis period.

[3] To be conservative, this final analysis further reduced the annualisation factor to include only working days. Sensitivity testing examines the results when the annualisation factor from Section 2 are used.

Table 3 Total discounted value ($m) of emissions reductions

Type of emissions	Benefit ($m)
CO	0.0*
CO_2	2.7
NOx	8.8
$PM_{2.5}$	0.2
VOC	0.0*
Total	11.7

* rounds to zero

3.3 Time savings

When people shift their trips from a private vehicle to a bus, it reduces the number of vehicles on the road and makes trips faster for those drivers and car passengers that remain. Improving the frequency of bus service and reducing headways and transfer times also provides a time savings to bus passengers. Both sources of time savings have been monetised using values of travel time savings from MBCM Table 14 and the Waka Kotahi 2022 update factors.

Table 4 shows the discounted value of time savings attributable to the preferred options. These benefits are the present value of a 40-year flow of benefits and are reported in 2022 dollars. The total benefit of travel time savings is approximately $94.5m over the 40-year analysis period.

Table 4 Total discounted value ($m) of time savings

Time savings	Benefit ($m)
Car passengers	37.8
PT passengers	56.7
Total	94.5

3.4 Health benefits

When people use PT, they must walk to and from their bus stops. These increases in walking have well-known physical and mental health benefits. The modelling done for this business case estimates the number of people who use PT and how many minutes they walk to access PT. Using a walking speed of 4km/hour, the distance walked can be estimated. This increase in walking has been monetised using the value of walking from MBCM Table 6 and the Waka Kotahi 2022 update factors. As a note, the new 2023 update to the MBCM has a much higher value on walking than previous versions, and this increase is reflected in the size of the estimated health benefits.

Table 5 shows the discounted value of health improvements attributable to the preferred option. These benefits are the present value of a 40-year flow of benefits and are reported in 2022 dollars. The total benefit of health impacts is approximately $654.7m over the 40-year analysis period.

Table 5 Total discounted value ($m) of health improvements from increased walking

	Benefit ($m)
Health benefits	654.7

3.5 Increased labour supply benefits

One of the identified wider economic benefits of improving transport is when people who were not working because of difficulty travelling to work re-enter the workforce because of improvements. A tax benefit occurs because of increased tax revenue from an increased labour force – an increase in labour that occurs because of decreased commuting costs. These benefits are calculated as described in Section 3.11 of the MBCM, and these calculations are further described in Appendix A.

Table 6 shows the discounted value of labour supply benefits attributable to the preferred option. These benefits are the present value of a 40-year flow of benefits and are reported in 2022 dollars. The total benefit of increased labour supply is approximately $128.2m over the 40-year analysis period.

Table 6 Total discounted value ($m) of labour supply benefits

	Benefit ($m)
Labour supply/tax benefits	128.2

4 Evaluation of Costs for the Preferred Option

The costs of increasing the frequency of PT services in Dunedin was provided to us on a yearly basis out to 2038. After this, costs are assumed to be constant for each following year. These costs were estimated by Stantec and further discussion of them can be found in the main text of the business case document. Costs are estimated to be approximately $19.9 million per year when the full network improvements in frequency are in place.

As a note, any changes to fare revenues because of the implementation of the preferred option (or any option) should not be considered as a cost or a benefit. Fare revenues are transfers from one group of people to another but are not additional benefits (or costs). While fare revenues certainly matter to funding agencies, from the perspective of a benefit-cost analysis, they are irrelevant when examining the net benefit to society of a project.

The additional operational costs of $19.9 million per year, which ramp up from the current scenario to full implementation from 2024 to 2028, have a present value of $354.8 million as shown in Table 7.

Table 7 Total discounted value ($m) of costs of preferred option

	Cost ($m)
Cost of improved frequency	354.8

5 Comparison of Costs to Benefits, Sensitivity Testing

In this section, the benefits (calculated in Section 2) and the cost (calculated in Section 4) are compared to generate the estimated net present value (NPV) and benefit-cost ratio (BCR) of the preferred option. A series of sensitivity tests of the assumptions made are also reported to show how the NPV and BCR change when assumptions are changed.

5.1 Evaluation of the preferred option

Using the calculations from the previous sections, the NPV and BCR are calculated to show the benefit of the preferred option using two different measurements.

NPV is simply the total discounted benefits minus the total discounted costs. This metric describes how *net beneficial* the preferred option is expected to be to society. That is, how much more benefit is delivered over the analysis period (in this case, 40 years) than the cost to deliver the benefit. A positive NPV indicates that the benefits are bigger than the costs.

A BCR is a similar measurement that shows how effective the preferred option is at delivering benefits on a dollar-by-dollar basis. The BCR is the ratio of total discounted benefits to total discounted costs and tells us how many dollars of benefits are delivered for each dollar spent in costs. A BCR > 1 indicates that benefits are bigger than the costs.

For the preferred option and the associated baseline assumptions, Table 8 shows the relevant calculations – a BCR of 2.5 and a NPV of $534.2 million. There is some debate as to whether the wider economic benefits (in this case the tax benefits from increased labour participation) should be included or evaluated separately. In this analysis, they are included, but it should be noted that whether they are included *does not impact whether the BCR is greater than one or the NPV is positive*.

Table 8 Total benefits, total costs, NPV, and BCR of the preferred option

Total Discounted Benefits ($m)	**889.0**
Emissions:	
CO	0.0
CO_2	2.7
NOx	8.8
$PM_{2.5}$	0.2
VOC	0.0
Tax Benefits	128.2
Health Benefits	654.7
Time Savings	94.5
Total Discounted Costs ($m)	**354.8**
BCR	**2.5**
NPV ($m)	**534.2**

5.2 Sensitivity tests

To test for the impact of various changes to assumptions, a variety of sensitivity tests were performed alone and in combination. The next several sub-sections show the results of these tests.

5.2.1 Evaluation period – 60 years

When the evaluation period is extended to 60 years, the results of the analysis change to those shown in Table 9. While the NPV is much higher than before, the BCR is only marginally higher, which indicates that the result is stable to the evaluation period.

Table 9 Total benefits, total costs, NPV, and BCR of the preferred option (60-year analysis period)

Total Discounted Benefits ($m)	**1058.0**
Emissions:	
CO	0.0
CO_2	3.9
NOx	10.5
$PM_{2.5}$	0.2
VOC	0.0
Tax Benefits	152.4
Health Benefits	778.6
Time Savings	112.4
Total Discounted Costs ($m)	**413.4**
BCR	**2.6**
NPV ($m)	**644.6**

5.2.2 Evaluation period – 30 years

When the evaluation period is shortened to 30 years, the results of the analysis change to those shown in Table 10. Again, the BCR is relatively insensitive to the evaluation period.

Table 10 Total benefits, total costs, NPV, and BCR of the preferred option (30-year analysis period)

Total Discounted Benefits ($m)	**741.9**
Emissions:	
CO	0.0
CO_2	2.0
NOx	7.4
$PM_{2.5}$	0.1
VOC	0.0
Tax Benefits	107.0
Health Benefits	546.5
Time Savings	78.9
Total Discounted Costs ($m)	**303.0**
BCR	**2.5**
NPV ($m)	**438.8**

5.2.3 Discount Rate – 6%

When a much higher discount rate of 6% is used, the results change to those shown in Table 11. The NPV is lower than the baseline estimates in Section 5.1 but the BCR is, again, relatively unchanged.

Table 11 Total benefits, total costs, NPV, and BCR of the preferred option (6% discount rate)

Total Discounted Benefits ($m)	**643.4**
Emissions:	
CO	0.0
CO_2	1.8
NOx	6.4
$PM_{2.5}$	0.1
VOC	0.0
Tax Benefits	92.8
Health Benefits	473.9
Time Savings	68.4
Total Discounted Costs ($m)	**263.7**
BCR	**2.4**
NPV ($m)	**379.7**

5.2.4 Discount Rate – 2%

When a much lower discount rate of 2% is used, the results change to those shown in Table 12. The NPV is higher than the baseline estimates in Section 5.1 but the BCR is, again, relatively unchanged.

Table 12 Total benefits, total costs, NPV, and BCR of the preferred option (2% discount rate)

Total Discounted Benefits ($m)	**1283.4**
Emissions:	
CO	0.0
CO_2	4.1
NOx	12.7
$PM_{2.5}$	0.2
VOC	0.0
Tax Benefits	185.0
Health Benefits	944.9
Time Savings	136.4
Total Discounted Costs ($m)	**499.2**
BCR	**2.6**
NPV ($m)	**784.2**

5.2.5 Faster rate of PT uptake

In the baseline analysis, an 11-year period from introduction to full uptake is assumed. That is, it takes 11 years before the full benefits of the new PT network are realised. A 7-year period was also analysed. The changes to the benefit-cost calculations of this change are shown Table 13. Both the NPV and BCR are a bit higher than the baseline case, but the speed of uptake does not make a major difference to the estimates.

Table 13 Total benefits, total costs, NPV, and BCR of the preferred option (faster uptake)

Total Discounted Benefits ($m)	**921.0**
Emissions:	
CO	0.0
CO_2	2.8
NOx	9.1
$PM_{2.5}$	0.2
VOC	0.0
Tax Benefits	132.8
Health Benefits	678.3
Time Savings	97.9
Total Discounted Costs ($m)	**354.8**
BCR	**2.6**
NPV ($m)	**566.2**

5.2.6 Lower level of PT uptake

In the baseline analysis, it is assumed that PT passenger uptake is the "medium" scenario. That is, passenger response to changes in fares and frequencies are at a level that is in the middle of the range reported in academic literature. To test this, we have also examined a case where the uptake is at the low end of the estimates. The changes to the benefit-cost calculations of this change are shown in Table 14. This is the first sensitivity test with a meaningful change to the NPV and BCR. Both are significantly lower than baseline case, but still show net benefits (i.e., BCR > 1 and NPV > 0).

Table 14 Total benefits, total costs, NPV, and BCR of the preferred option (low level of uptake)

Total Discounted Benefits ($m)	**592.7**
Emissions:	
CO	0.0
CO_2	1.8
NOx	5.9
$PM_{2.5}$	0.1
VOC	0.0
Tax Benefits	85.4
Health Benefits	436.4
Time Savings	63.0
Total Discounted Costs ($m)	**354.8**
BCR	**1.7**
NPV ($m)	**237.9**

5.2.7 High level of PT uptake

We also examined a case where the uptake is at the high end of the estimates. The changes to the benefit-cost calculations of this change are shown in Table 15. Like the previous test, this change generates a meaningful change to the NPV and BCR. Both are significantly higher than baseline case.

Table 15 Total benefits, total costs, NPV, and BCR of the preferred option (high level of uptake)

Total Discounted Benefits ($m)	**1185.3**
Emissions:	
CO	0.0
CO_2	3.6
NOx	11.8
$PM_{2.5}$	0.2
VOC	0.0
Tax Benefits	170.9
Health Benefits	872.9
Time Savings	126.0
Total Discounted Costs ($m)	**354.8**
BCR	**3.3**
NPV ($m)	**830.5**

5.2.8 Low population growth

In the baseline analysis, it is assumed that benefits scale in line with Stats NZ's medium population growth scenario. However, Stats NZ also offers a low and high population growth scenario. The changes to the benefit-cost calculations of using the low population growth scenario are shown in Table 16. While low population growth does affect the benefit-cost calculations, all the metrics still show the project as net-beneficial.

Table 16 Total benefits, total costs, NPV, and BCR of the preferred option (low population growth)

Total Discounted Benefits ($m)	**804.0**
Emissions:	
CO	0.0
CO_2	2.4
NOx	8.0
$PM_{2.5}$	0.1
VOC	0.0
Tax Benefits	115.9
Health Benefits	592.1
Time Savings	85.5
Total Discounted Costs ($m)	**354.8**
BCR	**2.3**
NPV ($m)	**449.2**

5.2.9 High population growth

We also examined a scenario using Stats NZ's high population growth scenario. The changes to the benefit-cost calculations of using the low population growth scenario are shown in Table 17. High population growth results in a higher NPV and BCR.

Table 17 Total benefits, total costs, NPV, and BCR of the preferred option (high population growth)

Total Discounted Benefits ($m)	**972.7**
Emissions:	
CO	0.0
CO_2	3.0
NOx	9.7
$PM_{2.5}$	0.2
VOC	0.0
Tax Benefits	140.2
Health Benefits	716.3
Time Savings	103.4
Total Discounted Costs ($m)	**354.8**
BCR	**2.7**
NPV ($m)	**617.9**

5.2.10 Low shadow price of carbon

In the baseline analysis, it is assumed that a reduction in CO_2 emissions is valued at the medium shadow price of carbon. The MBCM also offers low- and high-prices of carbon. The changes to the benefit-cost calculations of using the low shadow price of carbon are shown in Table 18. As carbon emissions are a small portion of the benefits, the results do not change much with this different assumption.

Table 18 Total benefits, total costs, NPV, and BCR of the preferred option (low price of carbon)

Total Discounted Benefits ($m)	**888.0**
Emissions:	
CO	0.0
CO_2	1.7
NOx	8.8
$PM_{2.5}$	0.2
VOC	0.0
Tax Benefits	128.2
Health Benefits	654.7
Time Savings	94.5
Total Discounted Costs ($m)	**354.8**
BCR	**2.5**
NPV ($m)	**533.3**

5.2.11 High shadow price of carbon

We also examined the change in the analysis of using the high shadow price of carbon. The changes to the benefit-cost calculations are shown in Table 19. Again, as carbon emissions are a small portion of the benefits, the results do not change much with this different assumption.

Table 19 Total benefits, total costs, NPV, and BCR of the preferred option (high price of carbon)

Total Discounted Benefits ($m)	**890.2**
Emissions:	
CO	0.0
CO_2	3.9
NOx	8.8
$PM_{2.5}$	0.2
VOC	0.0
Tax Benefits	128.2
Health Benefits	654.7
Time Savings	94.5
Total Discounted Costs ($m)	**354.8**
BCR	**2.5**
NPV ($m)	**535.4**

5.2.12 Exclusion of wider economic benefits

As previously mentioned, there is debate as to whether the wider economic benefits should be included in the base BCR and NPV calculations. This sensitivity test is to show that whether they are included does not change the answer. That is, when the tax benefit is excluded, the BCR and NPV both fall, but are still well above the threshold to demonstrate value for money. The results of this sensitivity test are shown in Table 20.

Table 20 Total benefits, total costs, NPV, and BCR of the preferred option (excluding wider economic benefits)

Total Discounted Benefits ($m)	**760.8**
Emissions:	
CO	0.0
CO_2	2.7
NOx	8.8
$PM_{2.5}$	0.2
VOC	0.0
Tax Benefits	N/A
Health Benefits	654.7
Time Savings	94.5
Total Discounted Costs ($m)	**354.8**
BCR	**2.1**
NPV ($m)	**406.0**

5.2.13 Inclusion of benefits from weekend service

To be conservative, the analysis has assumed that benefits accrue only on weekdays. This is despite the frequency improvements being on the weekends as well. Also, the costs estimated for this report include the costs to provide the services on the weekends. As a sensitivity test, we have assumed that some benefits will accrue on the weekends. We assume that ½ the weekday benefit will accrue on Saturdays and that ¼ the weekday benefit will accrue on Sundays and public holidays. These are assumptions – but account for the fact that there will be *some* benefits that accrue on these days. As a result, the annualisation factor (except for tax benefits, which are based on working days) is 288 rather than 245. This adjustment yields the results shown in Table 21.

Table 21 Total benefits, total costs, NPV, and BCR of the preferred option (including weekend benefits)

Total Discounted Benefits ($m)	**1022.5**
Emissions:	
CO	0.0
CO_2	3.2
NOx	10.4
$PM_{2.5}$	0.2
VOC	0.0
Tax Benefits	128.2
Health Benefits	769.6
Time Savings	111.1
Total Discounted Costs ($m)	**354.8**
BCR	**2.9**
NPV ($m)	**667.7**

5.2.14 Costs 30% lower than estimated

In the baseline analysis, it is assumed that the costs of implementation are those estimated by Stantec and provided to MRCagney. As sensitivity tests, we have estimated scenarios where the cost is lower (this section) or higher (next section) than estimated. When costs are 30% lower than estimated, the benefits remain unchanged and the cost falls. The results of this change are shown in Table 22.

Table 22 Total benefits, total costs, NPV, and BCR of the preferred option (lower costs)

Total Discounted Benefits ($m)	**889.0**
Emissions:	
CO	0.0
CO_2	2.7
NOx	8.8
$PM_{2.5}$	0.2
VOC	0.0
Tax Benefits	128.2
Health Benefits	654.7
Time Savings	94.5
Total Discounted Costs ($m)	**248.4**
BCR	**3.6**
NPV ($m)	**640.6**

5.2.15 Costs 30% higher than estimated

In the baseline analysis, it is assumed that the costs of implementation are those estimated by Stantec and provided to MRCagney. As sensitivity tests, we have estimated scenarios where the cost is lower (previous section) or higher (this section section) than estimated. When costs are 30% higher than estimated, the benefits remain unchanged and the cost goes up. The results of this change are shown in Table 23.

Table 23 Total benefits, total costs, NPV, and BCR of the preferred option (higher costs)

Total Discounted Benefits ($m)	**889.0**
Emissions:	
CO	0.0
CO_2	2.7
NOx	8.8
$PM_{2.5}$	0.2
VOC	0.0
Tax Benefits	128.2
Health Benefits	654.7
Time Savings	94.5
Total Discounted Costs ($m)	**461.2**
BCR	**1.9**
NPV ($m)	**427.8**

5.2.16 Most pessimistic scenario

For completeness, we also examined a scenario where all the sensitivity tests are set to the most pessimistic settings – shorter period of analysis, high discount rate, lower rate of uptake, lower level of uptake, low population growth, a low shadow price of carbon, no wider economic benefits, no weekend benefits, and a 30% increase in costs. While it is unlikely that each of these assumptions would end up at the low end, it gives an idea of the worst possible outcome. The results of this analysis are shown in Table 24.

Even with the most pessimistic assumptions, the BCR rounds to 1.0 and the NPV is slightly negative (about $280k per year) over the course of 30 years.

Table 24 Total benefits, total costs, NPV, and BCR of the preferred option (most pessimistic)

Total Discounted Benefits ($m)	**299.3**
Emissions:	
CO	0.0
CO_2	0.6
NOx	3.5
$PM_{2.5}$	0.1
VOC	0.0
Tax Benefits	N/A
Health Benefits	257.9
Time Savings	37.2
Total Discounted Costs ($m)	**307.7**
BCR	**1.0**
NPV ($m)	**-8.4**

5.2.17 Most optimistic scenario

As a counterpart to the most pessimistic scenario, we also analysed the most optimistic scenario – longest period of analysis, low discount rate, higher rate of uptake, higher level of uptake, high population growth, a high shadow price of carbon, benefits accruing on weekends, the inclusion of wider economic benefits, and 30% lower costs than expected. While it is unlikely that each of these assumptions would end up at the high end, it gives an idea of the best possible outcome. The results of this analysis are shown in Table 25.

With the most optimistic assumptions, the NPV is over $2.6 billion and the BCR approximately 6.8.

Table 25 Total benefits, total costs, NPV, and BCR of the preferred option (most optimistic)

Total Discounted Benefits ($m)	**3087.7**
Emissions:	
CO	0.0
CO_2	23.7
NOx	31.2
$PM_{2.5}$	0.6
VOC	0.0
Tax Benefits	385.2
Health Benefits	2313.2
Time Savings	333.9
Total Discounted Costs ($m)	**454.7**
BCR	**6.8**
NPV ($m)	**2633.1**

6 Summary

The monetised costs and benefits show that the preferred option identified by the Dunedin Fares and Frequency project is likely to be net beneficial to society. The health benefits alone more than offset the costs of improving the frequency and fares of bus services in Dunedin. The preferred option has a BCR of 2.5 and a NPV of $534 million. A summary of the results is shown in Table 26.

Table 26 Total benefits, total costs, NPV, and BCR of the preferred option

Total Discounted Benefits ($m)	**889.0**
Emissions	11.7
Tax Benefits	128.2
Health Benefits	654.7
Time Savings	94.5
Total Discounted Costs ($m)	**354.8**
BCR	**2.5**
NPV ($m)	**534.2**

A series of sensitivity tests was performed to ensure that the results were not overly sensitive to one or more assumptions. These tests demonstrated that some assumptions matter more than others, but no changes to assumptions could realistically make the preferred option not net beneficial. Even the most pessimistic case is a break-even proposition. This should give assurance that this option represents good value for money and is reasonably likely to be beneficial to society.

Appendix A Explanation of Tax Benefits

The tax benefit comes from increased tax revenue from an increased labour force that comes about from lower commute costs. Using model matrix data and following MBCM 3.11 (and its source, Kernohan & Rognlien (2011), Section 17), the benefit was calculated as follows.

Step 0: Background calculations

The mean personal income y_i and the mean personal productivity M_i was computed for those who live in zone i by taking weighted averages of those quantities across destination (i.e., work location) zones j:

$$y_i = \frac{\sum_j \hat{y}_j \, D^o_{p,(i,j)}}{\sum_j D^o_{p,(i,j)}}$$

$$M_i = \frac{\sum_j \widehat{M}_j D^o_{p,(i,j)}}{\sum_j D^o_{p,(i,j)}},$$

for:

- p = commute purpose
- j in all transport model zones

$\hat{y}_j$ is the mean personal income of all workers working in zone j. $D^o_{p,(i,j)}$ is the annual number of commute trips (car and public transport) from zone i to zone j in the option scenario; $\widehat{M}_j$ is the GDP of zone j divided by the total number of workers working in zone j. As $\hat{y}_j$ and $\widehat{M}_j$ are based on the *total* number of workers instead of *FTE* workers, this implicitly assumes that the mix of full time to part time commute trips to each zone j is reflective of the mix of full time to part time jobs in each zone j as observed in the economics dataset.

Step 1: Calculate commuting costs

First, the average (across all modes) change in annual commute costs per MSM zone was estimated, by computing the matrix:

$$\delta AGC = \frac{\sum_m \left(D^o_{m,p} + D^b_{m,p}\right)\left(GC^o_{m,p} - G^b_{m,p}\right)}{\sum_m \left(D^o_{m,p} + D^b_{m,p}\right)},$$

for:

- p = commute purpose
- m in all modes (i.e., PT and car)

$D^o_{m,p}$ is the demand matrix[4] for the option scenario, mode m and the commute purpose p; $D^b_{m,p}$ is the demand matrix[4] for the base scenario, mode m and the commute purpose p; $GC^o_{m,p}$ is the generalised cost matrix[5] for the option scenario, mode m and commute purpose p; $GC^b_{m,p}$ is the generalised cost matrix for the base scenario, mode m and commute purpose p.

The total annual commuting cost savings for workers living in zone i is then calculated by multiplying the change in commuting cost for each destination by the number of commuters and summing.

$$\delta GC_i = 500 \sum_{m,j} D^o_{m,p,(i,j)} \, \delta AGC_{(i,j)}$$

for:

- p = commute purpose
- m in all modes (i.e., PT and car)
- j in all transport model zones

[4] The demand matrix of commuters is referred to as T and the demand matrix for commute purpose is referred to as W. For consistency, we maintain the D notation for demand, with subscripts to denote specific purposes.

[5] The generalised cost matrix is denoted by G in the MBCM, but GC here.

$D^{o}_{m,p,(i,j)}$ is the demand matrix[4] for the option scenario, mode m and the commute purpose p, between zones i and j; 500 represents an annualisation factor for commute trips (2 trips per day x 250 working days per year). δGC_i is then the total annual change in commute costs for workers living in zone i.

Step 2: Labour supply response

Second, the change in employment per zone i was estimated via the formula:

$$\delta E_i = \varepsilon^{ls} \frac{1}{y_i(1-\tau^{ls})} \delta GC_i,$$

where ε^{ls} is the elasticity of labour supply (0.4); y_i is the mean personal income per worker; τ^{ls} is a factor to convert gross to net earnings (0.32).

Step 3: Gross labour supply impact

The increased productivity from the labour supply response is estimated as the product of the change in the labour supply and the mean personal productivity of workers *and maybe a factor for the relative productivity of the marginal labour supply*:

$$LSI = \sum_i \delta E_i \, M_i$$

for:

- i in all transport model zones

where M_i is the mean personal productivity per worker living in zone i.

Step 4: Net labour supply impact

Finally, the wider economic impact from the labour supply impact is computed by applying the labour supply tax rate to the increased productivity from the labour supply, as follows:

$$Benefit = k \, \tau^{tax} \, LSI$$

where k_y is a factor to convert dollars from the year of the economic data to the assessment year; and τ^{tax} is the tax take on increased labour supply (0.26). In addition, modelled tax wedge benefits for future years were scaled up to reflect expected productivity growth throughout the modelling period. By default, productivity is assumed to grow at 1.5% per annum.

Appendix B Full Tables of Costs and Benefits

The main text of this report only includes a discounted present value for each of the benefits and the costs. Some readers may be interested in the year-by-year breakdown of these elements. These are contained in this appendix.

B1.1 Costs

Total undiscounted and discounted costs, by year ($m)

Year	Undiscounted	Discounted	Year	Undiscounted	Discounted
2023	$0.00	$0.00	2043	$19.90	$9.08
2024	$2.00	$1.92	2044	$19.90	$8.73
2025	$7.90	$7.30	2045	$19.90	$8.40
2026	$16.10	$14.31	2046	$19.90	$8.07
2027	$16.10	$13.76	2047	$19.90	$7.76
2028	$19.90	$16.36	2048	$19.90	$7.46
2029	$19.90	$15.73	2049	$19.90	$7.18
2030	$19.90	$15.12	2050	$19.90	$6.90
2031	$19.90	$14.54	2051	$19.90	$6.64
2032	$19.90	$13.98	2052	$19.90	$6.38
2033	$19.90	$13.44	2053	$19.90	$6.14
2034	$19.90	$12.93	2054	$19.90	$5.90
2035	$19.90	$12.43	2055	$19.90	$5.67
2036	$19.90	$11.95	2056	$19.90	$5.45
2037	$19.90	$11.49	2057	$19.90	$5.24
2038	$19.90	$11.05	2058	$19.90	$5.04
2039	$19.90	$10.62	2059	$19.90	$4.85
2040	$19.90	$10.22	2060	$19.90	$4.66
2041	$19.90	$9.82	2061	$19.90	$4.48
2042	$19.90	$9.45	2062	$19.90	$4.31
			Total	$738.60	$354.80

B1.2 Benefits

This section contains the total benefit flow over the 40-year analysis period as well as the flow for individual benefits.

Total undiscounted and discounted benefits, by year ($m)

Year	Undiscounted	Discounted	Year	Undiscounted	Discounted
2023	$0.00	$0.00	2043	$55.80	$25.46
2024	$7.58	$7.29	2044	$55.85	$24.51
2025	$13.53	$12.51	2045	$55.90	$23.59
2026	$23.36	$20.77	2046	$55.96	$22.70
2027	$28.19	$24.09	2047	$56.01	$21.85
2028	$34.11	$28.03	2048	$56.06	$21.03
2029	$37.19	$29.39	2049	$56.12	$20.24
2030	$40.83	$31.02	2050	$56.17	$19.48
2031	$43.67	$31.91	2051	$56.23	$18.75
2032	$46.53	$32.69	2052	$56.28	$18.05
2033	$49.36	$33.35	2053	$56.34	$17.37
2034	$52.21	$33.92	2054	$56.39	$16.72
2035	$53.77	$33.58	2055	$56.45	$16.09
2036	$54.75	$32.88	2056	$56.51	$15.49
2037	$55.12	$31.83	2057	$56.56	$14.91
2038	$55.46	$30.80	2058	$56.62	$14.35
2039	$55.53	$29.65	2059	$56.68	$13.81
2040	$55.60	$28.55	2060	$56.74	$13.29
2041	$55.67	$27.48	2061	$56.80	$12.80
2042	$55.74	$26.46	2062	$56.85	$12.32
			Total	$1,944.52	$889.00

CO benefits

Total undiscounted and discounted CO benefits, by year ($m)

Year	Undiscounted	Discounted	Year	Undiscounted	Discounted
2023	$0.00	$0.00	2043	$0.00	$0.00
2024	$0.00	$0.00	2044	$0.00	$0.00
2025	$0.00	$0.00	2045	$0.00	$0.00
2026	$0.00	$0.00	2046	$0.00	$0.00
2027	$0.00	$0.00	2047	$0.00	$0.00
2028	$0.00	$0.00	2048	$0.00	$0.00
2029	$0.00	$0.00	2049	$0.00	$0.00
2030	$0.00	$0.00	2050	$0.00	$0.00
2031	$0.00	$0.00	2051	$0.00	$0.00
2032	$0.00	$0.00	2052	$0.00	$0.00
2033	$0.00	$0.00	2053	$0.00	$0.00
2034	$0.00	$0.00	2054	$0.00	$0.00
2035	$0.00	$0.00	2055	$0.00	$0.00
2036	$0.00	$0.00	2056	$0.00	$0.00
2037	$0.00	$0.00	2057	$0.00	$0.00
2038	$0.00	$0.00	2058	$0.00	$0.00
2039	$0.00	$0.00	2059	$0.00	$0.00
2040	$0.00	$0.00	2060	$0.00	$0.00
2041	$0.00	$0.00	2061	$0.00	$0.00
2042	$0.00	$0.00	2062	$0.00	$0.00
			Total	$0.00*	$0.00*

* These values are non-zero but round to zero

CO_2 benefits

Total undiscounted and discounted CO_2 benefits, by year ($m)

Year	Undiscounted	Discounted	Year	Undiscounted	Discounted
2023	$0.00	$0.00	2043	$0.18	$0.08
2024	$0.01	$0.01	2044	$0.18	$0.08
2025	$0.02	$0.02	2045	$0.19	$0.08
2026	$0.04	$0.03	2046	$0.19	$0.08
2027	$0.05	$0.04	2047	$0.20	$0.08
2028	$0.06	$0.05	2048	$0.20	$0.08
2029	$0.07	$0.06	2049	$0.21	$0.07
2030	$0.09	$0.07	2050	$0.21	$0.07
2031	$0.10	$0.07	2051	$0.22	$0.07
2032	$0.11	$0.07	2052	$0.22	$0.07
2033	$0.12	$0.08	2053	$0.23	$0.07
2034	$0.13	$0.08	2054	$0.24	$0.07
2035	$0.14	$0.08	2055	$0.24	$0.07
2036	$0.14	$0.09	2056	$0.25	$0.07
2037	$0.15	$0.09	2057	$0.26	$0.07
2038	$0.15	$0.09	2058	$0.27	$0.07
2039	$0.16	$0.08	2059	$0.28	$0.07
2040	$0.16	$0.08	2060	$0.29	$0.07
2041	$0.17	$0.08	2061	$0.29	$0.07
2042	$0.17	$0.08	2062	$0.30	$0.07
			Total	$6.67	$2.70

NOx benefits

Total undiscounted and discounted NOx benefits, by year ($m)

Year	Undiscounted	Discounted	Year	Undiscounted	Discounted
2023	$0.00	$0.00	2043	$0.55	$0.25
2024	$0.08	$0.07	2044	$0.55	$0.24
2025	$0.13	$0.12	2045	$0.55	$0.23
2026	$0.23	$0.21	2046	$0.56	$0.23
2027	$0.28	$0.24	2047	$0.56	$0.22
2028	$0.34	$0.28	2048	$0.56	$0.21
2029	$0.37	$0.29	2049	$0.56	$0.20
2030	$0.41	$0.31	2050	$0.56	$0.19
2031	$0.43	$0.32	2051	$0.56	$0.19
2032	$0.46	$0.32	2052	$0.56	$0.18
2033	$0.49	$0.33	2053	$0.56	$0.17
2034	$0.52	$0.34	2054	$0.56	$0.17
2035	$0.53	$0.33	2055	$0.56	$0.16
2036	$0.54	$0.33	2056	$0.56	$0.15
2037	$0.55	$0.32	2057	$0.56	$0.15
2038	$0.55	$0.31	2058	$0.56	$0.14
2039	$0.55	$0.29	2059	$0.56	$0.14
2040	$0.55	$0.28	2060	$0.56	$0.13
2041	$0.55	$0.27	2061	$0.56	$0.13
2042	$0.55	$0.26	2062	$0.56	$0.12
			Total	$19.29	$8.82

$PM_{2.5}$ benefits

Total undiscounted and discounted $PM_{2.5}$ benefits, by year ($m)

Year	Undiscounted	Discounted	Year	Undiscounted	Discounted
2023	$0.00	$0.00	2043	$0.01	$0.00
2024	$0.00	$0.00	2044	$0.01	$0.00
2025	$0.00	$0.00	2045	$0.01	$0.00
2026	$0.00	$0.00	2046	$0.01	$0.00
2027	$0.01	$0.00	2047	$0.01	$0.00
2028	$0.01	$0.01	2048	$0.01	$0.00
2029	$0.01	$0.01	2049	$0.01	$0.00
2030	$0.01	$0.01	2050	$0.01	$0.00
2031	$0.01	$0.01	2051	$0.01	$0.00
2032	$0.01	$0.01	2052	$0.01	$0.00
2033	$0.01	$0.01	2053	$0.01	$0.00
2034	$0.01	$0.01	2054	$0.01	$0.00
2035	$0.01	$0.01	2055	$0.01	$0.00
2036	$0.01	$0.01	2056	$0.01	$0.00
2037	$0.01	$0.01	2057	$0.01	$0.00
2038	$0.01	$0.01	2058	$0.01	$0.00
2039	$0.01	$0.01	2059	$0.01	$0.00
2040	$0.01	$0.01	2060	$0.01	$0.00
2041	$0.01	$0.00	2061	$0.01	$0.00
2042	$0.01	$0.00	2062	$0.01	$0.00
			Total	$0.35	$0.16

VOC benefits

Total undiscounted and discounted VOC benefits, by year ($m)

Year	Undiscounted	Discounted	Year	Undiscounted	Discounted
2023	$0.00	$0.00	2043	$0.00	$0.00
2024	$0.00	$0.00	2044	$0.00	$0.00
2025	$0.00	$0.00	2045	$0.00	$0.00
2026	$0.00	$0.00	2046	$0.00	$0.00
2027	$0.00	$0.00	2047	$0.00	$0.00
2028	$0.00	$0.00	2048	$0.00	$0.00
2029	$0.00	$0.00	2049	$0.00	$0.00
2030	$0.00	$0.00	2050	$0.00	$0.00
2031	$0.00	$0.00	2051	$0.00	$0.00
2032	$0.00	$0.00	2052	$0.00	$0.00
2033	$0.00	$0.00	2053	$0.00	$0.00
2034	$0.00	$0.00	2054	$0.00	$0.00
2035	$0.00	$0.00	2055	$0.00	$0.00
2036	$0.00	$0.00	2056	$0.00	$0.00
2037	$0.00	$0.00	2057	$0.00	$0.00
2038	$0.00	$0.00	2058	$0.00	$0.00
2039	$0.00	$0.00	2059	$0.00	$0.00
2040	$0.00	$0.00	2060	$0.00	$0.00
2041	$0.00	$0.00	2061	$0.00	$0.00
2042	$0.00	$0.00	2062	$0.00	$0.00
			Total	$0.00*	$0.00*

* These values are non-zero but round to zero

Time savings benefits

Total undiscounted and discounted time savings benefits, by year ($m)

Year	Undiscounted	Discounted	Year	Undiscounted	Discounted
2023	$0.00	$0.00	2043	$5.93	$2.71
2024	$0.81	$0.78	2044	$5.94	$2.60
2025	$1.44	$1.33	2045	$5.94	$2.51
2026	$2.49	$2.21	2046	$5.95	$2.41
2027	$3.00	$2.56	2047	$5.95	$2.32
2028	$3.63	$2.98	2048	$5.96	$2.23
2029	$3.96	$3.13	2049	$5.96	$2.15
2030	$4.34	$3.30	2050	$5.97	$2.07
2031	$4.65	$3.39	2051	$5.97	$1.99
2032	$4.95	$3.48	2052	$5.98	$1.92
2033	$5.25	$3.55	2053	$5.98	$1.84
2034	$5.55	$3.61	2054	$5.99	$1.78
2035	$5.72	$3.57	2055	$5.99	$1.71
2036	$5.82	$3.50	2056	$6.00	$1.64
2037	$5.86	$3.38	2057	$6.00	$1.58
2038	$5.90	$3.27	2058	$6.01	$1.52
2039	$5.90	$3.15	2059	$6.01	$1.47
2040	$5.91	$3.03	2060	$6.02	$1.41
2041	$5.92	$2.92	2061	$6.02	$1.36
2042	$5.92	$2.81	2062	$6.03	$1.31
			Total	$206.61	$94.50

Health benefits

Total undiscounted and discounted health benefits, by year ($m)

Year	Undiscounted	Discounted	Year	Undiscounted	Discounted
2023	$0.00	$0.00	2043	$41.08	$18.75
2024	$5.59	$5.38	2044	$41.12	$18.04
2025	$9.98	$9.23	2045	$41.15	$17.37
2026	$17.23	$15.32	2046	$41.19	$16.71
2027	$20.78	$17.77	2047	$41.23	$16.08
2028	$25.15	$20.67	2048	$41.26	$15.48
2029	$27.42	$21.67	2049	$41.30	$14.90
2030	$30.09	$22.87	2050	$41.33	$14.34
2031	$32.19	$23.52	2051	$41.37	$13.80
2032	$34.29	$24.09	2052	$41.41	$13.28
2033	$36.38	$24.58	2053	$41.44	$12.78
2034	$38.47	$24.99	2054	$41.48	$12.30
2035	$39.61	$24.74	2055	$41.52	$11.83
2036	$40.33	$24.22	2056	$41.55	$11.39
2037	$40.61	$23.45	2057	$41.59	$10.96
2038	$40.85	$22.69	2058	$41.62	$10.55
2039	$40.90	$21.84	2059	$41.66	$10.15
2040	$40.95	$21.02	2060	$41.70	$9.77
2041	$41.00	$20.24	2061	$41.73	$9.40
2042	$41.05	$19.48	2062	$41.77	$9.05
			Total	$1,431.38	$654.66

Tax benefits

Total undiscounted and discounted tax benefits, by year ($m)

Year	Undiscounted	Discounted	Year	Undiscounted	Discounted
2023	$0.00	$0.00	2043	$8.04	$3.67
2024	$1.09	$1.05	2044	$8.05	$3.53
2025	$1.95	$1.81	2045	$8.06	$3.40
2026	$3.37	$3.00	2046	$8.06	$3.27
2027	$4.07	$3.48	2047	$8.07	$3.15
2028	$4.92	$4.05	2048	$8.08	$3.03
2029	$5.37	$4.24	2049	$8.08	$2.92
2030	$5.89	$4.48	2050	$8.09	$2.81
2031	$6.30	$4.60	2051	$8.10	$2.70
2032	$6.71	$4.72	2052	$8.11	$2.60
2033	$7.12	$4.81	2053	$8.11	$2.50
2034	$7.53	$4.89	2054	$8.12	$2.41
2035	$7.76	$4.84	2055	$8.13	$2.32
2036	$7.90	$4.74	2056	$8.13	$2.23
2037	$7.95	$4.59	2057	$8.14	$2.15
2038	$8.00	$4.44	2058	$8.15	$2.06
2039	$8.01	$4.28	2059	$8.16	$1.99
2040	$8.02	$4.12	2060	$8.16	$1.91
2041	$8.03	$3.96	2061	$8.17	$1.84
2042	$8.04	$3.81	2062	$8.18	$1.77
			Total	$280.22	$128.16

B1.3 Total costs and benefits

Year	Undiscounted benefits	Undiscounted costs	Net undiscounted benefits	Discounted benefits	Discounted costs	Net discounted benefits	Year	Undiscounted benefits	Undiscounted costs	Net undiscounted benefits	Discounted benefits	Discounted costs	Net discounted benefits
2023	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	2043	$55.80	$19.90	$35.90	$25.46	$9.08	$16.38
2024	$7.58	$2.00	$5.58	$7.29	$1.92	$5.37	2044	$55.85	$19.90	$35.95	$24.51	$8.73	$15.78
2025	$13.53	$7.90	$5.63	$12.51	$7.30	$5.21	2045	$55.90	$19.90	$36.00	$23.59	$8.40	$15.19
2026	$23.36	$16.10	$7.26	$20.77	$14.31	$6.46	2046	$55.96	$19.90	$36.06	$22.70	$8.07	$14.63
2027	$28.19	$16.10	$12.09	$24.09	$13.76	$10.33	2047	$56.01	$19.90	$36.11	$21.85	$7.76	$14.09
2028	$34.11	$19.90	$14.21	$28.03	$16.36	$11.68	2048	$56.06	$19.90	$36.16	$21.03	$7.46	$13.57
2029	$37.19	$19.90	$17.29	$29.39	$15.73	$13.66	2049	$56.12	$19.90	$36.22	$20.24	$7.18	$13.06
2030	$40.83	$19.90	$20.93	$31.02	$15.12	$15.90	2050	$56.17	$19.90	$36.27	$19.48	$6.90	$12.58
2031	$43.67	$19.90	$23.77	$31.91	$14.54	$17.37	2051	$56.23	$19.90	$36.33	$18.75	$6.64	$12.11
2032	$46.53	$19.90	$26.63	$32.69	$13.98	$18.71	2052	$56.28	$19.90	$36.38	$18.05	$6.38	$11.67
2033	$49.36	$19.90	$29.46	$33.35	$13.44	$19.91	2053	$56.34	$19.90	$36.44	$17.37	$6.14	$11.23
2034	$52.21	$19.90	$32.31	$33.92	$12.93	$20.99	2054	$56.39	$19.90	$36.49	$16.72	$5.90	$10.82
2035	$53.77	$19.90	$33.87	$33.58	$12.43	$21.15	2055	$56.45	$19.90	$36.55	$16.09	$5.67	$10.42
2036	$54.75	$19.90	$34.85	$32.88	$11.95	$20.93	2056	$56.51	$19.90	$36.61	$15.49	$5.45	$10.03
2037	$55.12	$19.90	$35.22	$31.83	$11.49	$20.34	2057	$56.56	$19.90	$36.66	$14.91	$5.24	$9.66
2038	$55.46	$19.90	$35.56	$30.80	$11.05	$19.75	2058	$56.62	$19.90	$36.72	$14.35	$5.04	$9.31
2039	$55.53	$19.90	$35.63	$29.65	$10.62	$19.02	2059	$56.68	$19.90	$36.78	$13.81	$4.85	$8.96
2040	$55.60	$19.90	$35.70	$28.55	$10.22	$18.33	2060	$56.74	$19.90	$36.84	$13.29	$4.66	$8.63
2041	$55.67	$19.90	$35.77	$27.48	$9.82	$17.66	2061	$56.80	$19.90	$36.90	$12.80	$4.48	$8.31
2042	$55.74	$19.90	$35.84	$26.46	$9.45	$17.01	2062	$56.85	$19.90	$36.95	$12.32	$4.31	$8.00
							Total	$1,944.5	$738.60	$1,205.9	$889.00	$354.80	$534.21

Appendix M Appraisal Summary Table

Appraisal Summary Table

Date:	15/09/2023	Evaluation Period: (baseline and forecast year) e.g 2020 - 2060	2023 - 2062	Option Name:	Package 16B	This is the preferred option	☑

Problem/opportunity statement:	Investment objectives:	How project gives effect to GPS:	How project gives effect to local community outcomes:
Public transport is not attractive enough compared to other travel options, particularly in growth areas, leading to low utilisation and mode share.	Attractive and competitive public transport for people travelling to work and education.	Inclusive access: improves access to social and economic opportunities via public transport. Healthy and safe people: health benefits from increased walking to public transport. Environmental sustainability: reduced CO2 emissions due to mode shift to public transport and lower light VKT. Economic prosperity: Labour supply/tax benefits.	There is community support for, and an expectation arising from, Shaping Future Dunedin Transport (SFDT) PBC around the future transport network for Dunedin, which includes a more liveable city, an accessible city, integration of the new Dunedin hospital with the wider city, and lower carbon emissions from transport. The Preferred Package provides an attractive public transport system that is expected to significantly grow mode share in line with SFDT targets, resulting in a a healthy, accessible, low carbon transport system for Dunedin.

1. Summary of Non-Monetised Impacts (Description)	2. Summary of Financial Impacts (nominal, non-discounted)		3. Summary of Monetised Option Impacts (present value, discounted)	
The investment proposal is estimated to significantly increase public transport boardings and public transport mode share. Access to frequent public transport services during the weekday peak also increases significantly. 1.1.3 Deaths and serious injuries, 8.1.1 CO2 emissions, and 12.1.1: Te Ao Māori have been included as mandatory measures.	Capital Costs	$2.0m (P50 over 10 years)	Total Monetised Benefits, excluding Wider Economic Benefits (WEBs)	$760.8m
			Total Monetised Benefits, including Wider Economic Benefits (WEBs)	$889.0m
	Operating Costs	$401.5m (P50 over 10 years)	Total Economic Costs	$354.8m
			BCR (excluding WEBs)	2.1
	Total Financial Costs	$403.5m (P50 over 10 years) [$195.9m above the Do Minimum cost]	BCR (including WEBs)	2.5

Transport Outcomes		Non-Monetised Impact: (description in numerical or narrative terms)			Monetised Impact: (description in dollar terms in real terms, non-discounted)	
Name of Benefit	Name of Measure:	Baseline:	Do Minimum Impact:	Option Impact:	Do Minimum Impact:	Option Impact:
Healthy and safe people						
1.1 Impact on social cost and incidents of crashes	1.1.3 Deaths and serious injuries	N/A	No change	No change	No change	No change
3.1 Impact of mode on physical and mental health	3.1.1 Physical health benefits from active modes	N/A	N/A	N/A	No change	$1,431.38m
Economic prosperity						
5.1 Impact on system reliability	5.1.3 Travel time delay	N/A	N/A	N/A	No change	$206.61m
6.2 Wider economic benefit (employment impact)	Labour supply/tax benefits	N/A	N/A	N/A	No change	$128.2m
Environmental sustainability						
8.1 Impact on greenhouse gas emissions	8.1.1 CO2 emissions	N/A	N/A	N/A	No change	$6.67m
Inclusive access						
10.1 Impact on user experience of the transport system	10.1.1 People - throughput of pedestrians, cyclists, and public	2.8m annual public transport boardings in 2022/23	Current trends continue	6.0m annual public transport boardings in 2038/39	N/A	N/A
10.1 Impact on user experience of the transport system	10.2.1 People - mode share	3.4% public transport journey to work mode share in 2018	No change	8.3% public transport journey to work mode share in 2034/35	N/A	N/A
10.1 Impact on user experience of the transport system	10.2.7 Temporal availability - public transport	32% of the urban population living within 500m of stop with public transport that runs every 15 minutes during the weekday peak in 2023	No change	84% of the urban population living within 500m of stop with public transport that runs every 15 minutes during the weekday peak in 2027	N/A	N/A
12.1 Impact on Te Ao Māori	12.1.1 Te Ao Māori	N/A	No change	No change	No change	No change

Rationale for option selection decision

Refer to Section 14 of the SSBC.

Appendix N Investment Requirements

50th Percentile Cost Estimate ($m)

Do Minimum	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
Fare revenue	($2.45)	($2.45)	($2.45)	($2.45)	($2.45)	($2.45)	($2.45)	($2.45)	($2.45)	($2.45)
Fare substitute	($1.66)	($1.66)	($1.66)	($1.66)	($1.66)	($1.66)	($1.66)	($1.66)	($1.66)	($1.66)
Gross operating cost	$22.71	$23.17	$23.63	$24.10	$24.59	$25.08	$25.58	$26.09	$26.61	$27.15
Capital cost	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total cost to funders	**$18.60**	**$19.06**	**$19.52**	**$19.99**	**$20.48**	**$20.97**	**$21.47**	**$21.98**	**$22.50**	**$23.04**

Preferred Option	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
Fare revenue	($0.74)	($0.85)	($1.02)	($1.10)	($1.20)	($1.25)	($1.31)	($1.35)	($1.40)	($1.45)
Fare substitute	($1.66)	($1.66)	($1.66)	($1.66)	($1.66)	($1.66)	($1.66)	($1.66)	($1.66)	($1.66)
Gross operating cost	$22.71	$31.38	$40.77	$41.58	$46.50	$47.43	$48.38	$49.35	$50.34	$51.34
Capital cost	$2.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total cost to funders	**$22.31**	**$28.87**	**$38.09**	**$38.82**	**$43.65**	**$44.53**	**$45.41**	**$46.33**	**$47.28**	**$48.24**

Investment Required	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
Fare revenue (reduction)	$1.71	$1.60	$1.43	$1.35	$1.25	$1.20	$1.14	$1.10	$1.05	$1.00
Fare substitute	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Gross operating cost (increase)	$0.00	$8.21	$17.14	$17.48	$21.92	$22.36	$22.80	$23.26	$23.72	$24.20
Capital cost (increase)	$2.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total cost to funders (increase)	**$3.71**	**$9.81**	**$18.57**	**$18.83**	**$23.17**	**$23.56**	**$23.94**	**$24.35**	**$24.77**	**$25.20**

95th Percentile Cost Estimate ($m)

Do Minimum	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
Fare revenue	($2.45)	($2.45)	($2.45)	($2.45)	($2.45)	($2.45)	($2.45)	($2.45)	($2.45)	($2.45)
Fare substitute	($1.66)	($1.66)	($1.66)	($1.66)	($1.66)	($1.66)	($1.66)	($1.66)	($1.66)	($1.66)
Gross operating cost	$28.39	$28.96	$29.54	$30.13	$30.73	$31.35	$31.97	$32.61	$33.27	$33.93
Capital cost	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total cost to funders	**$24.28**	**$24.85**	**$25.43**	**$26.02**	**$26.62**	**$27.24**	**$27.86**	**$28.50**	**$29.16**	**$29.82**

Preferred Option	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
Fare revenue	($0.74)	($0.85)	($1.02)	($1.10)	($1.20)	($1.25)	($1.31)	($1.35)	($1.40)	($1.45)
Fare substitute	($1.66)	($1.66)	($1.66)	($1.66)	($1.66)	($1.66)	($1.66)	($1.66)	($1.66)	($1.66)
Gross operating cost	$28.39	$39.22	$50.96	$51.98	$58.13	$59.29	$60.48	$61.69	$62.92	$64.18
Capital cost	$2.50	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total cost to funders	**$28.49**	**$36.72**	**$48.28**	**$49.22**	**$55.27**	**$56.38**	**$57.51**	**$58.67**	**$59.86**	**$61.07**

Investment Required	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
Fare revenue (reduction)	$1.71	$1.60	$1.43	$1.35	$1.25	$1.20	$1.14	$1.10	$1.05	$1.00
Fare substitute	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Gross operating cost (increase)	$0.00	$10.26	$21.42	$21.85	$27.40	$27.94	$28.50	$29.07	$29.65	$30.25
Capital cost (increase)	$2.50	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total cost to funders (increase)	**$4.21**	**$11.87**	**$22.85**	**$23.20**	**$28.65**	**$29.15**	**$29.65**	**$30.17**	**$30.70**	**$31.25**

Appendix O Funding Options Report

Dunedin Fares and Frequencies Business Case

Public Transport Funding Options

June 2023 **Ref: 310205283**

PREPARED FOR:

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PREPARED BY:

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Stantec

Revision Schedule

Revision No.	Date	Description	Prepared by	Quality Reviewer	Independent Reviewer	Project Manager Final Approval
1	17/3/2023	50% draft for MRC review	SL, KH, CL, SC	SC	DW	SL
2	18/09/2023	Draft for client review	SC	SL	DW	SL
3	12/10/2023	Final	SC	SL	DW	SL

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1. Introduction

1.1 Background

In late 2022, Otago Regional Council (ORC) engaged Stantec to prepare the Fares and Frequency Single Stage Business Case (FFBC) to identify a realistic and cost-effective public transport improvement package consisting of changes to frequencies, service span and fares, which will increase use of the Dunedin bus service, especially for journeys to work or education.

Improvements to public transport in Dunedin will require investment to effectively 'buy' patronage increases. At a time when many budgets are constrained, it is prudent to explore different funding streams to see whether alternatives are available which could supplement the current approach.

The current funding sources for the service are:

- Taxes apportioned through the National Land Transport Fund and administered by Waka Kotahi, covering 51% of costs once revenue from fares has been subtracted.
- Targeted ORC rate on households within a certain distance of existing bus routes, covering 49% of costs once revenue from fares has been subtracted.
- Fare revenue from fares paid on the bus by bus users.
- Crown Funding for SuperGold card users.

1.2 Purpose

This report provides an assessment of a range of supplementary revenue sources that could be used to contribute to the cost of public transport in Dunedin and recommends those which could be considered to support the Preferred Package. The recommendations from this report will be included in the Fares and Frequencies Single Stage Business Case (FFBC), in the Financial Case section.

1.3 Approach

The following steps were taken to identify the recommended potential supplementary funding sources:

- Develop and Assess Long List:
    - Identify Long List - workshop with internal project team (Stantec and MRCagney) to identify multiple potential funding sources. Participants completed desktop research in advance and held professional knowledge of global best practice relating to public transport funding and approaches taken elsewhere in NZ.
    - Zero Carbon Alliance Interviews – a presentation was given to the Zero Carbon Alliance, and an interview conducted with the Otago Polytechnic Director of Sustainability, and the Travel Plan Co-ordinator for Te Whatu Ora, DCC and University of Otago to understand their plans to reduce car travel.
    - Stakeholder Workshop – the initial funding options long list was discussed at a key stakeholder workshop. Participants provided feedback and comment on the long list, as well as sharing their views on which funding options they thought showed most promise. This was also an opportunity to identify any missing options.
    - Assess Long List – each funding option was detailed and assessed to identify advantages and disadvantages. Options with minimal advantages/high risk were excluded, to provide a short list.
- Assess Short List – the short list was assessed using a traffic light scoring system for four criteria - risk, public acceptability, implementability, and potential revenue impact.
- Discussions with Partners - the short list was discussed with potential funding partners.
- Preferred Options – a final list of preferred funding sources for the business case were confirmed.

2. Long List of Funding Options

2.1 Identify Long List

The long list of funding options was developed at a workshop attended by the combined Stantec and MR Cagney project team. Participants completed desktop research in advance and held professional knowledge of global best practice relating to public transport funding and approaches taken elsewhere in NZ. It was acknowledged that additional or special purpose Crown funding can be made available from time to time, but as these funds are irregular and cannot be relied on long term, participants agreed not to include additional Crown funding as a long list option. ORC keep a watching brief on these potential additional funding sources. Approaches were grouped together according to the potential funder. The long list is shown in Table 2-1.

Table 2-1 Long List of Potential Funding Sources

No.	Potential Funder	Option
Do Minimum	Taxpayers, ratepayers, bus users	Current funding system
1	Drivers	Congestion charging
2		Regional fuel tax
3		DCC parking charges hypothecated for public transport
4	Ratepayers (ORC)	Redesign existing ORC rating scheme to spread costs across more beneficiaries (households).
5	Ratepayers (DCC)	Increase DCC rates
6		Targeted rate on commercial and retail in the city centre
7	Developers	Development contributions
8	Employers	Tertiary institution subsidy for tertiary staff and students
9		Te Whatu Ora subsidy for hospital visitors and staff
10		Employers subsidise bus travel for employees
11	Advertisers	Bus shelter advertising
12		In bus advertising
13		Bus wrap advertising
14	Visitors	Events charge
15		Levy on cruise ships
16		Accommodation taxes
17		Increase differential between Bee Card and cash fare

2.2 Zero Carbon Alliance Interviews

A presentation was also given to the Zero Carbon Alliance meeting on 11 October 2022. Subsequently, the Travel Co-ordinator for DCC, Te Whatu Ora, and the University of Otago was interviewed, as well as the Director of Sustainability from Otago Polytechnic. This provided further insight into the challenges facing these major employers, particularly around funding constraints within their organisation, but also about the travel to work targets for each organisation. There is clearly commitment to encouraging more use of sustainable travel modes, but these goals exist within a highly constrained funding environment. Increasing private parking charges and reducing supply were potential options being considered by both tertiary institutions.

2.3 Stakeholder Workshop

A stakeholder workshop was held on 8 March 2023. As part of a broader discussion about FFBC programme options, the Stantec team presented the long list of funding options. Workshop attendees represented Otago Regional Council, Dunedin City Council, Waka Kotahi, Te Whatu Ora and Fisher & Paykel. The attendees were asked to discuss the funding options and provide feedback. They were also prompted to identify any missing options.

Stakeholders noted:

- Transition to national operating models for large organisations makes it hard to create locally tailored PT packages/incentives e.g., Te Whatu Ora, Otago Polytechnic.
- Employers might be open to subsidies for their employees. This has been discussed for many years but never progressed. Employers would be open to understanding viable options and/or package offerings.
- Advertising on buses could be a viable funding option, but only if the income is sufficient to cover the costs of shelters to display adverts.
- The body that people pay their PT rates to is largely irrelevant to people. However, DCC and ORC have different rating areas and therefore PT rates could apply differently to households.
- An additional option was identified - extra charges for tourists/cruise ship visitors, and an accommodation surcharge to provide PT use.
- Parking charges should be tied to bus fares, with parking charges increased to a level which makes bus fares attractive.

It was agreed that the best approach for funding the Preferred Option from the FFBC would be to focus on the options that would have the most potential revenue impact. Other options could be progressed separately by ORC outside the FFBC process.

2.4 Long List Assessment and Excluded Options

Table 2-2 sets out the long list of potential funding options, grouped by potential funder'. Each option includes a brief description, and advantages, disadvantages, potential impact, and a recommendation regarding whether the option should be excluded or carried forward to the short list. Feedback from the stakeholder workshop, to focus on those options with the most potential revenue impact, was also a consideration in the assessment.

Note that options that are excluded could be pursued by ORC outside the FFBC process.

Table 2-2: Potential Funding Options

No	Option	Who pays?	Description	Advantages	Disadvantages	Potential Impact	Short list or exclude?
Do Minimum	Current funding system	Taxpayers, ratepayers, passengers	Taxpayers (NLTP), Dunedin ORC targeted ratepayers, and passengers through fares.	Costs are split 50/50 between taxpayers and targeted ratepayers, once fare revenue has been removed. Bus users directly pay for their travel. Ratepayers that have access to services pay because they can potentially use services.	People who live outside the area defined by the ORC as having 'access to services' do not pay through rates but can still use the bus system as regularly as they want to. This applies to a large percentage of households in the Dunedin City Council rating area. These people may drive from outside the targeted rate zone and park near a stop and use the bus. There is a political process governing rates, and sometimes this means that the amount of funding is lower than required to provide an optimum public transport service.		Short list as Do Minimum
Funder	**Drivers**						
1	Congestion charging	Drivers	Congestion charging is a method of charging road users for the use of specific roads during specific times and days, thereby easing congestion issues. Has been investigated for Auckland with some baseline data established, but no decisions have yet been made.	Discourages driving in the most congested parts of the day. Some drivers will shift travel to less congested times, others will use alternative modes, and some will not change their behaviour. Those who do not change their behaviour will pay congestion charges which can be used to fund alternative transport modes.	A congestion pricing scheme would require new legislation. Could create equity issues depending on the location and the charges implemented. Could create congestion on other roads not included in the congestion charging scheme. Congestion charging has been contentious in other large cities and is likely to contested by the public. Certain industries may ask for exemptions from congestion charging as their businesses rely on the road network.	$$$	Exclude This needs more consideration at a national level and in other, more congested, centres, before being considered in Dunedin.
2	Regional fuel tax	Drivers of petrol or diesel vehicles.	A regional fuel tax would be administered via the process outlined in the Land Transport (Regional Fuel Tax) Amendment Act 2018. A 10 cent per litre regional fuel tax currently applies to petrol and diesel sold in the Auckland region.	Provides additional revenue to fast track or fund local projects. Increasing the cost of fuel may discourage driving and encourage alternative modes.	Process is lengthy and requires national government approval. A further complication relates to consideration of who is eligible for fuel tax rebates and refund of petrol excise duty. Potentially inequitable for communities that do not have access to, or are not able to use, public transport, as driving may be their only option.	$$$	Exclude This is not likely to be achievable in Otago because many parts of the region do not have access to public transport.
3	ZCA/DCC parking charges hypothecated for public transport	Drivers using ZCA/DCC managed on and off-street parking facilities	Transfer of parking revenue from ZCA/DCC to the ORC. This could include introducing a more dynamic demand-based parking pricing model (eg targeting 85% occupancy) alongside increased parking charges to increase the amount of parking revenue. Recent example in Queenstown Lakes District where the Council offered parking revenue to ORC to offset cost of public transport services. Has been discussed previously in Dunedin, but never progressed.	Increases the cost of parking and therefore discourages driving. Direct relationship between parking and public transport which can be easily understood by the community.	May be difficult and time consuming to administer. May be difficult to get political agreement to the concept that people driving are paying for other people not to drive but use the bus instead. Over time, mode shift may lead to reduced parking revenue. Potentially inequitable for communities that do not have access to, or are not able to use, public transport, as driving may be their only option. ZCA/DCC currently use parking revenue to offset other costs.	$$$	Short list This was supported at the stakeholder workshop and was included in SFDT PBC.
Funder	**Ratepayers**						
4	Redesign existing ORC rating scheme to spread costs across more beneficiaries (households).	Ratepayers (ORC)	ORC use a targeted rate system for public transport. Households in Dunedin with access to bus services pay this rate; others do not. This option would redesign the system so that everyone in Otago would pay something towards the cost of public transport in Dunedin, although this could	Provides a consistent stream of funding for public transport. People who could use the service for day to day travel pay for it through their rates bill. Even if people do not use it, there is evidence that such services add value to properties.	Would require an overhaul of the existing rating system, and the Special Consultative Procedure would be required. Not all landowners pay rates (eg Otago University, Crown properties), and these organisations would continue to not contribute to public transport, despite having access to services.	$$$	Short list This was supported at the stakeholder workshop and could more fairly spread the cost of public transport across all potential beneficiaries.

No	Option	Who pays?	Description	Advantages	Disadvantages	Potential Impact	Short list or exclude?
			be at a lower rate for those living outside the Dunedin City Council boundary. Defined by Local Government (Rating) Act 2002.	Spreading the cost across the region would be more equitable, as all residents in the region can benefit from the services when visiting Dunedin, which is the primary centre for the region.			
5	Increase DCC rates	Ratepayers (DCC)	A new charge for DCC ratepayers that would be used specifically to help fund public transport.	ORC would not need to increase rates. The increase in rates would apply in Dunedin where the improvements are being made.	Would need a process for transferring monies collected from DCC to ORC. The same outcome could be achieved by ORC increasing their rating system for Dunedin public transport, without the need for money to change hands. The amount collected per annum by DCC may vary depending on the political decision making. This may lead to uncertainty for ORC as to how much money may be available each year, and potentially a partial loss of control.	$$$	Short list This was supported at the stakeholder workshop. In recent years there has appeared to be political will at DCC to provide further subsidy to ORC to improve public transport in Dunedin.
6	Targeted rate on commercial and retail in the city centre	Central city commercial properties	Increase existing DCC commercial rate to provide a public transport element	Independent funding stream for public transport. Commercial properties contribute to the benefit that they already receive from having good public transport to their premises.	Many politicians are local business owners and are unlikely to support this initiative. Likely backlash from business owners.	$$	Exclude Seems unlikely to be politically acceptable, although could be considered by ORC and DCC.
Funder	**Developers**						
7	Development contributions	Developers	New subdivisions and developments could pay one off charge with funding going to ORC for public transport services. Auckland charges for infrastructure including PT.	Ensures that new growth areas contribute to future provision of services	ORC would rely on DCC to collect on its behalf. Dunedin is not a high growth city, meaning potential revenue may be limited. One off charge that is unlikely to provide revenue stream beyond set up costs of new services to growth area. There needs to be a link between development contribution and what the contribution provides for. Many new growth areas are low density and unable to support a viable PT service.	$$	Exclude Seems overly complex with insufficient advantages unless growth increases.
Funder	**Employers**						
8	Tertiary institution subsidy for tertiary staff and students	University of Otago, Otago Polytechnic	Providing discounted or free PT for tertiary students, which would be funded through student fees, or by institutions themselves, for example from savings in providing car parking, or by increasing parking charges (alongside reducing supply). Massey University has this scheme.	Independent funding stream for public transport. Will encourage uptake by staff/students. Reduces demand for parking at and around Tertiary Precinct, which would lead to cost savings.	May be introduced and then suddenly withdrawn as a result of changes in decision making or other financial pressures. This would introduce uncertainty for ORC.	$$	Exclude These options are excluded from the short list for the business case as the potential revenue is unclear, and the approach requires significant further work with potential employers to develop a service offering. These options were supported at the stakeholder workshop with work progressing outside the business case process.
9	Te Whatu Ora subsidy for hospital visitors and staff	Te Whatu Ora	Subsidised travel scheme funded through Te Whatu Ora. Hawkes Bay Hospital does this due to lack of on-site parking. NDH has potentially the same problem with lack of parking.	Independent funding stream for public transport. Will encourage uptake by hospital staff/visitors. Reduces the demand for parking around the hospital sites, which could lead to cost savings.	May be withdrawn at a later date due to changes in decision making or other financial pressures. This would introduce uncertainty for ORC. As Te Whatu Ora is now a national organisation, it may be difficult to establish a local travel scheme.	$$	
10	Employers subsidise bus travel for employees	Employers	Subsidised travel scheme funded through employer. Could start with the larger employers to trial, and then potentially broaden to schools etc. Auckland Transport may have developed such a pass e.g. monthly discounted pass.	Independent funding stream for public transport. Will encourage uptake by employees. Reduces the demand for parking at workplaces and in the central city, which could lead to cost savings for the workplaces involved. Able to be delivered at scale and rolled out across multiple organisations.	May be withdrawn at a later date due to changes in decision making or other financial pressures. This would introduce uncertainty for ORC. Will be subject to fringe benefits tax and will need legislation to bypass this.	$$	
Funder	**Advertisers**						

No	Option	Who pays?	Description	Advantages	Disadvantages	Potential Impact	Short list or exclude?
11	Bus shelter advertising	Advertisers	Having bus shelters that are advertiser funded, which means they are allowed to publicly display advertisements on the shelters. Funding that would have been used to install or maintain bus shelters could be redirected to fund public transport services instead.	Reduces or removes the cost of providing shelters. Could result in a higher standard of lighting for customers. Likely to result in a higher standard of maintenance than the public sector is often able to provide.	Bus shelters need to be upgraded to accommodate advertising. Can be considered visual and light pollution (resisted to in sensitive areas). May require resource consent, depending on the local authority district plan rules. Contract can be onerous including penalties for disruption to the shelter eg roadworks – if the bus stop is not operating. Risk that advertising revenue is marginal once the cost of upgrading shelters is accounted for. May provide a royalty stream to the DCC which would then need to be transferred to the ORC. Advertising may be seen as 'tacky' by some. It can also have a negative impact on mental health.	$	Exclude Likely to bring a minor contribution and is likely to be complex to introduce.
12	In bus advertising	Advertisers	Advertising inside buses, with revenue used to fund public transport services. Lots of UK examples, Wellington (Metlink controls advertising through bus contracts). Auckland have live screens. Currently Dunedin buses have a panel that is used to give messages to passengers.	Provides additional revenue without the need for additional infrastructure.	Risk that advertising revenue is marginal. Advertising may be seen as 'tacky' by some. It can also have a negative impact on mental health. Contract needs to specify revenue needs to be passed on to ORC, otherwise could go direct to bus company.	$	Exclude Likely to bring a minor contribution.
13	Bus wrap advertising	Advertisers	Advertising displayed around the outside of a bus. Currently bus advertising in Dunedin is limited to 'back of bus' only.	Provides additional revenue without the need for additional infrastructure.	Can limit ability of local authority to brand buses in a way that promotes the local public transport brand. Bus customers may not like if they obscure windows as it can make it difficult to identify your stop and lead to motion sickness. Advertising may be seen as 'tacky' by some. It can also have a negative impact on mental health. Contract needs to specify revenue needs to be passed on to ORC, otherwise could go direct to bus company.	$	Exclude Likely to bring a minor contribution.
Funder	**Visitors**						
14	Events charge	Venue Customers	Add small percentage to ticket costs to provide special event buses, for events at Stadium. Done in Auckland as part of consent for major events.	Provides a safe alternative travel choice for event goers and reduces vehicle congestion and emissions created by reducing number of vehicles travelling as a consequence of the event.	Applies cost to all event goers rather than just those using public transport, although this is also true of other parts of the cost of an event e.g. people who do not drive to the event will still contribute to the cost of traffic management through ticket price. Revenue dependent on events and requires additional services. Additional revenue from this option may be marginal	$	Exclude Special buses for events not in scope for this project. Would not contribute to overall cost of PT services.
15	Levy on cruise ships	Cruise ship company	Public transport levy for cruise ships which would be passed on to passengers through increased frequency of services/special buses for cruise ship passengers.	Local residents not competing with cruise ship passengers on local services. Cruise ship operators contributing to cost of providing services for their passengers.	Competes with local tourism operators who currently operate these services. Revenue dependent on cruise ship visits. Additional revenue from this option likely to be marginal.	$	Exclude Special buses for cruise ship passengers not in scope for this project. Levy on cruise ships likely to bring marginal funding.
16	Accommodation taxes	Accommodation providers	An additional charge on top of the standard accommodation rate that means that visitors contribute to the cost of running PT.	Means that visitors will contribute to the cost of providing PT services, which they are able to use.	PT may not be easily accessible at certain accommodations and so applying a blanket tax may not be justified. Likely to be controversial - many accommodation providers provide parking and may not be supportive. Will need to be administered by DCC.	$	Exclude Likely to be complex and controversial. Likely to bring a minimal contribution.
17	Increase differential between Bee Card and cash fare	Bus users without Bee Cards (eg visitors)	To ensure visitors contribute to the service, and penalise those paying cash	Generates some additional revenue with little impact on most public transport users.	Revenue is likely to be minimal. May present a barrier to people that have an affordability challenge. May deter one-off or casual users who do not want/need to purchase a Bee Card. May penalise local residents.	$	Exclude Likely to bring a minimal contribution.

3. Assess Short List of Funding Options

3.1 Short List Analysis

The short list identified through the above assessment is shown in Table 3-1. The following analysis was used to draw out the differences between the short list options. A three point traffic light scoring system was used:

	Yes – positive impact and reasonably straightforward/lower risk.
	Maybe – some uncertainty and likely to need further investigation to mitigate risks or understand public acceptability, or negotiation with DCC.
	No - likely to be difficult to implement or high risk, or little revenue impact.

Each option was scored against four criteria:

- **Risk –** how significant are the risks associated with this funding option?
- **Public Acceptability –** is the option likely to be acceptable to the public, or will there be pushback? How controversial is the option? How different is it to the current funding system?
- **Implementation –** how difficult will the option be to implement? Will it require a long lead in time? Will it require significant effort to establish or be relatively easy to implement once a decision is made?
- **Potential Revenue Impact –** what is the likely revenue impact from this option?

The results are shown in Table 3-1.

Table 3-1: Assessment of Short List

No	Option	Risk	Public Acceptability	Implementation (timing and effort)	Potential Revenue Impact	Comments	Overall Score
Do Min	Combination of targeted rate (ORC), NLTP and fares					Advantages: Lower risk with status quo, easy to implement as systems in place already. Disadvantages: Additional funding will require a rate rise, which may not be politically acceptable.	
3	Redesign existing ORC rating scheme					Advantages: Little risk, significant revenue stream. Could be completed reasonably quickly. Would spread additional cost across more households, Disadvantages: Public may not support rates increases. Requires SCP[1].	
4	Increase DCC rates					Advantages: Could be completed reasonably quickly. Significant revenue stream. Disadvantages: Requires negotiations with DCC. Public may not support rates increases. Requires SCP. ORC have less control, so slightly more risk around continuity of funding.	
5	ZCA/DCC parking charges hypothecated					Advantages: Significant revenue stream. Hypothecated funding easy for public to understand. Disadvantages: Requires negotiations with ZCA/DCC. Could lead to rates rises or parking charge increases, although not a guaranteed outcome. May not be publicly acceptable.	

[1] Special Consultative Procedure

4. Partner Engagement

4.1 Connecting Dunedin Meeting

A project update was provided for Connecting Dunedin (Attachment 1) on 1 May 2023. The update explained that the increase in net operating cost to provide improved service levels and increase patronage may be circa $20M pa. This funding could be made up from NLTP, ORC targeted rate redesign, plus potentially a contribution from DCC and other third parties.

The short listed funding options were presented along with some examples of how these could be implemented.

Example funding splits were presented using indicative costs for one package option[2] to explain the current system and demonstrate different partner contributions to make up the increased overall cost. This included demonstrating the potential for DCC to contribute funding for PT in Dunedin.

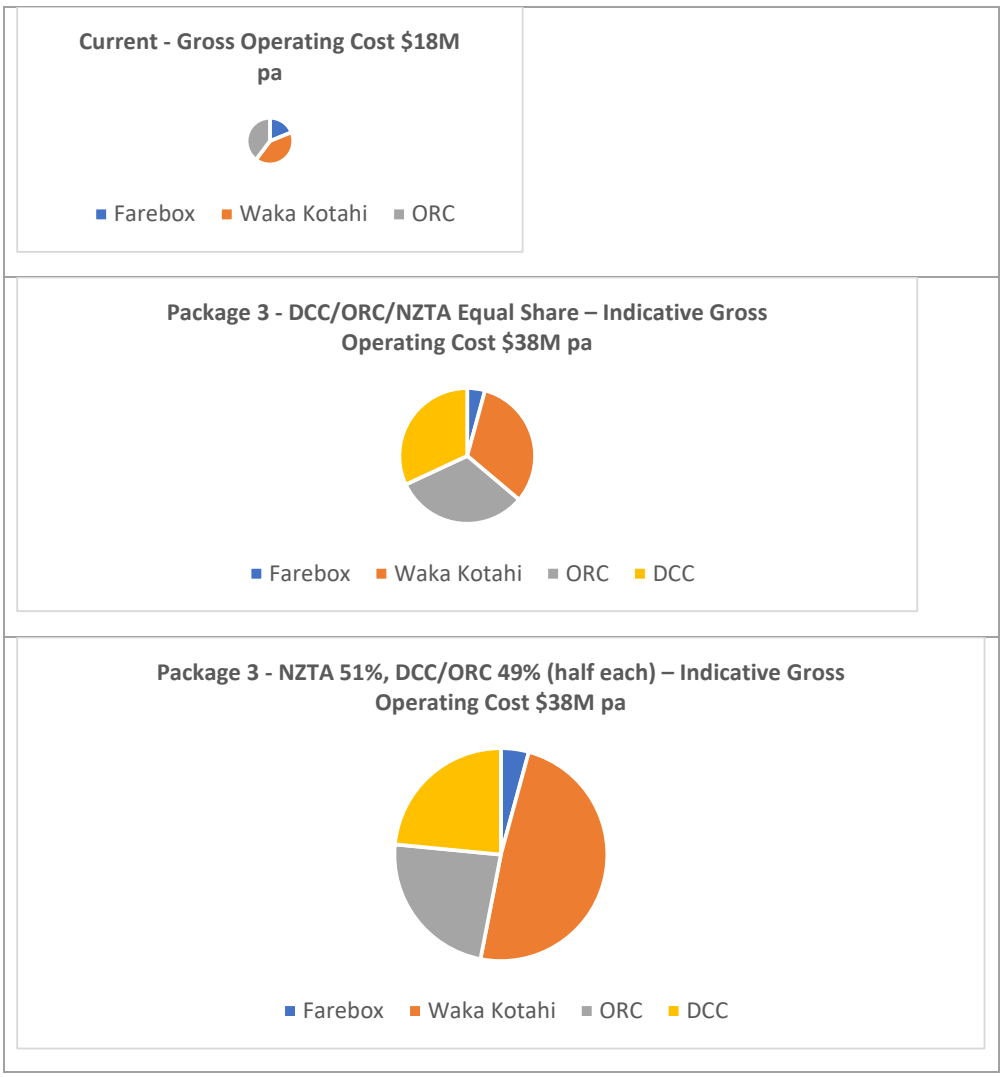

Figure 4-1: Examples of Different Funding Contributions

An example of hypothecating parking revenue for PT services was also provided. Table 4-1 demonstrates additional revenue that could be generated through the Zero Carbon Alliance partners making a contribution from increasing their on-

[2] FFBC Package 3

site parking charges. Relatively small increases are shown, and the impact per annum is estimated at circa $5M p.a. which could potentially be hypothecated for public transport.

Note other mechanisms for generating revenue are also available (e.g. DCC rates, University fees, etc) – these were not discussed further with Connecting Dunedin.

Table 4-1: Option for Generating Additional Parking Revenue to Fund PT Improvements

Parking Asset	Spaces (DCC Parking RoadMap 2020)	Additional charge	Weeks pa	Revenue estimate
DCC leased spaces	603	$10/week	52	$0.3M
DCC on street spaces less than 4hr	1143	$1 per hour Assume 3 visits per day, 6 days a week NB this is quite low occupancy	50	$1.0M
DCC on street spaces 4hr-all day	1055	$5 per day 6 days a week	50	$1.6M
DCC off street spaces	1044	$1 per hour Assume 3 visits per day, 6 days a week	50	$0.9M
University leased spaces	2000 *estimate	$10/week	52	$1.0M
TOTAL				**$4.8M**

4.2 Councillor Briefing

A workshop with ORC Elected Members was held on 23 August 2023. A summary update of the business case was provided, and Councillors noted the potential for significant additional funding for the improved services.

4.3 Connecting Dunedin Staff Workshop

A Part C workshop was held on 1 September 2023 and attended by staff representatives from Waka Kotahi and DCC. At this workshop the current and future potential funding sources were discussed. In addition to funding options already identified (section 2.4), the existence of additional Crown funding initiatives such as the Climate Emergency Response Fund, MBIE International Visitor Levy and other potential streams emerging from the draft GPS were discussed. However, at this time prior to a national election, all were too uncertain.

It was agreed that changes to ORC and/or DCC rates was the most likely option, and this would be discussed in the FFBC.

The workshop highlighted the need for ORC to investigate third party sources. No formal conversations had been had with partners (DCC) or major employers (ZCA) about parking. A new Joint (ORC/DCC) Committee or Connecting Dunedin provided the best opportunity to discuss public parking options with DCC. An upcoming meeting with the Zero Carbon Alliance presented an opportunity to discuss changes to private parking.

5. Preferred Options

Based on analysis and feedback, the recommended supplementary revenue sources that could best contribute to the cost of public transport in Dunedin and should be considered in the development of the Financial Case for the Preferred Option are:

- Parking revenue (from all ZCA partners including DCC) to be hypothecated for public transport.
- Redesign ORC rate to spread cost of public transport improvements across more beneficiaries.
- Introduce general DCC rate to be passed to ORC for public transport improvements.

6. Next Steps

Once the business case has been endorsed it is recommended that ORC urgently seek supplementary funding that could be used to offset the costs and part-fund improved services. Connecting Dunedin and the ZCA are natural routes for these conversations.

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Appendix P Risk Matrix

Risk / Opportunity	Threat			Opportunity			Risk Owner	Mitigation	Residual Threat			Residual Opportunity		
	Likelihood	Consequence	Rating	Likelihood	Consequence	Rating			Likelihood	Consequence	Rating	Likelihood	Consequence	Rating
Planning:														
Risk / opportunity that policy levers change (e.g., parking strategy, congestion charging), resulting in lower / higher uptake of public transport	2	4	MEDIUM	3	4	HIGH	ORC	Communicate with policy makers regularly to understand potential future changes; be flexible to adapt services to respond to changes.	2	4	MEDIUM	3	4	HIGH
Risk / opportunity that population growth is lower / higher than expected, resulting in lower / higher population served and benefits.	3	3	MEDIUM	3	3	MEDIUM	ORC / Waka Kotahi	Use the latest population growth predictions available; undertake sensitivity testing to examine the implications of lower / higher growth.	3	3	MEDIUM	3	3	MEDIUM
Risk / opportunity that tertiary education enrollments are lower / higher than predicted, resulting in lower / higher patronage.	3	3	MEDIUM	3	3	MEDIUM	ORC	Monitor patronage trends; consider adapting routes or reducing frequency on affected services to respond to a severe, long-term reduction in patronage.	3	3	MEDIUM	3	3	MEDIUM
Risk / opportunity that the Covid-19 pandemic results in different travel patterns than expected (e.g., lower peak demand due to uptake of flexible working)	3	2	MEDIUM	3	3	MEDIUM	ORC	Monitor patronage daily profile trends; consider reallocating service frequency depending on demand.	3	2	MEDIUM	3	3	MEDIUM
Risk that the Covid-19 pandemic results in lower patronage growth than predicted.	3	3	MEDIUM	N/A	N/A	N/A	ORC	Monitor patronage trends; consider reducing frequency on affected services to adapt to a severe, long-term reduction in patronage.	3	2	MEDIUM	N/A	N/A	N/A
Risk / opportunity that growth areas occur in different places than planned, resulting in the need to adjust routes to meet demand.	2	2	LOW	3	3	MEDIUM	ORC	Ensure development consents approved align with the ORC land-use and planning documents; monitor growth patterns and consider adapting routes to accommodate	2	2	LOW	3	3	MEDIUM
Risk / opportunity that DCC make changes to the road network that negatively / positively affect the ability to operate services.	2	2	LOW	2	3	MEDIUM	ORC	Communicate regularly with DCC to understand their motivations and any planned changes to the road network; have the flexibility to divert routes (and communicate this to customers) if critical changes are required (e.g., urgent road works); work with DCC on road changes that would enhance the public transport network	2	2	LOW	3	3	MEDIUM
Risk / opportunity that the popularity of mobility as a service and ride share (e.g., e-scooters, bike share) reduces / increases public transport patronage.	2	2	LOW	3	2	MEDIUM	ORC	Use policy and regulation to enhance connections between bus and ride share journeys (e.g., e-scooters parked in locations to facilitate first/last mile connections); be aware of and support the inclusion of public transport in mobility as a service projects	2	2	LOW	3	3	MEDIUM
Risk that residents oppose bus stop and superstop upgrades, resulting in pressure to change the investment proposal.	4	1	LOW	N/A	N/A	N/A	ORC	Communicate with residents why the changes are needed and help them understand the benefits to the wider community.	4	1	LOW	N/A	N/A	N/A
Customer:														
Risk that inadequate public communications cause confusion and results in mode-shift away from public transport.	3	4	HIGH	3	3	MEDIUM	ORC	Execute an effective public communication strategy that shares the information needed via a range of different mediums; there is an opportunity to encourage public transport uptake through public communications at the time of implementation	2	4	MEDIUM	3	4	HIGH
Political:														
Risk / opportunity that changes in government policy results in different public transport priorities.	3	3	MEDIUM	3	3	MEDIUM	ORC	Communicate regularly with policy makers to understand the potential future direction; be flexible about implementing further enhancements to encourage lower carbon transport modes.	3	3	MEDIUM	3	3	MEDIUM
Risk / opportunity that poor / good project execution and public communication result in lower / higher public trust towards ORC and DCC.	1	4	LOW	2	2	LOW	ORC / DCC	Undertake a robust procurement process; carefully manage the implementtion of the network and communication of changes to the public; there is also an opportunity for improved reputation by implementing the improved network well	1	3	LOW	2	2	LOW
Risk / opportunity that residents don't think improvements are sufficient to meet emissions reduction target, resulting in pressure to do more, or migration to other areas of the country	1	1	LOW	1	1	LOW	ORC	Consider further enhancements of the network if this issue is raised.	1	1	LOW	1	2	LOW
Risk that regulation changes (e.g., bus driver conditions, wages) affect timeframes, cost or outcome.	1	3	LOW	N/A	N/A	N/A	ORC	Communicate regularly with policy makers to understand potential future changes that could affect operating costs; work with Waka Kotahi, the operator and bus drivers to reach an outcome that is satisfactory to all parties.	1	3	LOW	N/A	N/A	N/A
Financial:														
Risk / opportunity that the 2023 General Election results in a change in direction or priorities, which may affect available funding.	3	4	HIGH	2	3	MEDIUM	Waka Kotahi		3	4	HIGH	2	3	MEDIUM
Risk that investment required or investment sources are not available when needed, resulting in a delay or inability to implement all or part of the investment proposal	3	4	HIGH	N/A	N/A	N/A	ORC / Waka Kotahi	Ensure the project costs are included in RLTP and NLTP budget allocations. If necessary, postpone the commencement of the investment proposal.	2	4	MEDIUM	N/A	N/A	N/A
Risk that operating costs are higher than expected, resulting in the need for more funding or reduction in service provided.	3	4	HIGH	N/A	N/A	N/A	ORC	Engage with the market early to understand the likely cost range; consider reducing service frequency or span if needed to reduce costs.	3	3	MEDIUM	N/A	N/A	N/A
Risk that inflation / PT index increases faster than anticipated, increasing costs and resulting in an inability to fully deliver the project without additional budget	3	3	MEDIUM	N/A	N/A	N/A	ORC / Waka Kotahi	Use sensitivity testing to understand the impact of higher than anticipated inflation; monitor the PT index and adjust budgets accordingly.	3	2	MEDIUM	N/A	N/A	N/A
Risk that the political appetite for rates levels changes, resulting in long-term affordability issues.	3	3	MEDIUM	N/A	N/A	N/A	ORC	Communicate the impact of rates increases/decreases on the delivery of the investment proposal and the council's balance sheet.	3	3	MEDIUM	N/A	N/A	N/A
Risk that Waka Kotahi will not approve funding due to other competing priorities.	3	4	HIGH	N/A	N/A	N/A	ORC / Waka Kotahi	Engage with Waka Kotahi throughout the development of the business case to ensure an acceptable investment proposal is developed and gauge the likely priority of the proposal	2	4	MEDIUM	N/A	N/A	N/A
Risk that fare revenue is less than anticipated, resulting in increased costs to ORC and Waka Kotahi.	3	3	MEDIUM	N/A	N/A	N/A	ORC / Waka Kotahi	Undertake sensitivity testing to understand the impact of lower fare revenue; budget based on a slightly conservative fare revenue outcome.	3	2	MEDIUM	N/A	N/A	N/A
Delivery:														
Risk that the operator is unable to secure enough drivers or buses, resulting in partial non-delivery of the investment proposal.	3	4	HIGH	N/A	N/A	N/A	ORC / Bus Operator	Undertake a robust procurement process to ensure the preferred bus operator has sufficient resources to deliver; if no operators meet this threshold, consider breaking up the contract to be delivered by multiple operators.	2	3	MEDIUM	N/A	N/A	N/A
Risk / opportunity that the increased scale of units makes the contracts unable to be delivered by the current suppliers in the market, resulting in inability to deliver the full network / attracts more suppliers, resulting in better market response	3	3	MEDIUM	3	2	MEDIUM	ORC	Engage with the market early to understand the likely interest and ability to deliver. Consider changes to implementation phasing to match the market's ability to deliver.	3	2	MEDIUM	3	2	MEDIUM
Risk that ORC and DCC do not work together to prioritise the implementation of new bus stop infrastructure, resulting in potential crowding and access issues.	3	3	MEDIUM	N/A	N/A	N/A	ORC / DCC	Ensure there is regular communication between ORC and DCC; appropriate resourcing to execute implementation.	2	3	MEDIUM	N/A	N/A	N/A
Risk that the tender does not attract a large number of respondents, resulting in decreased market competition and lower value for money.	3	3	MEDIUM	N/A	N/A	N/A	ORC	Issue advance notice to market / ROI early; provide regular updates to registered suppliers; provide sufficient time for potential tenderers to prepare a suitable tender	2	3	MEDIUM	N/A	N/A	N/A
Risk that market capacity or supply chain disruption delays the implementation of new bus stop infrastructure, resulting in potential crowding and access issues.	2	3	MEDIUM	N/A	N/A	N/A	ORC / DCC	Identify new bus stop infrastructure early; engage with the market to understand likely timing of delivery and associated impacts.	2	2	LOW	N/A	N/A	N/A
Risk that ORC don't have sufficient staff to manage the procurement and implementation phases, resulting in poor execution, customer outcomes and reputational damage	2	3	MEDIUM	N/A	N/A	N/A	ORC	Review staffing levels closer to the procurement and implementation phases, consider employing additional staff to enable successful delivery	1	3	LOW	N/A	N/A	N/A

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7.4. Queenstown Public Transport Business Case Update

Prepared for:	Public and Active Transport Committee
Report No.	PPT2402
Activity:	Transport: Public Passenger Transport
Author:	Varghese Thomas, Acting Transport Planning Lead
Endorsed by:	Richard Saunders – Chief Executive
Date:	15 January 2024

PURPOSE

[1] This paper presents the Queenstown Public Transport Business Case to the Committee and recommends it is sent to full Council for endorsement.

EXECUTIVE SUMMARY

[2] The QPTBC was prepared in 2022 and 2023 under the Way to Go Partnership (Way2Go) of the NZ Transport Agency, Waka Kotahi (NZTA), Queenstown Lakes District Council (QLDC) and Otago Regional Council (ORC). It focuses on the investments related to PT service operations required to support a 40% alternative mode share in Queenstown.

[3] QPTBC proposes significant financial investments in terms of capital and operational expenditure. The annual operational costs for managing the QPTBC network services are projected to be $21.15 M in 2027/28 increasing to $25.75 M in 2034/25.

[4] The investment proposal will deliver significant improvement in the existing PT levels of service for the Whakatipu Basin. The proposed level of service improvements over 10 years are:

- increased service spans and frequencies on all existing bus routes;
- increased ferry service frequencies;
- a high-capacity vehicle bus fleet; and
- on-demand PT services in Queenstown Hill and Goldfield Heights.

RECOMMENDATION

That the Committee:

1) ***Notes** this report.*
2) ***Recommends** to Council that it endorses the Queenstown Public Transport Business Case.*
3) ***Notes** the financial, management and commercial cases are only in final draft form.*

BACKGROUND

[5] Queenstown is one of New Zealand's fastest growing regions, driven by growth in population, tourism, and supporting activities. This growth is placing increasing pressure on infrastructure, the transport system, and the environment.

[6] In 2020 the Integrated Queenstown Business Case (QBC) demonstrated that transport investments needed to support changes to the network that can achieve a 40% alternative mode share (PM peak on SH6A) by 2028. That business case proposed an

integrated transport approach with PT services being one of three pillars of investment, along with State highway infrastructure investment and travel demand management.

[7] ORC's QPTBC focuses specifically on the investments related to PT service operations. It was prepared in 2022 and 2023 under the Way to Go Partnership (Way2Go) of NZTA, QLDC and ORC.

[8] The QPTBC was informed by a series of Advisory Papers which were reviewed by Way2Go. A long list of options was initially identified with Way2Go. However, due to the limited range of different options, the long list was reduced to a short list of options and agreed by the project partners for the purpose of public consultation.

[9] Public consultation for the shortlisted options took place from 18 September to 2 October. After further assessments, a preferred option was identified and agreed to with the Way2Go partners.

[10] At its 9 November 2023 meeting, the committee received a report updating recent work and presenting the QPTBC strategic case. The Council also used the vision for public transport in Queenstown proposed in the QPTBC, along with the preliminary costings and benefits, as the basis of its Long-Term Plan consultation proposal.

DISCUSSION

[11] The strategic and economic cases are complete and the financial, management and commercial cases of the business case are in final draft form.

[12] The economic case demonstrates how the preferred option was identified from a long list of options. The financial, commercial and management case provides the details on funding streams, management, and commercial viability of the business case, noting that pricing mechanisms were excluded from the scope of this business case.

[13] The summary of the business case is included as Attachment 1. The full business case along with appendices are included as Attachment 2. All cases will now be circulated to the Way to Go partners.

[14] The preferred option has been identified and agreed with the project partners, the NZ Transport Agency (NZTA) and Queenstown Lakes District Council (QLDC). The preferred option includes:

- Public Transport Service Improvements.
- Stanley Street Hub changes.
- Frankton Hub changes.
- Establishment of a depot for electric buses.
- SH6 bus lanes (approximately Kawarau Falls Bridge to William Rees Cottage).
- Local road minor intersection improvements (to accommodate articulated buses).
- Bus stop changes and related infrastructure / signage on local roads.
- Bus stop changes and related infrastructure / signage on state highways.

[15] The preferred option involves development in four distinct stages spanning the time periods between 2024 and 2039.

Years 1 to 3 2024-27

[16] It is proposed to increase the frequency of routes 3 (Kelvin Heights to Quail Rise) and 4 (Jack's Point to Frankton Hub) to a half hourly service in peak times. It is also proposed to introduce a new service connecting Arrowtown to Queenstown via Malaghans Road. The new service connecting Arrowtown to Queenstown via Malaghans Road was included due to strong support during the public consultation, despite having low economic benefits.

[17] The Frankton bus hub and the adjacent intersection upgrades are expected to be completed in the same period. This aligns with the New Zealand Upgrade Programme

(NZUP) for SH6 and at the Frankton Hub. The design changes recommended by this business case will be included in those works.

[18] The decision on a new bus depot needs to be taken in the 2024-27 period. The business case identifies that a new depot is a critical success factor to enable a transition to zero emission buses. Public ownership of the bus depot is recommended due to the limited industrial-zoned land in Queenstown of sufficient size to serve as a bus depot. Securing a site large enough for a bus depot would be an expensive and time-consuming process, and likely be beyond bus operators' financial capability. Another important factor is the significant investment in battery electric bus charging infrastructure and associated power connection. Public ownership or third-party ownership would allow the investment in charging infrastructure and power connection to be protected and transferred to the next operator at the end of a contract term.

[19] Further scoping and due diligence work will be required to enable the Council to make a decision on the next steps regarding future ownership model.

Years 4 to 10, 2027 – 2034 -

[20] The management case recommends that the contract for Unit 7 be extended to match the completion date of Unit 6 – November 2028. RPTP states that reducing the number of units across Otago, by grouping a greater number of services together may increase the commercial viability of services and this provides an opportunity to tender all bus services in Queenstown as one combined unit.

[21] The articulated buses are planned for the time period of 2027-2030. This ideally requires the depot to be operational before November 2028. The transition to electric fleet can be staged in case an electric depot is not in place by then, but these clauses must be reflected in the tender for the new contract. The design and construction could take up to 4 years and needs to be further evaluated and planned along with the staging of transition to electric fleet in detail.

[22] The advisory papers recommend on-demand transit in the Queenstown Hill and Goldfield Heights. The public feedback also supported this service.

[23] The articulated buses for Jacks point and Lake Hayes routes are planned between 2031-2034.

Economic Case

[24] The overall QPTBC preferred Option of services yields benefits of $2.3 for every $1 invested. Applying the draft 2024-27 NZTA Investment Prioritisation Method (IPM), the project has High ranking for GPS alignment, High for Scheduling, and Low for Efficiency. This gives the proposal has an overall investment priority score of 2 i.e., the project is identified as the second highest priority for NZTA investment.

[25] The annual operational costs for managing the QPTBC network services are projected to be $21.15 million in 2027, encompassing both ferry and on-demand services. This figure is anticipated to increase to $25.75 million per annum by the year 2034.

Way to Go Partner Programme

[26] As noted above the QPTBC takes account of infrastructure works as part of NZUP that are required for the new service frequencies.

[27] In total QPTBC identifies a $80.7M (yet to be peer reviewed) infrastructure programme, of which some $58.4M is for a Bus Depot plus 14M land.

Table-1-QPTBC infrastructure interventions and costs

Interventions	Indicative cost (in NZD)	Lead Organisation

Bus Hub - Stanley	0.9 M	NZTA
Frankton hub changes	1.5 M	NZTA / QLDC / ORC
Bus Stop Modifications	1.1 M	NZTA / QLDC
Four Intersection Changes	0.5M	QLDC
Five Mile and Remarkables Interchange	1.2M	QLDC
Bus Depot	58.4 M plus 14M land	ORC
Northbound Bus Lane	3.1M	NZTA

[28] QLDC has finished work on a travel demand management (TDM) Single Stage Business Case (SSBC). TDM can be a major intervention to fully realise the benefits of investment in the additional public transport services and infrastructure proposed in the QPTBC.

OPTIONS

[29] Option 1: Council endorse the business case

[30] The QPTBC identifies a PT investment proposal outlined that is substantial in addressing the transportation challenges within the Queenstown network. It sets out a plan for the implementation of PT service improvements over the next 30 years, including the transition of the PT bus fleet to a high-capacity electric bus fleet. The business case also proposes several transport interventions from the project partners (NZTA and QLDC) which is agreed. The business case involves significant financial investment, and it is recommended that Council endorses the QPTBC in order to seek co-investment from NZTA in the 2027-27 RLTP/NLTP period.

[31] Option 2: Council rejects the business case

[32] Not endorsing the business case would leave ORC without a plan or means of funding sufficient PT services to support Queenstown's growth. As noted in the report, and was agreed by the Way2Go partners, there are limited options for on-line PT in the Whakatipu Basin. While not endorsing this business case would reduce Council's financial commitments for 2024-2027, rejecting this business case would not align with the decisions made in previous PATC/ council meetings.

CONSIDERATIONS

Strategic Framework and Policy Considerations

[33] The Regional Public Transport Plan 2021-31 (RPTP) outlines Council's aspiration to increase the share of people travelling by public transport by maintaining sufficient vehicle capacity to support comfortable, attractive, and safe passenger journeys. Shifting trips from private vehicles to buses reduces pollution and congestion; and makes our towns and cities more liveable. The interventions proposed aligns with this policy direction. Implementation of the QPTBC will require the levels of service for bus network operations to be reviewed, this can be done in the upcoming RPTP review.

[34] The business case proposed the public ownership of bus depot which is a change to the current operating model of the bus network.

Financial Considerations

[35] The QPTBC involves significant financial investments in terms of capital and operational expenditure. The annual operational costs for managing the Queenstown network services are projected to be $21.15 M in 2027 and $25.75 M in 2034.

[36] The investment proposal will deliver significant improvement in the existing PT levels of service for the Whakatipu Basin.

[37] In December 2023 meeting, Council approved, for the purposes of consultation in the draft Long Term Plan (LTP), Option B – QPTBC Emerging Preferred "Composite" Option future network services. Based on the preliminary business case costings, which are currently being peer-reviewed, the financial impact is $28.511M in years 2024 to 27, and a total 10-year investment package of $172.859M.

Project costs

[38] The budget for the QPTBC is $1.5M as of 15 January 2023, 79% of the business case budget, some $1.178 has been expended.

Significance and Engagement

[39] Due to the significant scale of the proposed investment, the Council must consult on the proposal through the LTP.

[40] The preferred option has been developed in partnership with Way2Go partners (QLDC, NZTA and ORC). The feedback from public consultation was used in identifying the preferred option.

Legislative and Risk Considerations

[41] There are several risks associated with the QPTBC. A key risk being that the GPS has not been finalised. It is unclear that the QPTBC will align with the (new) government priorities for Transport investment.

[42] Lack of funding approval from NZTA is another key risk for ORC. Additionally, the potential lack of funds for NZTA/NZUP and QLDC to address identified infrastructure improvements is a risk. Without these improvements, the full benefits from public transport service improvements cannot be realised.

[43] Other key risks associated with the proposed PT service improvements include the public (ratepayer) appetite for significant rates increases to cover the cost of these services.

[44] The procurement of all public transport services is required to be in accordance with the Land Transport Management Act 2003 and conform to the Sustainable Public Transport Framework.

Climate Change Considerations

[45] The recommended interventions can bring mode shift which can reduce the use of private vehicles, and thus reduce carbon emissions.

[46] The electric bus fleet can significantly reduce the carbon footprint generated by the PT services.

[47] In the economic assessment of the preferred option, a benefit of $46 million was recognized for diminishing the effects of air emissions on health and reducing the greenhouse gas emissions.

Communications Considerations

[48] An engagement report was published to inform how the community feedback through public consultation was analysed and formed part of the business case process.

[49] The Council must consult on the proposed investment through the LTP.

NEXT STEPS

[50] The business case will be sent out for partner feedback.

[51] NZTA endorsement of the QPTBC to be sought.

[52] The finalised business case will go to project partners (QLDC and NZTA) for endorsement.

[53] ORC will consult with the public on the proposed services and costs through the LTP.

ATTACHMENTS

1. Queenstown Public Transport Business Case - Summary Document - Draft 0.2 [**7.4.1** - 24 pages]
2. Draft Queenstown Public Transport Business Case - parts A, B, C [**7.4.2** - 115 pages]

QUEENSTOWN PUBLIC TRANSPORT BUSINESS CASE

Summary Report

19 DECEMBER 2023

VERSION 0.2

WAKA KOTAHI NZ TRANSPORT AGENCY | QUEENSTOWN LAKES DISTRICT COUNCIL | Otago Regional Council | WAY TO GO

Document Version History

DATE	VERSION	AUTHOR	CHANGES
30/11/2023	0.1	E. Whitfield	Initial working draft
19/12/2023	0.2	C. Groom	Updated from ORC feedback

Document Review

ROLE	NAME	REVIEW STATUS

Contents

Glossary of Terms

ABBREVIATION	TERM
AADT	Annual Average Daily Traffic
Business Case	Queenstown Public Transport Business Case
District	Queenstown Lakes District Council
FY	Financial Year
GDP	Gross Domestic Product
GHG	Greenhouse gases
GPS	Government Policy Statement (on Land Transport)
ILM	Investment Logic Map
IQA	Investment Quality Assurance
KPI	Key Performance Indicator
MoE	Ministry of Education
MoT	Ministry of Transport
NZ	New Zealand
NZUP	New Zealand Upgrade Programme
ORC	Otago Regional Council
PAX	Passenger
PBC	Programme Business Case
PT	Public transport
QLDC	Queenstown Lakes District Council
QPTBC	Queenstown Public Transport Business Case
QTBC	Queenstown Transport Business Case
RLTP	Regional Land Transport Plan
RPTP	Regional Public Transport Plan
SH6	State Highway 6
SH6A	State Highway 6A
SSBC	Single Stage Business Case
TDM	Travel Demand Management
VKT	Vehicle kilometres travelled
W2G	Way to Go Partnership
NZTA	New Zealand Transport Agency Waka Kotahi

1 OVERVIEW

The Summary Report is presented in two parts:

- Part A summarises a response to the key questions that the business case needed to address.
- Part B summaries the business case including the project context, problem definition and key elements from each of the five case documents (strategic case, economic case, commercial case, financial case and management case).

2 PART A: RESPONSE TO KEY QUESTIONS THE BUSINESS CASE NEEDED TO ADDRESS

2.1 Context

Queenstown strategic road network is heavily congested which is eroding the visitor experience and outdoor lifestyle which Queenstown is know around the world for. The forecast growth in population and visitor numbers will be further pressure on the road network if current travel patterns continue into the future. Greater travel choice is needed to enable people to get to where they are going whilst enabling those that need to use the road network (including freight and construction traffic) to do so efficiently.

This Queenstown Public Transport Business Case (QPTBC) sets out the public transport system that will achieve the greatest mode shift towards public transport. The proposed step change in public transport service provision would see a frequent, high-capacity bus and ferry network running from the early morning to late at night. The simple, frequent public transport network would make it easy for locals and visitors to travel around the Whakatipu Basin without having to plan ahead. In addition, the QPTBC contains a pathway to decarbonise the public transport fleet through the adoption of modern battery electric bus technology.

2.2 Travel Demand

Queenstown peak hour trip demand is forecast to more than double over the next 30 years with the largest increase coming from the Southern Growth corridor. Improving public transport services alone will not be enough to meet the non-car mode share targets needed to avoid significant congestion on the strategic road network. Modelling results for the preferred option in the 2053 AM peak show a non-car mode share of 34% on SH6A (towards Queenstown), 16% on Shotover Bridge (towards Queenstown) and 24% on Kawarau Falls Bridge (towards Queenstown), so achieving roughly half of the investment objective.

The availability of free parking in Frankton was found to be a limiting factor in the level of mode shift that could be achieved through public transport service improvements alone. Therefore, travel demand management will need to be utilised along with public transport priority measures to achieve the required non-car mode shared. This will require an integrated approach and commitment to investment by the Otago Regional Council (ORC), the NZ Transport Agency Waka Kotahi (NZTA) and the Queenstown Lakes District Council (QLDC).

2.3 The Bus Fleet

Several technologies have been considered to decarbonise Queenstown's public transport network, including battery electric, hydrogen fuel cell, biodiesel, hybrid, liquid natural gas and compressed natural gas. Battery electric buses have been chosen as the preferred technology as this technology is readily available, poses few health and safety risks and best meets the decarbonisation objectives of the Emissions Reduction Plan.

Articulated buses are seen as the most feasible public transport mode due to the relative ease of implementation (they do not require rails), they are high capacity (around 110 passengers per vehicle) and have fast boarding/alighting from multiple doors. This additional capacity means that fewer bus drivers would be required compared to operating the service with standard buses, hiring and retaining bus drivers is a challenge both in Queenstown and nationally.

2.4 Staging and Service Patterns

The implementation of the new public transport services is proposed to be staged over the next 13 years with the aim being to increase all routes to a walk out and catch frequency (15min or better). The public transport services have been designed to be able to accommodate the expected increase in demand over the next 30 years through further increases in frequencies (up to 5min).

The transition to electric buses is planned to occur from 2028 when the new bus operator contract commences with the first tranche of battery electric buses being implemented at this point. All buses would be decarbonised by 2035 in line with government policy with the gradual replacement of remaining diesel buses.

The transition from standard to articulated buses will also align with a new bus operator contract (from 2028). The infrastructure changes required before articulated buses can be implemented are modifications to the Stanley Street Bus Hub, Frankton Bus Hub (proposed to occur as part of NZUP), lengthening of idented bus stops and modifications to some intersections. The 95th percentile cost estimates are $0.7M for Stanley Street, $1.9M for Frankton, $1.4M for idented bus stops and $0.6M.

The potential role of on-demand services within the Queenstown public transport network was evaluated as part of the business case. Queenstown Hill and Goldfields were identified as having the most potential for on-demand public transport due to the short trip distances, the steep topography and the concentration of hotels and short stay rental accommodation. On demand vehicles would be smaller than a standard bus (around 10 seats) and would pick passengers up from close to where they live and drop them off in Queenstown. On demand services would follow the same delivery model as other public transport services, i.e. ORC would contract the delivery of the service to a private company such as a taxi company or bus company.

2.5 Park-and-ride

No park-and-ride sites are included in the preferred Queenstown public transport network. This is because most of the population is within a comfortable walking distance to fixed route bus services with on-demand services supplementing the network in areas with limited walkability. Also, the CAPEX costs for developing park-and-ride sites are expensive due to the need to purchase land and construct the parking spaces and a bus stop. On going OPEX costs would also be required to maintain any the park-and-ride sites.

2.6 The Bus Depot

The provision of a suitable bus depot is a key requirement for the implementation of future public transport services as more space is required to house the larger bus fleet. It is also a key driver for when electric buses be implemented due to the need for depot charging facilities. A bus depot will be required for 63 buses and have a minimum footprint of approximately 10,000 m^2. Frankton (the preferred option) and Coneburn have been identified as areas for further investigation. It is recommended that ORC owns the bus depot to protect the investment in charging infrastructure and remove barriers to entry for new bus operators. There is a severe lack of industrial land in Queenstown that is of sufficient size to serve as a bus depot. The difficultly in securing a depot would limit bus operators ability to deliver the required increase in public transport services and result in less competitive bus contract tendering. The estimated cost for the depot is $54.4M + land or lease with $17M of this being for charging infrastructure and power connection. It is estimated that it will take a minimum of four years to plan, design, and build the depot, which means that work on a depot needs to commence now. This timeframe is in line with a new operator's contract (2028). Electric and articulated buses will need to be delayed if a depot cannot be built by 2028.

2.7 The Bus Hubs

The Frankton Bus Hub will require minor modifications to the NZUP design to accommodate articulated buses. The estimated number of bus stops required to accommodate the future service levels is two stopping points per direction. The current design has three stopping points per direction. It is proposed to alter the design to lengthen the stops to accommodate the longer, articulated buses. The estimated cost for the modifications is $1.9M. With modifications to the Frankton Bus Hub design to accommodate articulated buses, the hub will have the capacity to service public transport services until 2053.

The Stanley Street Bus Hub's ultimate layout will need to accommodate longer articulated buses, but timing is dependent on Project Manawa and other arterial projects. An interim option is proposed to change the layout of bus bays and provide supporting infrastructure, such as bus shelters, at a cost (95th percentile) of $0.7M.

2.8 Ferries

The preferred option proposes increasing the frequency of the Kelvin Heights ferry to 30 minutes within the 2027-30 NLTP period. Other ferry options were considered at the 'long list' stage and were discounted, primarily as they did not provide the required passenger capacity (which was a critical success factor). Ferry options were also more expensive to operate, had a more limited passenger catchment and required significant capital expenditure in infrastructure.

2.9 Land Acquisition

Land acquisition will be required for a new depot as outlined above; $14 m has been budgeted so far based on a rough estimate of property values in Frankton. Further consideration of candidate parcels and cost is underway. Other changes are expected to be made within the road reserve and on the existing land.

2.10 Investment

The capital costs to support public transport service improvements are estimated at $63.7M. The major component of these costs is the bus depot at $55.4M (excluding land or lease costs). This can be disaggregated as:

- ORC, depot $55.4M plus land; + OPEX
- NZTA, Stanley Street interim solution $0.7M; Frankton hub modifications $1.9M; Southern Corridor bus lane $3.7M; bus stops on state highway $0.9M
- QLDC, Local road intersections $0.6M; local road bus stops $0.8M

The forecast operational cost for the proposed public transport service improvements is $14.3M by 2039 and $23.6M per annum by 2053. Increased fare revenue is expected to accompany the increase in public transport service levels.

2.11 An Off-line Solution

Given the rapid growth occurring in Queenstown, an offline solution such as a gondola is suggested to be further invested in the 2024-27 period. This will allow a lead time for investigation, consultation, land acquisition, design, procurement and construction.

2.12 The Indicative Scope for the Next Phase

The indicative scope for the next phase is:

- Further detailed investigation is required on the bus depot, including design on a preferred site, plus property procurement.
- Each of the supporting activities will require further work, e.g. design of bus lanes, local road intersections, bus stops
- Detail timetabling of the new public transport services

2.13 Funding required for the 2024-27 NLTP

The following elements will be required for funding in the 2024-27 period:

- Stanley Street interim bus hub changes, NZTA, $0.7M

- Frankton Bus Hub changes, NZTA, 1.9M
- Electric bus depot, ORC, $55.4M + land, or lease
- SH6 bus lane – Kawarau Falls Bridge to Williams Rees Cottage, NZTA, $3.7M
- Local intersection improvements (to accommodate articulated buses), QLDC, $0.6M
- Bus stop changes and related infrastructure on local roads, QLDC, 0.6M
- Bus stop changes and related infrastructure on state highways, NZTA, 0.9M

3 PART B: THE BUSINESS CASE SUMMARY

3.1 Introduction

The Queenstown area is one of New Zealand's fastest-growing regions which has been driven by increases in population and visitor numbers. This growth is placing increasing pressure on the strategic road network. In 2020, the Queenstown Transport Business Case (QTBC) was completed, which looked at options to accommodate this growth and outlined the case for investment in multi-modal transport interventions over the next 30 years. These transport interventions focus on targeted bus priority, walking and cycling infrastructure improvements, rapid bus transit services and travel behaviour change initiatives to reduce growth in private car use.

The QTBC was approved by Otago Regional Council (ORC) and Queenstown Lakes District Council (QLDC) in January 2021 and Waka Kotahi in February 2021. The QTBC identified that further work is required, including preparing a Queenstown Public Transport Business Case (PTBC) to inform future investment decisions for public transport service provision. This business case responds to the request and focuses on what the public transport system will look like over the next 30 years and a funding plan to support a step change in public transport service provision and decarbonisation of the bus fleet.

The Government's Emissions Reduction Plan sets out how New Zealand will meet its first emissions budget (2022-2025) and a path towards meeting our long-term climate targets. This business case outlines the role that public transport will play in meeting these targets for Queenstown.

The work also assumes that as part of the QPTBC, the New Zealand Upgrade Programme will deliver bus priority, active travel and safety improvements on SH6 and SH6A. Future population and visitor forecasts have been derived from the Queenstown Spatial Plan dated July 2022.

To support the QPTBC, eight Advisory Papers were prepared, which provide details on the critical components of the public transport assessment. These are:

- **Forecasting demand**, which discusses the Spatial Plan for future land growth, land use characteristics, and how this will inform land use and travel demand changes.
- **Fleet decarbonisation**, which describes the relevant transport and emissions policies and how they relate to the Project, the benefits/disbenefit of slow or fast fleet decarbonisation implementation and potential technologies for decarbonising the public transport system.
- **Service patterns**, how the public transport network should best meet future demand over the next 30 years, different bus types, service patterns and a staged approach to developing a preferred public transport system.
- **On-demand services**, identifies the potential for on-demand services to be included within Queenstown's proposed public transport network for areas that cannot be easily served by services on the fixed bus route network.
- **Park-and-ride,** tests the options for park-and-ride as part of Queenstown's future public transport network.
- **Public transport hubs and depot**, which describes the staging and life of the Frankton and Stanley Street bus hubs, and a new bus depot taking into consideration forecast fleet numbers and bus size required to accommodate public transport user demand.
- **Asset ownership and system management,** which covers changes that could be adopted in the future to existing ownership and operating models, and what resources, systems and ongoing maintenance are required to deliver the step change in upgraded service and whether these proposals are deliverable.

- **Funding paper**, which sets out the appropriate funding mix from ratepayers, central government, and other alternative sources of revenue, including parking and developer/third party contributions.

This Business Case has been prepared in accordance with the NZTA guidelines and presents a compelling case for investment.

The scope the existing public transport network and services within the Whakatipu Basin, as shown in Figure 1. Geographical Area, QPTBC.

Figure 1. Geographical Area, QPTBC

3.2 Assurance Process

The following parties were engaged to review the business case, in which supporting letters have been provided:

- Case documents, Invise Limited
- CAPEX costs, Stantec
- OPEX, MRCagney.

The NZTA Investment Quality Assurance Advisor has also been engaged throughout the development of the business case.

3.3 Case for Change

The Case for Change is compelling and clear:

- In the face of population growth that will double in the next thirty years, tourism growth, worsening traffic congestion, and pressing environmental concerns, the need for significant investment in public transport has never been more critical in Queenstown.

- Queenstown currently stands at a crossroads, where a congested network needs rapid intervention through a mode shift to non-car modes. Investing in robust public transport services is a pivotal step towards supporting a sustainable, efficient and more accessible Queenstown that will thrive in the future and bring economic benefits to Aotearoa New Zealand.
- There is also a risk of not acting – which may cause Queenstown to stagnate resulting in negative economic and reputational outcomes for the area and the rest of New Zealand. Visitor feedback indicates that traffic congestion is the single biggest negative in an otherwise highly regarded visitor destination, with the consequent risk of Queenstown being bypassed by visitors.
- Significant investment has been committed to infrastructure improvements in the Whakatipu Basin. This provides the opportunity to review public transport services and ancillary infrastructure in line with the committed infrastructure improvements to make the best use of this investment.

Queenstown is one of New Zealand's fastest-growing regions, driven by growth in population, tourism, and supporting activities. This growth is placing increasing pressure on infrastructure, the transport system and the environment.

Specifically, the Queenstown Business Case (endorsed in 2021) stated:

…a step change is required to achieve the 40% alternative mode share needed during the afternoon peak on SH6A by 2028.

This QPTBC represents a pivotal moment to help shape future growth and mobility patterns. This Business Case will confirm the case for investment in a 30-year plan for Queenstown's future public transport investment decisions.

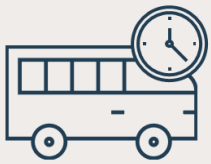
3.4 Problems, Benefits, Opportunities and Investment Objectives

The agreed Problem Statements for the QPTBC relate to the key themes of **effectiveness** and **attractiveness** of public transport:

Problem One

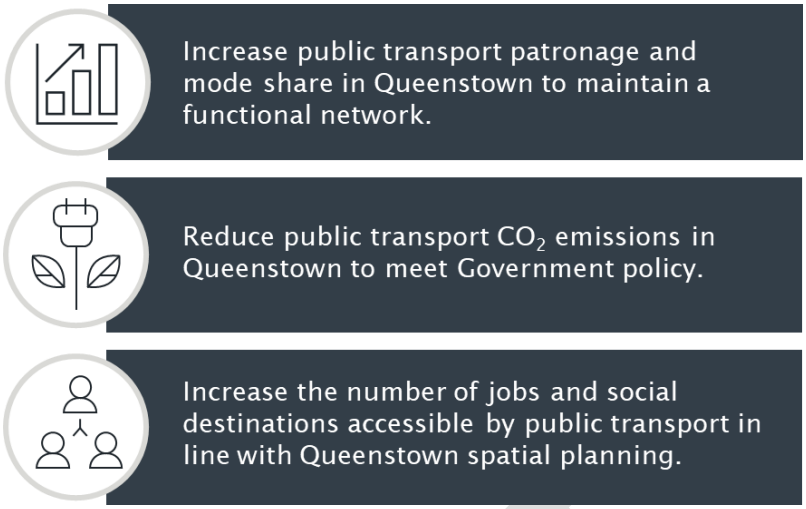
Current capacity of Queenstown's transport network means the public transport service will not accommodate the future mode share targets (40 percent).

Problem Two



Current Queenstown public transport service does not provide an attractive alternative to private car travel, leading to low public transport usage in Queenstown (60 percent).

The agreed Investment Objectives of this Business Case are:



Looking forward, public transport modelling shows that, in order to maintain a functioning transport network in Queenstown, a significant mode shift to public transport is required (as shown in Table 1. Public Transport mode share required to maintain a functioning strategic road network. Specifically, in the morning peak hour the number of people travelling by public transport on SH6A will need to be:

- 592 people by 2027
- 1,082 people by 2039
- 1,466 people by 2053.

These numbers far exceed the capacity of the current public transport network which is 260 people per hour.

Table 1. Public Transport mode share required to maintain a functioning strategic road network

YEAR	ROUTE	MORNING PEAK HOUR		AFTERNOON PEAK HOUR	
		PAX. / HOUR	PT MODE SHARE	PAX. / HOUR	PT MODE SHARE
2027	SH6A	592	27%	594	28%
	Shotover Bridge	323	18%	369	18%
	Kawarau Falls	186	11%	123	7%
2039	SH6A	1,082	40%	1,028	40%
	Shotover Bridge	514	25%	657	29%
	Kawarau Falls	1,033	40%	909	37%
2053	SH6A	1,466	47%	1,384	48%
	Shotover Bridge	772	34%	869	35%
	Kawarau Falls	1,687	53%	1,489	49%

To accommodate the growth anticipated for Queenstown, it is critical that public transport mode share increases. However, the consequences of an already over-capacity public transport system and road network are deemed to be considerable barriers to achieving the required uplift in mode share and could have a significant economic impact.

Impact on system reliability

Without intervention there is risk that travel time of public transport will become more unreliable.
↓
A public transport system with poor travel time reliability results in poor access to emplyoment, education, amenities, and other key services.
↓
This means more time is spent commuting to these destinations. This impacts quality of life and has an economic impact in terms of productivity.
↓
Passengers experiencing delays and uncertainity in journey time undermines the appeal of public transport. Ultimately this discourages usage and hinders urban mobility and transformation, and environmental sustainability goals.

Impact on user experience of the transport system

Without intervention there is risk that public transport will have poor user experience.
↓
Over-capacity buses results in crowding, people unable to be seated and having to stand, increased driver distraction, and increased likelihood of not being able to board the bus (due to it being full) and having to wait for a later bus.
↓
Passengers subjected to discomfort, unreliability, and inconvenience become increasingly dissatisfied, discouraging them from using public transport.
↓
This decline in ridership exacerbates traffic congestion as frustrated people opt for personal vehicles, or do not make the trip at all, resulting in transport inequity.

Impact on regional economic development

Without intervention there is risk that tourism will be negatively impacted.
↓
Tourists will encounter overcrowded buses and congested roads, and their travel experiences will be marred by longer travel times and uncomfortable bus journeys when trying to get to their travel destinations around Queenstown.
↓
These factors could deter potential visitors away from visiting Queenstown in the future.
↓
This means that current and future negative tourism experiences associated with transport could have significant economic implications for Queenstown as well as for the New Zealand economy.

The consequences of a public transport service that is considered unattractive will result in continued car dependency and emissions, social and transport inequity and impacts on tourism.

Impact on greenhouse gases

In 2019, transport was the largest contributor (47%) to greenhouse gases in the District, with 37% coming from road transport.*
↓
The majority of residents surveyed are largely concerned about the impact of climate change, and are conscious of decreasing private vehicle use to reduce climate change impacts, but do not feel that Queenstown has established suitable infrastructure and services for them to do so.
↓
If investment does not occur and improvements to increase public transport attractiveness are not significant enough to encourage mode shift, people will continue to rely on driving private vehicles, increasing carbon emissions.
↓
This will have serious implications on both human health and climate change.

* Greenhouse Gas Community Inventory - 2019 Update for the Queenstown Lakes District

Impact on access to opportunities

Public transport is a crucial transport mode for various groups of people to access education, services, amenities, social activities and employment, especially for people who cannot drive (due to age or disability) or cannot afford to drive.
↓
Inequity in transport arises based on the lack of transport choices available and when people have to pay more than what they can afford to get to the places they need.
↓
If investment does not occur, public transport will continue to be unattractive, hindering people from using public transport or unfairly burdening those who do.
↓
People will not be able to properly access key destinations and carry on with their daily life activities such as going to school, work or health facilities. This will impact the liveability of Queenstown and reduce the wellbeing of residents.

Impact on regional economic development

Domestic and international visitors are experiencing user frustrations with the current public transport system (i.e, lack of route coverage, infrequent and unreliable services, poor user safety).*
↓
Through the Quality of Life 2022 Survey Report, residents are aware of the positive circular impact of tourism to Queenstown, such as leading to improving public transport, better road infrastructure, and improving their economy.
↓
Negative tourist experiences especially with transport will have flow on negative effects to the community and living experiences of tourists and residents, and the overall perception of Queenstown and the economy.

* Locals step in as bus service fails, Crux 2023; Residents fed up over Queenstown buses that either run late or don't come at all, Stuff 2022

Benefits of Investment

The benefits of successfully investing to address the problems were identified and agreed by the Project Partners:

- Improved public transport mode choice (40 per cent).

- Improved access to economic and social destinations (40 per cent).
- Reduced emissions from land transport (20 per cent).

3.5 Option Development and Assessment

The options development process adopted for this Business Case is consistent with the NZTA guidelines and intervention hierarchy. Increasing public transport services will make best use of the existing road infrastructure as more people are able to be moved with fewer vehicles.

The Economic Case identifies and assesses options to address the problems and opportunities for public transport in the Whakatipu Basin. The analysis builds on the Case for Change and evaluates how options will help achieve an effective and attractive public transport system.

As a benchmark to compare and assess options, the 'do minimum' assumes no additional investment beyond what has already been committed to and/or funded. It assumes maintaining the status quo service levels and, while it is not a 'do nothing' scenario, it can described as a 'do nothing beyond current practice' scenario.

Options for this Business Case were developed through a dual-track process that involved the creation of two sub-lists in parallel, one for **service patterns** and one for **decarbonisation technologies**.

- **Service Patterns:** The objective was to identify the most suitable service routes, vehicles and service frequencies to meet the projected demands of the local population and visitors in an effective and attractive way.
- **Decarbonisation Technologies:** The objective was to identify technologies and solutions to minimise the environmental impact of the public transport system. Each technology was evaluated in terms of its feasibility, cost-effectiveness, and potential to reduce carbon emissions.

Then, alongside the emerging preferred option, this Business Case considered the complementary elements of the system, including **supporting infrastructure requirements** and **physical network changes.**

Seven service design principles were agreed with Project Partners, informed by international and national practices for network design.

The Long List stage was completed in two parts. The first considered service pattern options, building on the previous work presented in the QTBC. The second sub-list considered technologies to decarbonise the public transport system. Each sub-list was assessed via a Multi-Criteria Analysis (MCA) process with Subject Matter Expert (SME) input and partner organisation decision conferencing to produce a short list for further consideration.

The emerging preferred solution was found by evaluating the short list via an MCA process with SME input and partner organisation decision conferencing. This confirmed that the 30-year investment plan best aligned with the need for an effective and attractive public transport system is to operate an enhanced Bus Max service pattern (the 'composite' option) with battery electric vehicles (buses and ferries).

Public consultation was also undertaken on two short listed service pattern options in order to understand how well the options met customer needs and to make refinements to the options based on feedback received. A total of 231 public submissions were received from the online, postal and in person engagement survey. Feedback showed that the Bus Max and adding the Malaghans Road sub-option was preferred by most members of the public and stakeholder organisations. Key themes from the engagement was to desire to minimise transfers, to increase frequencies, to provide a direct route between Queenstown and Arrowtown via Arthurs Point and to increase the span of service to accommodate airport workers.

3.6 Preferred Programme

The preferred option is an enhanced Bus Max service pattern (the 'composite' option) with battery electric vehicles (buses and ferries) with supporting infrastructure improvements.

Once fully realised, the preferred option will provide a high frequency, high-capacity bus network with core routes running from Queenstown to main suburbs and secondary routes connecting at Frankton. This public transport network supports the planned housing growth in the southern and eastern corridors, provides public transport travel times that are competitive with driving and provides greater access to employment, shops and services.

The initial public transport service changes would be made using the current bus fleet and by varying the existing operating contracts. The largest changes would be aligned with the new bus operating contracts in 2028 when a fleet of new battery electric articulated buses could be implemented. As demand increases further articulated buses would be brought into the fleet with the remaining diesel buses being replaced as they reach the end of their useful life.

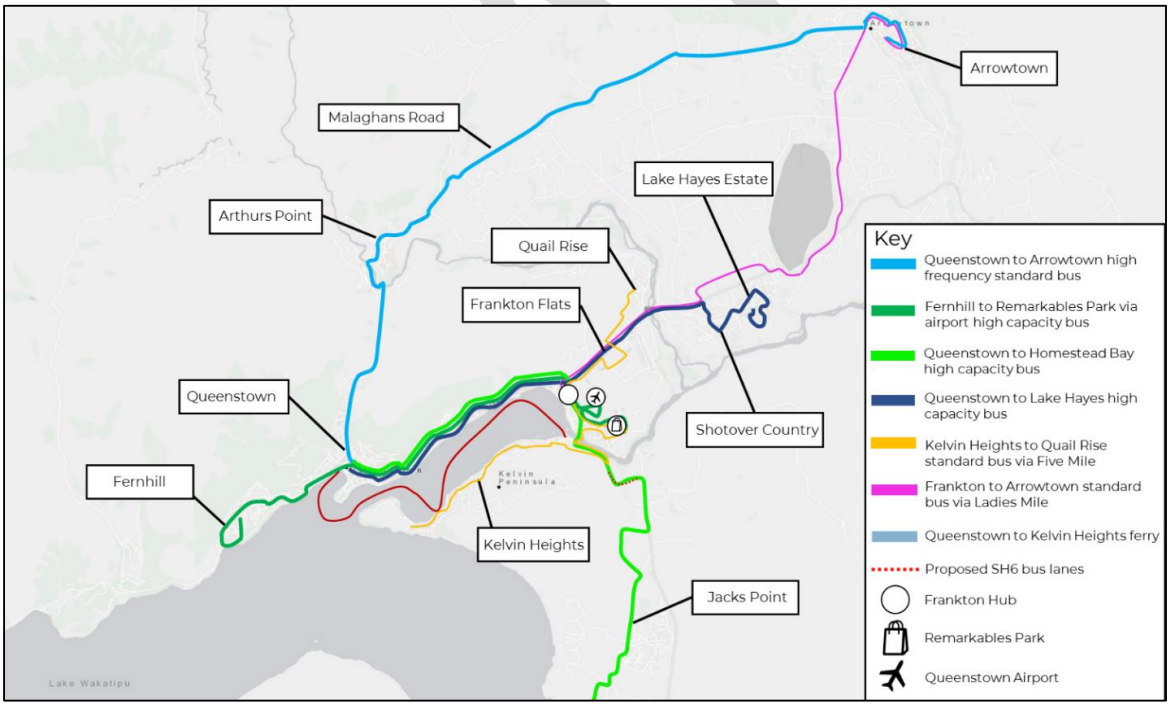


Figure 3-2: Preferred option, QPTBC

The preferred option comprises eight core interventions:

- Public Transport Service Improvements.
- Stanley Street Hub changes.
- Frankton Hub changes.

- Establishment of a depot for electric buses.
- SH6 bus lanes (approximately Kawarau Falls Bridge to William Rees Cottage).
- Local road minor intersection improvements (to accommodate articulated buses).
- Bus stop changes and related infrastructure/signage on local roads.
- Bus stop changes and related infrastructure/signage on state highways.

Capital Costs

A breakdown of the capital cost estimates for the preferred option is provided within the table below.

Capital Cost Estimates

PROGRAMME ELEMENT	CAPITAL COST ESTIMATE
Stanley Street Bus Hub	$890,000
Frankton Bus Hub	$1,547,000
Nine Bus Stop Modifications	$1,134,000
Four Intersection Changes	$511,000
Five Mile and Remarkables Interchange	$1,211,000
Coneburn Bus Depot	$58,400,000
Northbound Bus Lane	$3,068,000

Operating Costs

A comparison of the annual Public Transport operating estimates for the Do Minimum and Preferred Option in 2039 is provided below.

Operating Cost Estimates, QPTBC

PROGRAMME ELEMENT	OPERATING COST ESTIMATE
Do Minimum	$11,130,150
Preferred	$23,618,222

Benefit Cost Ratio (BCR)

The Benefit Cost Ratio for the Preferred Option is estimated to be **2.3**.

3.7 Performance of Preferred Programme Against Objectives

The table below provides a summary of how the preferred option achieves the investment objectives.

Preferred option investment objectives assessment, QPTBC

INVESTMENT OBJECTIVE	LTBF MEASURE	ALIGNMENT
Increase public transport patronage and mode share in Queenstown to maintain a functional network		
KPI 1-1: Increased mode share / mode shift from single occupancy private vehicles	8.1.2 Mode shift from single occupancy private vehicles	The preferred option is predicted to increase PT mode share at all key points (SH6A, Shotover Bridge, and the Kawarau River Bridge). The greatest shift is in the morning peak on SH6A where PT mode share is predicted to increase from 14% to 34% in 2053. However, this is short of

		achieving the investment objective of 47% PT mode share at this location.
KPI 1-2: More reliable journey times for public transport	5.1.1 Punctuality – public transport	The preferred option reduces travel time variability for key PT services in 2053. For example, the variability for the key Jack's Point to Queenstown service is predicted to reduce from eight to four minutes.
Reduce public transport CO_2 emissions in Queenstown to meet Government policy		
KPI 2-1: Reduce CO_2 emissions	8.1.1 Public transport CO_2 emissions	The preferred option fully decarbonises the public transportation system through the use of battery-electric technology.
KPI 2-2: Reduce VKT by 2053	8.1.3 Light vehicle use impacts	The preferred option reduces morning peak period vkt by 4.2%, interpeak by 1.5% and PM peak by 3.3% compared to the do min in 2053.
Increase the number of jobs and social destinations accessible by public transport in line with Queenstown spatial planning		
KPI 3-1: Jobs accessible within 20-minute trip on public transport	10.3.1 Access to key social destinations	The preferred option reduces PT waiting and travel times and is within 20 min, except for the Arrowtown link.
KPI 3-2: Social destinations accessible within 30-minute trip on public transport		The preferred option reduces PT waiting and travel times and is within 20 min, except for the Arrowtown link.

A key finding of the Preferred Option assessment is that the Investment Objective to "maintain a functional network" cannot be fully achieved by the public transport services alone. It is recommended that additional travel demand measures such as congestion charging are investigated by the project partners.

While outside the scope of this business case, an offline public transport system has the potential to drive further uptake in public transport. It is also recommended that the project partners investigate offline public transport options within the next NLTP period.

3.8 Staging

The Preferred Option is to stage investment over time to take the current network to the desired future state by 2039, as summarised below.

Current	2039
• Standard buses • Low – moderate frequency • Five routes • Diesel buses • Operator-owned depot • Current bus hubs • No bus lanes • Existing Edith Cavell bridge (one-lane) • Standard bus stops	• Articulated buses on core routes • Moderate – high frequency • Electric buses • Public ownership of depot • Upgraded bus hubs • Bus lanes on SH6 • Longer bus stops

Current routes	2024-27	2027-30	2030-33	2033-39
Sunshine Bay – Remarkables Park Every 15 mins, every day (until 7pm) Every 30 mins (7pm-midnight)	Sunshine Bay – Remarkables Park Every 15 mins, every day (until 7pm) Every 30 mins (7pm-midnight)	Sunshine Bay – Remarkables Park Every 15 mins, every day (**until 10pm**) **Articulated buses**	Sunshine Bay – Remarkables Park Every 15 mins, every day (**until midnight**) Articulated buses	Sunshine Bay – Remarkables Park Every 15 mins, every day (**until 2am**) Articulated buses

Arthurs Point – Arrowtown via Frankton 30 mins peak, 60 mins off-peak, every day	**Arrowtown – Queenstown (via Malaghans)** 30 mins peak, 60 mins off-peak, every day	Arrowtown – Queenstown (via Malaghans) **30 mins, all day, every day (until 7pm)**	Arrowtown – Queenstown (via Malaghans) **15 mins, all day, every day** **Double deck buses**
	Arrowtown – Frankton 30 mins peak, 60 mins off-peak, every day	Arrowtown – Frankton **(via Ladies Mile)** **30 mins, all day, every day (until 7pm)**	Arrowtown – Frankton (via Ladies Mile) **15 mins, all day, every day**
Kelvin Heights – Quail Rise 60 mins all day, every day	Kelvin Heights – Quail Rise **30 mins peak, 60 mins off-peak, every day**	Kelvin Heights – Quail Rise **30 mins, all day, every day (until 7pm)**	Kelvin Heights – Quail Rise **15 mins, all day, every day**
Jacks Point – Frankton 60 mins all day, every day	Jacks Point – **Queenstown** **30 mins peak, 60 mins off-peak, every day**	Jacks Point – Queenstown **Every 15 mins, every day (until 7pm)** **Articulated buses**	Jacks Point – Queenstown Every 15 mins, **all day**, every day (until 7pm) Articulated buses
Lake Hayes – Queenstown 30 mins peak, 60 mins off-peak, every day	Lake Hayes – Queenstown 30 mins peak, 60 mins off-peak, every day	Lake Hayes – Queenstown **15 mins peak, 30 mins off-peak, every day** **Articulated buses**	Lake Hayes – Queenstown 15 mins peak, 30 mins off-peak, every day Articulated buses
Kelvin Heights ferry Every 1-2 hours	Kelvin Heights ferry **60 mins**	Kelvin Heights ferry **30 mins**	Kelvin Heights ferry 30 mins
Contracts	Ferry contract renewal 2024 One bus contract extension from 2026-28	Bus network contract renewal 2028, which will include requirement to procure new electric buses (standard and articulated)	
Infrastructure	NZUP changes to Frankton Hub and SH6/6A Intersection modifications ($360k)	New ORC-owned bus depot ($46.9million) Upgrade hubs ($2.1million) Upgrade bus stops and routes to accommodate articulated buses ($830k) Driver accommodation	Bus lanes on SH6 New Edith Cavell bridge (two-lane)

	Straightening of Jacks Point route following link road
Timetable	Remove 'clock-facing' element from timetable

Indicative Staging, QPTBC

Investment Prioritisation Method Profile

The proposal shows strong multi-outcome alignment, and therefore has been assessed as a **HIGH** draft GPS alignment.

The proposal has been assessed as a **HIGH** rating for both criticality and interdependency. This is because the timing to deliver these activities and their importance to realising the benefits of the integrated package require immediate and sustained effort.

The proposal has a BCR of 2.3 and therefore an efficiency rating of **LOW**.

Applying the draft 2024-27 IPM prioritisation matrix with **H** for GPS alignment, **H** for Scheduling, and **L** for Efficiency, this proposal has an overall investment priority score of **2**.

An initial assessment indicated that this proposal aligns with NZTAF policy and is eligible for NLTF funding from the **Public Transport Services**, **Public Transport Infrastructure**, **Local Road Improvements**, and **State Highway Improvements** activity classes.

3.9 Commercial Case

The preferred option has two broad components: provision of public transport services and supporting infrastructure.

Currently, ORC contracts out the operation of public transport services to private transport operators, in accordance with the Public Transport Operating Model (PTOM). There are three units (groups of services) within Queenstown, which are as follows:

Unit	Description	Contract Start Date	Contract End Date
6	Queenstown Airport to Fernhill; Jack's Point to Arrowtown	18 September 2017	19 November 2028
7	Arrowtown to Arthur's Point; Lake Hayes to Queenstown; Kelvin Heights to Frankton Flats	18 September 2017	19 November 2026
8	Trial Frankton Arm to Queenstown Bay ferry service	18 September 2017	30 June 2024

Units 6 and 7 were awarded to Ritchies and are operated out of a depot in Frankton. Unit 8 was awarded to Go Orange, whose parent company is Real NZ.

It is recommended that the contract for Unit 7 be extended to match the completion date of Unit 6 – 19 November 2028. The year 2028 offers ORC the opportunity to procure a new contract under the SPTF. Changes to existing contracts include the following requirements:

- Purchase of electric buses to serve the new network, including 18 high-capacity, articulated buses
- New bus depot arrangements which will see either ORC or a investor owning a bus depot
- Recruitment of higher number of drivers to serve new network

The proposed electric bus depot will require property. Other elements of the preferred option are expected to be accommodated within the existing road reserve/ existing property owned by the partners.

A new bus depot for Queenstown is necessary to serve the increased frequencies of the new bus network. A bus depot is a place to store buses when they are out of service. They also include electric charging facilities, as well as cleaning and maintenance facilities. They house office space and facilities for drivers on breaks. The scale of a new bus depot to accommodate an enlarged, electric fleet in Queenstown is likely to be beyond the financial capacity of bus operators. Therefore, a new bus depot needs to either be publicly owned or owned by a private third-party investor.

It is considered that the Frankton Flats B Zone is the preferred option for a bus depot, with Coneburn offering a suitable alternative.

Once the business case has been endorsed by partners and the preferred ownership for the Queenstown bus depot confirmed the next steps to identify a preferred location would be:

- Engage with Aurora early in the process to confirm electric grid capacity and plan high voltage power connection.
- Engage with landowners in Frankton and Coneburn on timeframes for subdivision and willingness to sell. Consider lease of land only if long term lease can be secured as a large investment in site improvements would be required to develop a depot.
- Engage with current and potential bus operators on their requirements for a depot.
- Undertake due diligence on preferred sites that investigates cost of development and consenting risks.

It is also recommended to engage with Queenstown Airport regarding a potential long term (20+ year) lease of Airport land for the depot, particularly currently undeveloped land off of Hawthorne Drive on the north side of the runway.

3.10 Management Case

The next stages of the preferred option have been clearly defined. It is proposed that the next stages of the programme will be managed using existing Way to Go partnership arrangements. Governance plans and processes are already in place through the Way to Go partnership. It is envisaged that ORC will appoint a Project Sponsor / Project Director. The table below describes the role of each partner.

Organisation	Role	Functions
Otago Regional Council	Procuring organisation	• Planning the network • Procuring services • Funding partner • Monitoring services • Marketing the network
Queenstown Lakes District Council	Road controlling authority	• Provision of bus stops on local roads • Funding partner • Provision of bus priority on local roads
NZTA	Road controlling authority and regulator	• Provision of bus stops on the state highway network • Funding partner • Provision of bus priority on the state highway network • Regulation of vehicles, including buses

ORC will be the agency responsible for the delivery of the new bus network and electric bus depot, with critical support from QLDC and NZTA to deliver infrastructure improvements.

The key risks include:

- The electric bus depot is not implemented in time to provide for the intended PT service improvements due to delay in funding, acquiring, and/or developing a site.
- Sufficient power is not available to provide for charging of electric buses due to delays in securing the available power
- PT service improvements programme (or parts thereof) is not implemented due to the programme exceeding available funding
- SH6 bus lane delayed or not implemented, resulting in no bus priority on the southern corridor
- Full PT service improvements not able to be realised due to shortage of bus drivers
- Uncertain if electric buses can be run on Malaghans Route due to weight limitations on Edith Cavell Bridge
- Growth happens faster/slower than planned, affecting patronage and operating costs.
- Local road / intersection improvements (to accommodate articulated buses) are delayed or not progressed (e.g. due to lack of funding)

A draft benefits realisation plan includes a programme to monitor KPIs, demonstrating progress against the investment objectives.

3.11 Financial Case

Public transport services are funded from a combination of fare revenue, regional council rates, and fuel excise duty. The funding mix for the region (including Dunedin and Queenstown) in FY2023/24 is 31 per cent rates and charges, 41 per cent fuel excise duty, and 28 per cent from fares. Some parking revenue also supports public transport.

Public transport fares in Queenstown have a flat structure where all trips are charged the same fare regardless of distance. Fares are reduced (by at least half) by using a Bee Card.

Public transport infrastructure such as bus stops and shelters are usually funded through the territorial authority. In Queenstown, $0.5 - $1 million per year is budgeted for bus infrastructure improvements. Transport capital works are normally funded through a 49 per cent local share and 51 per cent from the National Land Transport Programme (NLTP).

The operating costs would continue to be the responsibility of ORC. By 2039, the operating cost estimate is expected to be $14.3 million and $22.6 million by 2053. The new network is expected to increase revenue share by 2039 through increasing patronage, increasing the share of operating costs covered by fares. It is assumed that fares will increase with inflation over time.

A suitably-sized bus depot is likely to be beyond the financial means of bus operators. It is recommended that ORC take on ownership of a bus depot suitable to accommodate the number of electric buses required. It is considered that the purchase of a bus depot would be well-suited to debt funding rather than being funded from a one-off rates increase. The debt could be repaid through the targeted rate on properties within Whakatipu and offset by a reduction in operating costs relative to having the depot in private ownership.

Interventions

ELEMENT	LEAD ORGANISATION	DEPENDENCIES	TRIGGER POINT	ACTIVITY CLASS	INDICATIVE COST[1]	PROGRAMME STATUS	NLTP PERIOD FOR IMPLEMENTATION
Public Transport Services Improvements	ORC	Timing of existing PT contracts	Contract renewals. Demand triggers for PT service improvements	**Public transport continuous programmes** WC 511: Passenger services - bus	$22.6M / per year (2053)	Recommended option – funding approval required	2024-27+ / Ongoing
Stanley Street hub interim changes[2]	NZTA	Interim improvements to Stanley Street hub to accommodate articulated buses, ahead of Queenstown town centre upgrades	Needed for shift to articulated buses before 2028	**Public transport improvements** WC 532: Low-cost, low-risk public transport improvements	$0.7M	Recommended option – funding approval required	2024-27
Frankton hub changes[3]	NZTA / QLDC / ORC	Timing of NZUP improvements. Modify NZUP design to accommodate articulated buses	Needed for shift to articulated buses before 2028	**Public transport improvements** WC 532: Low-cost, low-risk public transport improvements	$1.9M	NZUP	2024-27
Electric bus depot	ORC	Timing of existing PT services contracts. Existing depot not large enough/ equipped to service electric buses	Shift to electric buses plus PT services improvements	**Public transport improvements** WC 561: Passenger facilities and infrastructure improvements - bus	$55.4M plus $14M land or lease	Recommended option – funding approval required	2024-27
SH6 bus lane – Kawarau Falls Bridge to William Rees Cottage	NZTA	SH6 active travel project	Demand trigger related to growth on southern corridor	**Public transport improvements** WC 561: Passenger facilities and infrastructure improvements - bus	$3.7M	Recommended option – funding approval required	TBC - 2027-30
Local road intersection[4] improvements (to accommodate articulated buses)	QLDC	Proposed PT service improvements	Needed for shift to articulated buses before 2028	**Local road and state highway improvements** WC341: Low-cost, low-risk improvements	$0.6M	Recommended option – funding approval required	2024-27
Bus stop changes and related infrastructure on local roads	QLDC	Proposed PT service improvements	Needed for shift to articulated buses before 2028	**Public transport improvements** WC 532: Low-cost, low-risk public transport improvements	$0.8M	Recommended option – funding approval required	2024-27
Bus stop changes and related infrastructure on state highway	NZTA	Proposed PT service improvements	Needed for shift to articulated buses before 2028	**Public transport improvements** WC 532: Low-cost, low-risk public transport improvements	$0.9M	Recommended option – funding approval required	2024-27

[1] Indicative high level cost (95th percentile). Not based on design. Assumes NZUP is in place
[2] Interim option to be developed ahead of town centre upgrade, including bay lengthening, shelters, signage
[3] Assumes incremental difference on top of NZUP design
[4] Sylvan/Howards, Sylvan/Hope, Rare/Acheron, Jack's Point/Māori Jack

QUEENSTOWN PUBLIC TRANSPORT BUSINESS CASE

Strategic Case

[NOTE:

1- This Strategic Case will form Part A of the Queenstown Public Transport Business Case
2- As the QPTBC is finalised, this Strategic Case will be integrated into the final report. The formatting of this version may change to meet agreed formatting and edition rules.

15 SEPTEMBER 2023

VERSION 5.0

Document Version History

DATE	VERSION	AUTHOR	CHANGES
22/11/2022	1 (Draft)	J. Tan, I. Wong, A Deutsch	Initial working draft for ILM and context validation.
16/02/2023	2 (Draft)	I. Wong, J. Tan, A Deutsch	Addressed client and internal feedback, revised and added content.
10/8/2023	3 (Draft)	J. Tan	Updated to reflect refinements to ILM, additional evidence and QLDC Quality of Life Survey Results, edits and formatting.
24/08/2023	4 (Draft)	E. Whitfield	Response to comments
15/09/2023	5 (Draft)	L. Goodman, E. Whitfield	Response to comments

Document Review

ROLE	NAME	REVIEW STATUS
Senior Transport Planner	S. Marek	Internal Review
Technical Director - Advisory	A. Deutsch	Internal Review

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Glossary of Terms

ABBREVIATION	TERM
AADT	Annual Average Daily Traffic
Business Case	Queenstown Public Transport Business Case
District	Queenstown Lakes District Council
FY	Financial Year
GDP	Gross Domestic Product
GHG	Greenhouse gases
GPS	Government Policy Statement (on Land Transport)
ILM	Investment Logic Map
IQA	Investment Quality Assurance
KPI	Key Performance Indicator
MoE	Ministry of Education
MoT	Ministry of Transport
NZ	New Zealand
NZUP	New Zealand Upgrade Programme
ORC	Otago Regional Council
PAX	Passenger
PBC	Programme Business Case
PT	Public transport
QLDC	Queenstown Lakes District Council
QPTBC	Queenstown Public Transport Business Case
QTBC	Queenstown Transport Business Case
RLTP	Regional Land Transport Plan
RPTP	Regional Public Transport Plan
SH6	State Highway 6
SH6A	State Highway 6A
SSBC	Single Stage Business Case
TDM	Travel Demand Management
VKT	Vehicle kilometres travelled
W2G	Way to Go Partnership
Waka Kotahi	Waka Kotahi NZ Transport Agency

EXECUTIVE SUMMARY

Queenstown is one of New Zealand's fastest growing regions, driven by growth in population, tourism, and supporting activities. This growth is placing increasing pressure on infrastructure, the transport system, and the environment.

Specifically, the Queenstown Business Case (endorsed in 2021) stated:

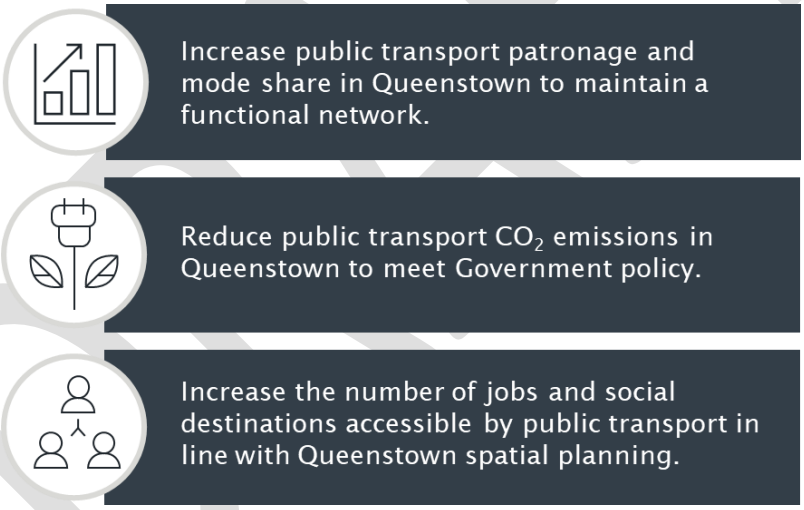
…a step change is required to achieve the 40% alternative mode share needed during the PM peak on SH6A by 2028.

This Queenstown Public Transport Business Case (QPTBC) represents a pivotal moment to help shape future growth and mobility patterns. This Business Case, led by Otago Regional Council, will confirm the case for investment in a 30-year plan for future public transport investment decisions for Queenstown.

The agreed Problem Statements for the QPTBC relate to the key themes of **effectiveness** and **attractiveness** of public transport:

- **Problem One:** Current capacity of Queenstown's transport network means the public transport service will not accommodate the future mode share targets (40 percent).
- **Problem Two:** Current Queenstown public transport service does not provide an alternative to private car travel, leading to low public transport usage in Queenstown (60 percent).

The agreed Investment Objectives of this Business Case are:



The Case for Change presented in this Strategic Case is compelling and clear:

- In the face of population growth that will double in the next thirty years, tourism growth, worsening traffic congestion, and pressing environmental concerns, the need for significant investment in public transport has never been more critical in Queenstown.
- Queenstown currently stands at a crossroads, where a congested network needs rapid intervention through a mode shift to non-car modes. Investing in robust public transport services is a pivotal step towards supporting a sustainable, efficient, and more accessible Queenstown that will thrive in the future and bring economic benefits to the region and Aotearoa New Zealand.
- Significant investment has been committed to infrastructure improvements in the Whakatipu Basin. This provides the opportunity to review public transport services and ancillary infrastructure in line with the committed infrastructure improvements to make the best use of this investment.

1 INTRODUCTION

Otago Regional Council (ORC) has commissioned the Queenstown Public Transport Business Case (QPTBC) to consider the opportunities for public transport in Queenstown. This project represents a pivotal moment to help shape future growth and mobility patterns. This Business Case will confirm the case for investment in a 30-year plan for future public transport investment decisions for Queenstown. The QPTBC is being delivered under the Way to Go (W2G) partnership with ORC's partners Waka Kotahi NZ Transport Agency (Waka Kotahi) and Queenstown Lakes District Council (QLDC).

This Strategic Case is the first of the five Cases. The purpose of the Strategic Case is to justify the investment for further exploration of the opportunity. It defines the Problem Statements, Investment Objectives, and Benefits. In doing so, this Strategic Case seeks to provide a robust evidence base to enable informed decision-making for the following key questions:

- What is the vision for the form and function of the Queenstown public transport network over the next 30 years, including decarbonisation of public transport.
- What strategic decisions need to be made to achieve this form and function?
- What infrastructure and service interventions are imperative to achieve this form and function?
- What investment pathways are necessary.

This Business Case has been prepared in accordance with the Waka Kotahi guidelines and presents a compelling case for investment.

Geographic Scope

This Business Case considers the existing public transport network and services within the Whakatipu Basin, as shown in Figure 1.

Figure 1. Geographical Area, QPTBC

2 PROJECT CONTEXT

2.1 Work Completed to Date

The Queenstown Business Case sets the direction for this QPTBC. The Queenstown Business Case (2020) provides a **commitment to an integrated transport programme** for Queenstown with 'three pillars of investment'[1] to achieve the Investment Objectives:

1. Provide more efficient and reliable access for people and goods that:
    a. Sustainably manages growth,
    b. Reduces reliance on private vehicle travel,
    c. Enables enhanced land use.
2. Is adaptable to change and disruption,
3. Enhances the liveability and quality of the natural and built environment,
4. Enhances safety with a goal of Vision Zero.

The Queenstown Business Case was endorsed by Waka Kotahi, Queenstown Lakes District Council, and Otago Regional Council in early 2021. The basis of the endorsement was that two business case activities needed to be further developed: one for Travel Demand Management (TDM) and the second for Public Transport Services. The public transport services business case, this Business Case, is led by the Otago Regional Council (ORC).

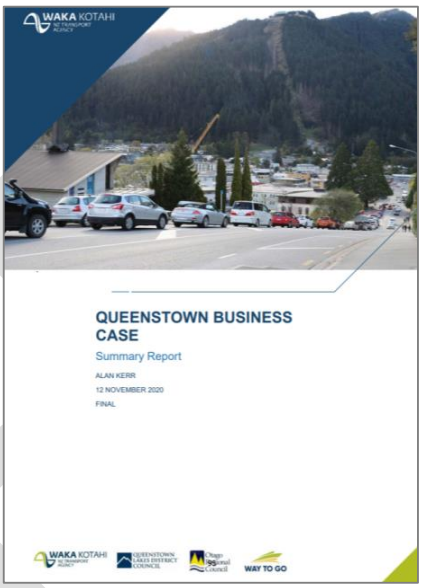


Figure 2. Queenstown Business Case (2020)

2.2 Planning for Growth

Queenstown is one of New Zealand's fastest growing regions, driven by growth in population, tourism, and supporting activities. Over the last 30 years the Queenstown Lakes District residential population has almost tripled from 15,000 residents to 41,000 residents (2021), along with significant visitor growth. By 2051, the resident population is expected to approximately double again along with annual growth in visitors as shown in Figure 3.

This growth is placing increasing pressure on infrastructure and the transport system. With this high growth anticipated over the next 30 years, strategic planning is required now to understand the investment needed to accommodate this growth whilst retaining:

- resident wellbeing,
- visitor experiences, and
- environmental outcomes.

[1] The 'three pillars of investment' are Infrastructure, Public Transport Service Operations, and Travel Behaviour Change.

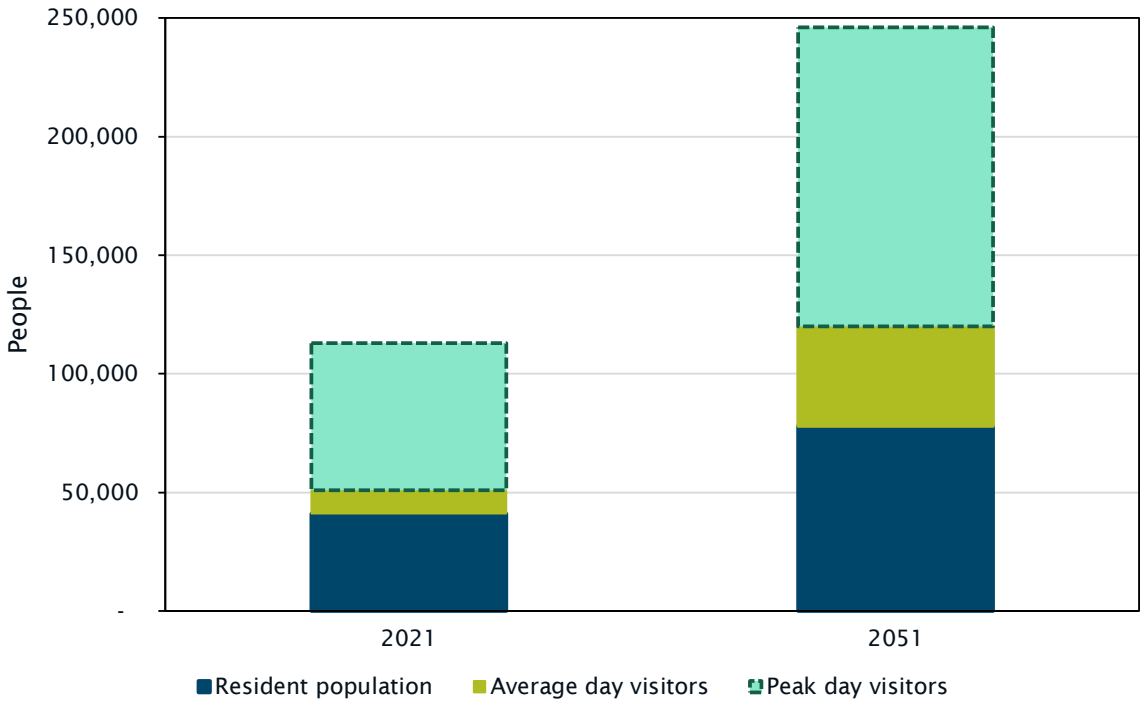


Figure 3. Queenstown Growth Projections[2]

The Queenstown Lakes Spatial Plan (July 2021) provides the long-term framework for managing growth in the District. The Spatial Plan promotes:

- A consolidated and mixed-use approach to growth that is focused on locations that are already fully or partially urbanised. Concentrating growth in the existing urban areas will mean more people live in areas where public transport, cycling, and walking is easy and attractive.
- Accommodating growth in this way requires enabling higher density development and a greater mix of uses than currently provided. This means that within the existing Queenstown urban area residential growth will increasingly move towards medium and higher density housing.
- As shown in Figure 5, the future growth areas in Queenstown will take place on the existing public transport routes and the proposed Frequent Public Transport Corridor. This Corridor represents a transformational shift in public transport provision in Whakatipu, offering a 'turn up and go' service, forming the "backbone" of the urban area of Queenstown.

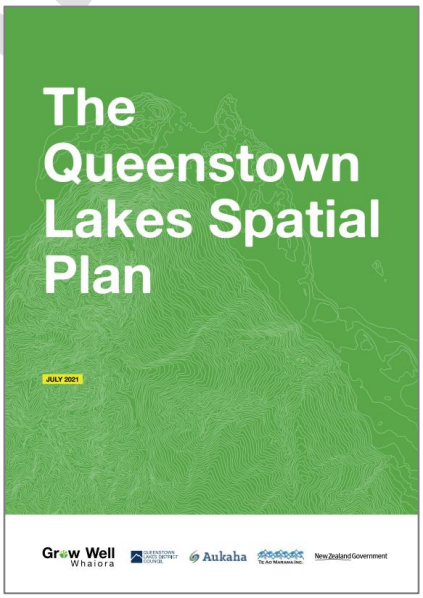


Figure 4. The Queenstown Lakes Spatial Plan (2021)

[2] Data sourced from QLDC Demand Projections to 2053 (July 2020) as reported in QLDC, 2021. *The Queenstown Lakes Spatial Plan.* Spatial Plan - QLDC

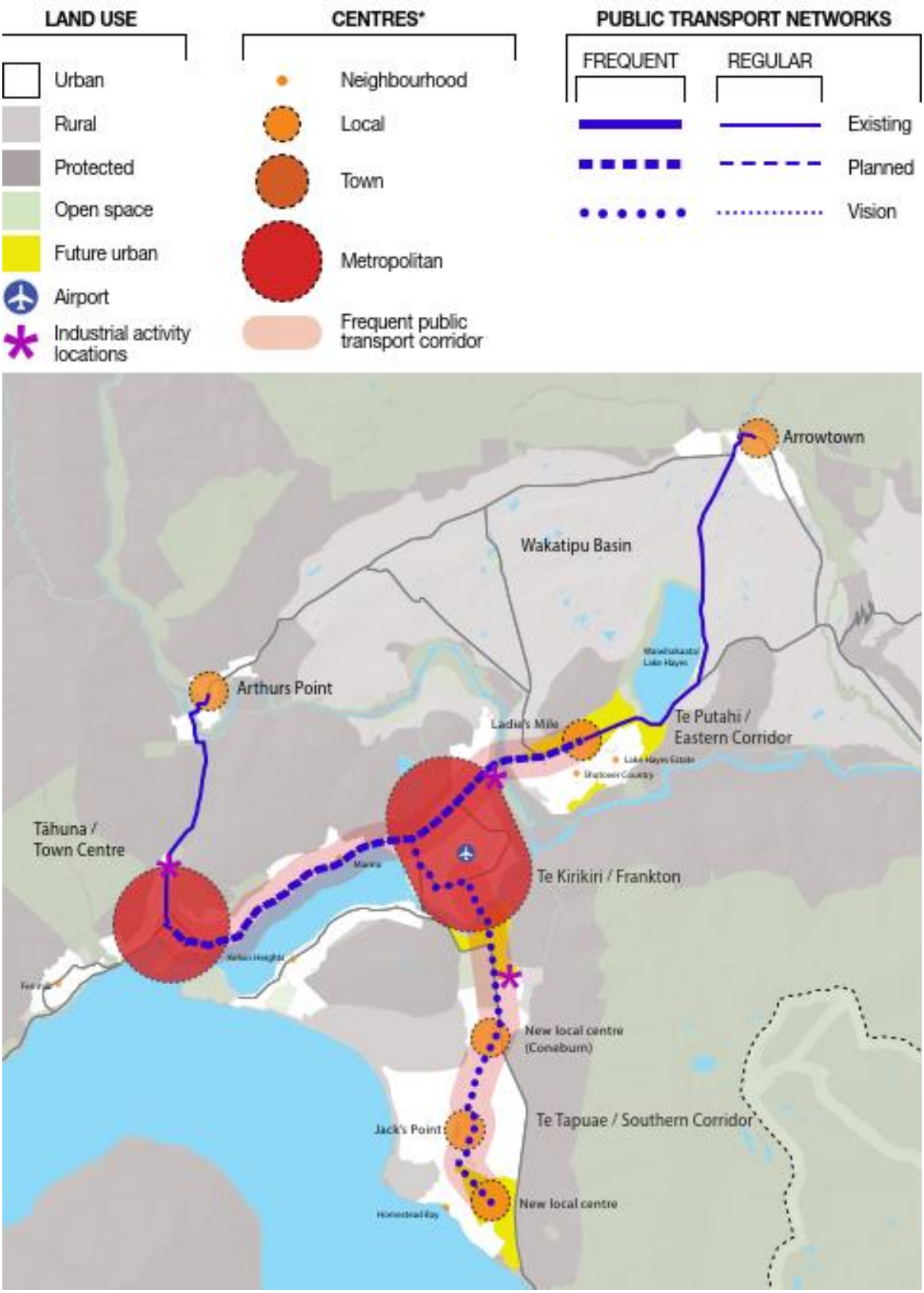


Figure 5. The Queenstown Lakes Spatial Plan (2021)

Air Travel

Air connectivity is a key component of the transport network in Queenstown Lakes and is also anticipating significant growth:

- Queenstown Airport is New Zealand's fourth busiest airport in passenger traffic. Annual passenger demand at Queenstown Airport is forecast to increase from 2.4 million in 2023 to 3.2 million in 2032.[3]
- In their draft Master Plan (2023), Queenstown Airport states prioritising public transport links to improve accessibility to the airport.
- Wānaka Airport also services the region, complementing Queenstown Airport. Future development constraints and opportunities have been identified for Wānaka Airport.
- A new airport is proposed at Tarras, highlighting the confidence of the aviation industry in the growth projections.

As well as the opportunity to provide a high-quality public transport network to enable visitors to access the District, airports are significant employment hubs; Queenstown Airport for example is *…the single largest land use in the Frankton Metropolitan area.*[4] This therefore represents a significant opportunity to align public transport investment with the anticipated growth both of passengers and of employment.

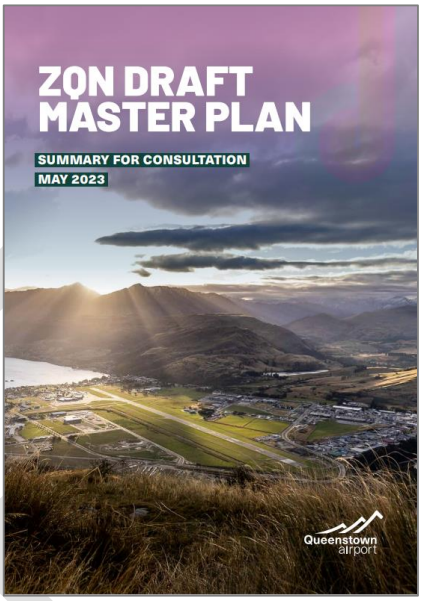


Figure 6. Queenstown International Airport Draft Masterplan (2023)

2.3 Transport Context

Topographically and Geographically Constrained

The transport network in the Whakatipu Basin is constrained topographically and geographically due to Lake Whakatipu and its mountains. This means that there is limited route choice, with the only route for moving people and transporting goods into and out of Queenstown Town Centre being State Highway 6A (SH6A).

When SH6A is closed (for example, as a result of a crash, or poor weather conditions), a detour is available via Arthur's Point. This route is not suitable for over-dimension vehicles, is capacity constrained by the one-lane Edith Cavell Bridge, and increases the journey length between Lake Hayes and the Queenstown Town Centre by approximately 100 percent.

The topographical and geographical constraints on the transport network means that providing additional capacity through increasing the number of lanes, for example, is challenging and significantly expensive. This is a key motivator for increasing the mode share of public transport in Queenstown to make better use of the existing system.

[3] Queenstown Airport, 2023. *ZQN Draft Masterplan Summary 2023.* zqn-draft-master-plan-summary-2023.pdf (queenstownairport.co.nz)
[4] QLDC, 2021. *The Queenstown Lakes Spatial Plan.* Spatial Plan - QLDC

Mode Share

Similar to many cities in Aotearoa, travel in Queenstown is predominantly made by private vehicle. As illustrated in Figure 7, in Queenstown on Census Day 2018:

- Approximately two-thirds of residents in full- or part-time work travelled to work as either a driver or passenger of a private vehicle;
- 14 percent walked to work;
- Three percent cycled; and
- Just five percent took public transport.

A similar split is seen in the Census 2018 Journey to Education data.

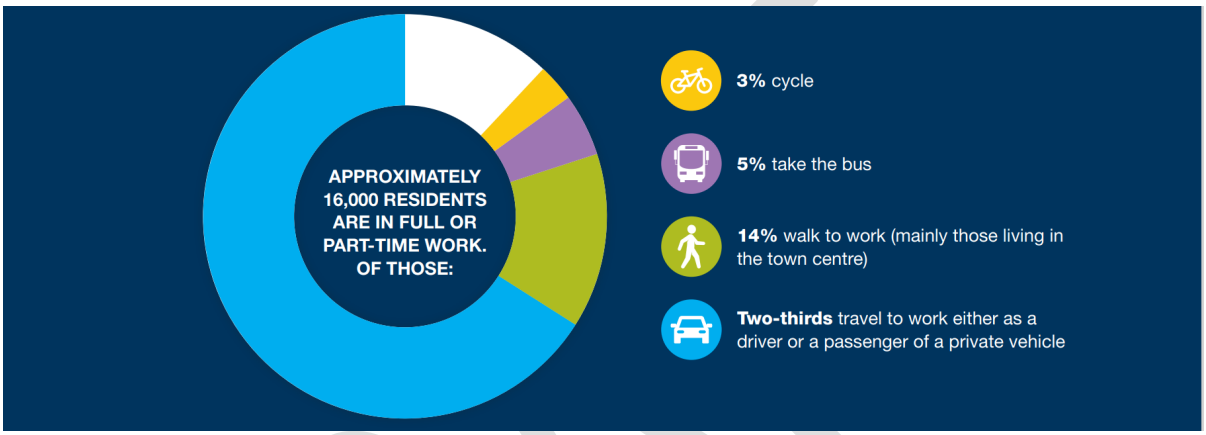


Figure 7. 2018 Census Journey to Work, Queenstown[5]

Given Queenstown's modest use of public transport, there are significant opportunities to be gained by enabling improved multimodal accessibility and providing greater transport choice.

Subsidised Public Transport Network

Queenstown's current public transport network comprises of five bus routes and a ferry service. Key details about this network are:

- The system has two hubs/bus interchanges at Frankton and Stanley Street (Queenstown).
- In November 2017 the bus routes were overhauled with a focus on trips that would contribute to reducing congestion, particularly on SH6A between the Queenstown Town Centre and Frankton.
- In parallel with the 2017 network changes, a $2 flat public transport fare structure and Town Centre parking charges were introduced representing carrot and stick incentives for public transport, respectively.
- Combined this saw a significant increase in bus patronage as shown in Figure 8; between November 2017 and 2018 there was a 236 percent increase (Bee Card data).
- The ferry service is reported to be popular with 100 thousand trips made in the first ten months of operation (to October 2019). The ferry is primarily used by tourists.

[5] Way to Go, 2022. *Better Ways to Go – Queenstown Lakes District Mode Shift Plan.* item-2a-attachment-1-mode-shift-plan.pdf (qldc.govt.nz)

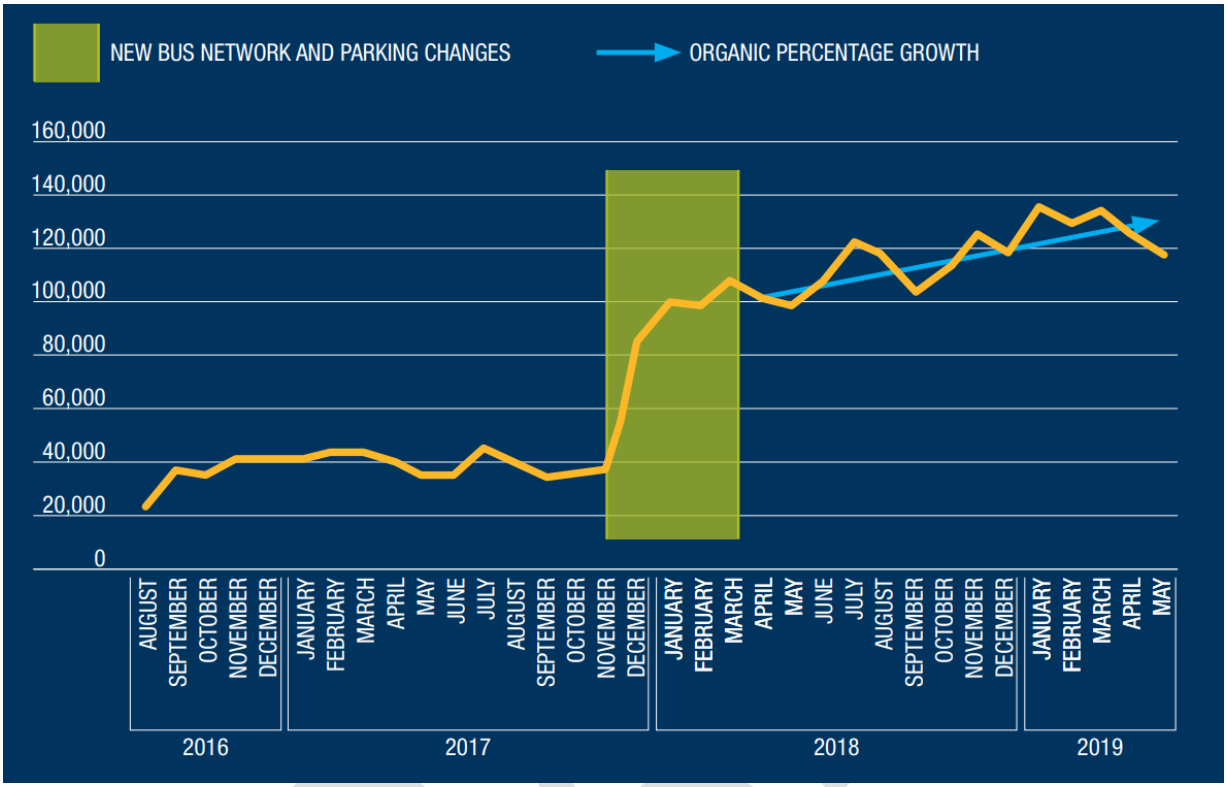


Figure 8. Whakatipu Basin Public Transport Patronage Growth[6]

This growth signifies there is a strong latent demand for public transport when delivered in a way that is affordable and aligned to users' needs.

Committed Infrastructure Funding

Funding commitments have been made for significant infrastructure investment in Queenstown, including:

- **Economic Stimulus Package** – a central Government partnership delivering the Queenstown Town Centre upgrades ($35M Crown funding) and Town Centre Arterial upgrades Stage 1 ($50M Crown funding).[7]
- **Whakatipu Active Travel Network** – a programme of work to deliver an integrated active mode network, providing a genuine alternative to travelling by car.[8]
- **New Zealand Upgrade Programme (NZUP) Queenstown Package** - $115M Crown funding to provide dedicated public transport infrastructure including bus priority measures, bus lanes, bus hub improvements, intersection improvements, and pedestrian access improvements.[9]

This Strategic Case is designed to complement these investments to plan for the future of public transport so that the district is best placed to realise the benefits of infrastructure investment.

[6] Way to Go, 2022. *Better Ways to Go – Queenstown Lakes District Mode Shift Plan.* item-2a-attachment-1-mode-shift-plan.pdf (qldc.govt.nz)
[7] New Zealand Government, 2020. *Queenstown infrastructure packed to bolster local economy.* Queenstown infrastructure package to bolster local economy | Beehive.govt.nz
[8] Queenstown Lakes District Council, 2023. *Whakatipu Active Travel Network.* Whakatipu Active Travel Network (qldc.govt.nz)
[9] Waka Kotahi NZ Transport Agency, 2023. *NZ Upgrade Programme Queenstown package.* NZ Upgrade Programme Queenstown package | Waka Kotahi NZ Transport Agency (nzta.govt.nz)

2.4 Social Context

Ageing Population

Statistics NZ Population projections expect the proportion of people aged 65 and over to triple in the next 25 years. Figure 9 shows the 2018 estimated and the 2048 projected (medium) age distribution for residents of the Queenstown Lakes District.

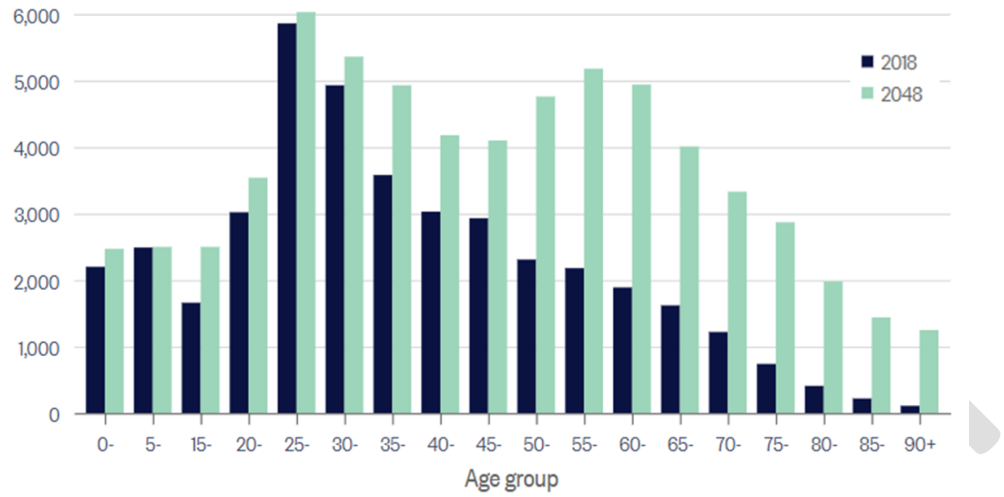


Figure 9. Estimated and projected age distribution, Queenstown Lakes District[10]

This demographic shift will have influence on the public transport demands. For example, people aged over 65 typically are more likely to travel during non-peak hours and typically have a higher reliance on public transport to provide their access requirements. As a result, there is expected to be increased demand for public transport, particularly off-peak services, in Queenstown.

Economic Environment

The tourism sector in Queenstown significantly contributes to the economy. International visitors to Queenstown in 2019 made a substantial contribution of approximately $0.98 - $1.1B to the Gross Domestic Product (GDP) of the South Island.[11] Additionally, the Queenstown tourism sector accounted for approximately 64 percent of local employment in 2019. Notably, the local workforce in Queenstown is heavily reliant on migrant workers and holiday visa holders to meet the labour demands.[12]

This means that a significant proportion of people in Queenstown are transient and seasonal. In the context of public transport, such individuals are more likely to have higher dependency on public transport for a number of reasons, including:

- Lack of access to a personal vehicle;
- Holding an overseas licence;
- Coming from a country with well-established public transport systems and ingrained usage habits;
- Employment as a low-wage worker with restricted resources.

[10] Statistics New Zealand, Estimates and Projections: Subnational population projections, by age and sex, 2018(base)-2048 2020. Estimated and projected age distribution in the Queenstown-Lakes District, New Zealand - Figure.NZ
[11] QLDC COVID-19 Recovery Intelligence Report May 22
[12] Submission to the Productivity Commission on the Immigration Inquiry, New Zealand Productivity Commission (2021)

3 DEFINING THE PROBLEM

Queenstown's transport problems are well documented in the studies and business cases preceding this project. This section sets out the process behind agreeing the problem statements, benefits statements and investment objectives for the QPTBC.

A facilitated Investment Logic Map (ILM) workshop was held in October 2022 with representatives from Otago Regional Council, Queenstown Lakes District Council, and Waka Kotahi. The session began with a discussion framing the problems, key principles, and desired outcomes of the project from each organisation's perspective. The workshop participants then identified two problems relating to the key themes of **effectiveness** and **attractiveness** of public transport.

Following the workshop, the draft ILM was circulated to seek feedback. The Problem Statements were then refined incorporating feedback from the Way 2 Go (W2G) partners, peer reviewers and Waka Kotahi Investment Quality Assurance (IQA) team. Further refinement occurred before the Problem Statements and weightings for the QPTBC were finalised as shown in Figure 10.

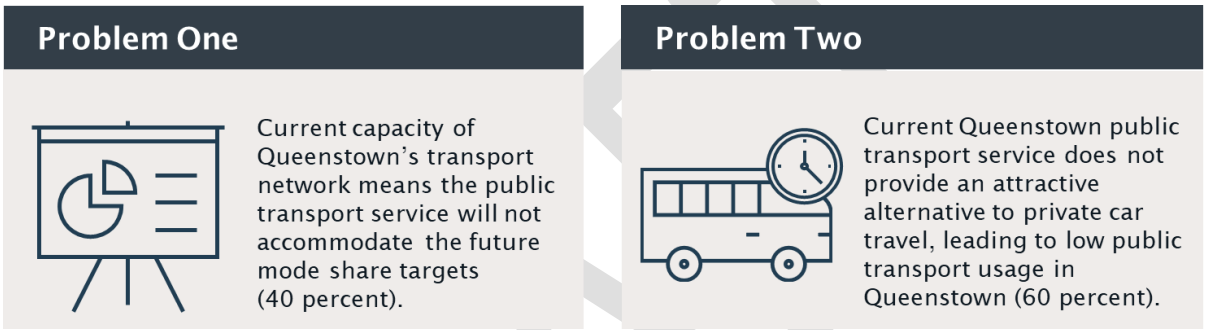


Figure 10. Problem Statements, QPTBC

The agreed ILM is shown in **Appendix A**. There is a strong link between the Queenstown PTBC problem statements and earlier Queenstown PBC as shown in **Appendix A**.

3.1 Problem One

Problem Statement One relates to the effectiveness of public transport in the Whakatipu Basin. Project Partners confirmed Problem Statement One as:

> Current capacity of Queenstown's transport network means the PT service will not accommodate the future mode share targets (40%).

The evidence base for the causes and consequences of Problem Statement One are presented below.

Cause 1: The current public transport service is already at capacity

The current public transport network (bus) service capacity is estimated at 260 passengers per hour along SH6A[13]. Peak hour patronage data from 2021 (refer to **Appendix C**) shows the average number of passengers carried along SH6A was 199 people in the AM peak and 174 people in the PM peak. It is important to note this data is affected by the COVID pandemic as New Zealand's international border was closed in 2021. Therefore, with the return of international visitors, it is reasonable to assume that current patronage levels will be higher than reflected in the 2021 data.

Additional pressure will be added to the current public transport network with the Ministry of Education (MoE) planning a staged discontinuation of the majority of school bus services in

[13] See QPTBC Forecast Demand Advisory Paper

Queenstown by 2025. Given that around 470 students presently rely on the MoE services, this change could lead to a substantial surge in demand for public transport services.[14]

Looking forward, public transport modelling[15] undertaken as part of this Strategic Case shows that, in order to maintain a functioning transport network in Queenstown, significant mode shift to public transport is required as shown in Table 1. Specifically, in the AM peak hour the number of people travelling by public transport on SH6A will need to be:

- 592 people by 2027
- 1,082 people by 2039
- 1,466 people by 2053.

These numbers far exceed the current capacity of 260 people per hour.

Table 1. Critical PT Mode Share Targets

YEAR	ROUTE	AM PEAK HOUR		PM PEAK HOUR	
		PAX. / HOUR	PT MODE SHARE	PAX. / HOUR	PT MODE SHARE
2027	SH6A	592	27%	594	28%
	Shotover Bridge	323	18%	369	18%
	Kawarau Falls	186	11%	123	7%
2039	SH6A	1,082	40%	1,028	40%
	Shotover Bridge	514	25%	657	29%
	Kawarau Falls	1,033	40%	909	37%
2053	SH6A	1,466	47%	1,384	48%
	Shotover Bridge	772	34%	869	35%
	Kawarau Falls	1,687	53%	1,489	49%

Cause 2: The current roading network is also already at capacity

The roading network in Queenstown is also at capacity and struggling to cater for current demand, which is resulting in longer and more variable travel times for general traffic and public transport users. Congestion is experienced on SH6A and SH6A with the Annual Average Daily Traffic (AADT) on these roads in excess of 20,000 vehicle per day which exceeds the practical capacity of a two-lane road. As reported in the QTBC, the practical capacity of SH6A was exceeded on 140 days in 2019.

By 2028, QTBC modelling indicates that "average" conditions on SH6A will be similar to current peak travel times. Peak periods will experience regular gridlock with car and public transport travel times between Lake Hayes Estate and Queenstown regularly exceeding 60 minutes (compared to 15-20 minutes currently).

Bus trips are affected by the same congestion issues experienced by general traffic, as bus priority in Queenstown is limited. This congestion will impact the frequency and reliability of the Queenstown public transport network, limiting tourists from accessing key tourist spots and limiting residents from accessing important destinations such as employment, services, education, and social amenities. As an interim mitigation, NZUP has committed funding to deliver bus priority lanes on SH6A by 2027.

[14] See QPTBC Service Patterns Advisory Paper

[15] See QPTBC Forecast Demand Advisory Paper

With no ability to build more capacity, it is imperative to make better use of the existing system to avoid these impacts. For Queenstown this means increasing public transport mode share, however (as evidenced in Cause 1), this is not possible without intervention.

Consequences

To enable the growth anticipated for Queenstown Lakes, it is critical that public transport mode share increases. However, the consequences of an over-capacity public transport system and road network are deemed to be considerable barriers to achieving the required uplift in mode share and could have significant economic impact as shown in Figure 11.

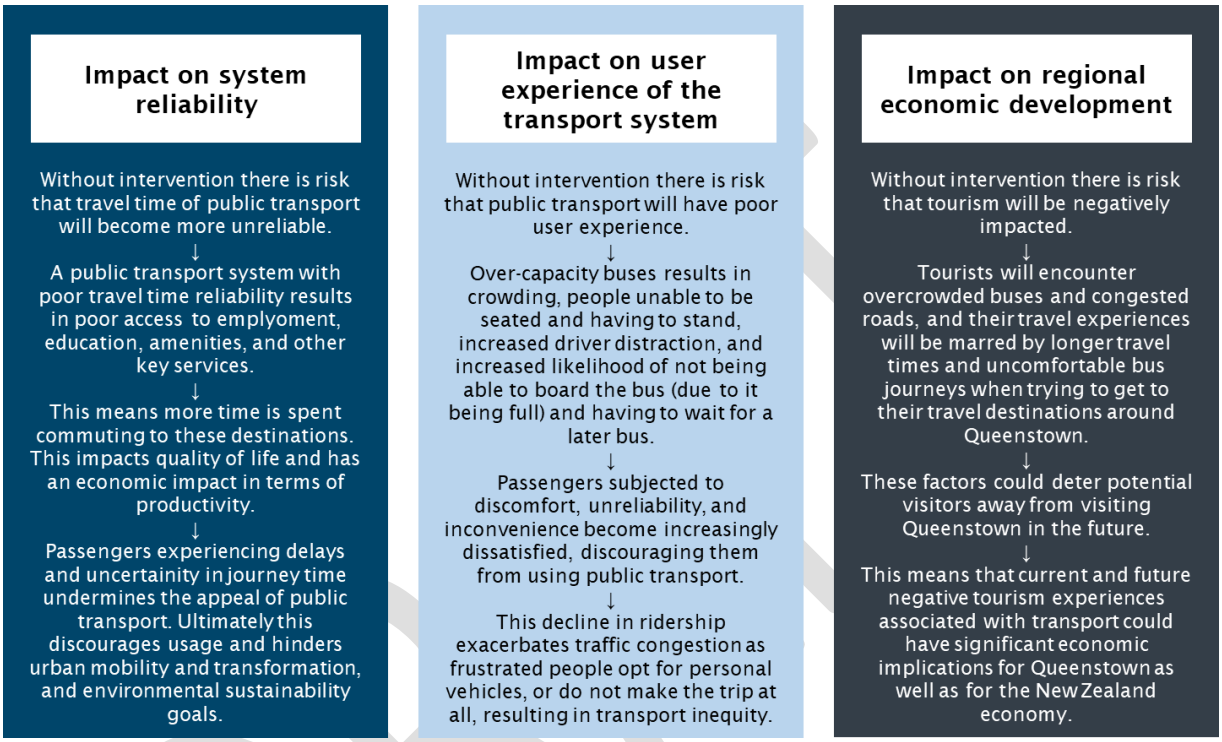


Figure 11. Consequences of Problem Statement One, QPTBC

Implications

The main implication of not addressing Problem Statement One is that public transport will become unreliable and will not reach the mode share targets required to maintain a functioning transport system. Consequently, the economic, environmental, social and health effects of the problem will be exacerbated with the expected population growth in Queenstown. This will make it increasingly difficult for the District to achieve:

- Their carbon targets,
- The goals ofInāia tonu nei: a low emissions future for Aotearoa, and
- The vision of the Queenstown Lakes Spatial Plan.

3.2 Problem Two

Problem Statement Two relates to the attractiveness (both real and perceived) of public transport in the Whakatipu Basin. Project Partners confirmed Problem Statement Two as:

> Current Queenstown PT service does not provide an attractive alternative (reliability, directness, accessibility) to private car travel, leading to low PT usage in Queenstown (60%).

The evidence base for the causes and consequences of Problem Statement Two are presented below.

Cause 1*: Poor spatial coverage of existing routes*

Spatial coverage and connectivity are key factors in making public transport attractive and encouraging mode shift. In Queenstown, however, the current public transport system has limited spatial coverage and connectivity, resulting in an increased preference for driving over public transport with residents and visitors reporting the current network does not fulfil their needs as outlined below:

- Figure 12 shows the locations accessible currently via a 20-minute journey on public transport from either Stanley Street or Frankton Bus Hub without transferring. This shows the following locations are not accessible in 20 minutes: Quail Rise, the western end of Kelvin Heights, the southern end of Jacks Point and the route beyond Lake Hayes towards Arrowtown.
- Residents have noted in the 2022 Quality of Life survey that the public transport routes are not aligned with their needs. For example, routes in Jacks Point, Remarkables Park, and Lake Hayes are circuitous and indirect, resulting in increased travel time.
- Mapping the existing network spatial coverage against the projected growth areas within the District reveals that the current challenges will intensify. The current network will not be sufficiently equipped to accommodate the increasing demand stemming from evolving land use, emerging development zones, and the anticipated population growth in the years ahead.
- In addition, many of Queenstown's key tourist destinations (for example The Playground, AJ Hackett Bungy, The Coronet, Remarkable Ski Area, and many more) cannot be reached via existing public transport routes. Visitors (and employees) must either drive directly or use third party transport.
- Public transport provision has not kept pace with rapid development of new commercial and retail centres. This has led to a situation where 'Hawthorne Drive has bus stops but no buses, and the Frankton-Ladies Mile Highway has buses but no bus stops' (Queenstown Business Case).

Figure 12. 20-minute PT Catchment (one seat ride) from a Bus Hub[16]

Cause 2: Travel Time Penalties

In Queenstown journeys made by private vehicle are typically faster than those made by public transport. **Error! Reference source not found.** presents a comparison between journey times for trips made by private vehicle compared to trips made by public transport to the Queenstown Town Centre at peak hour. Notable, for all of the five routes, travelling by private vehicle is shown to be faster; in some cases public transport is estimated to take twice as long.

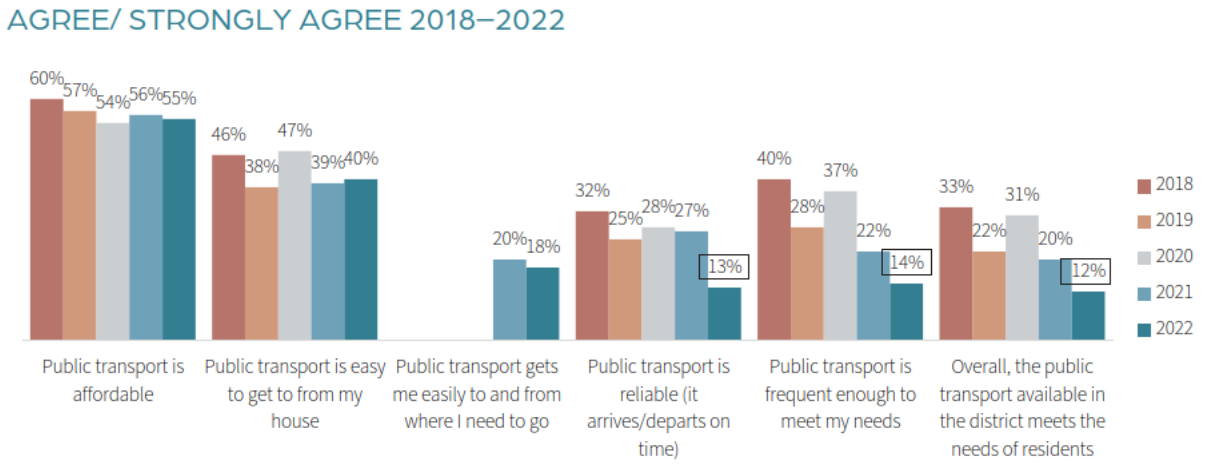
Table 2. Travel times of cars versus bus

ROUTE	DRIVE TIME (GOOGLE MAPS)	BUS JOURNEY TIME (TIMETABLES)
Frankton to Queenstown	9-14 minutes	15 minutes
Kelvin Heights to Queenstown	16-22 minutes	40 minutes
Jacks Point to Queenstown	16-22 minutes	45 minutes
Lake Hayes to Queenstown	16-22 minutes	30 minutes
Arrowtown to Queenstown	22-30 minutes	40 minutes

It is important to note that the times presented in **Error! Reference source not found.** do not include the time for users of public transport to access the bus stop and wait for the service to arrive. Public transport users are further penalised when they are required to transfer between services, with some transfer times at Frankton Hub being as long as ten minutes. This further shows the travel time penalties associated with taking public transport.

[16] Created with Google Earth as base map source

Overall, this means that the relative attractiveness of public transport is decreased. This was reflected in the Quality of Life Survey presented in Figure 13 where from 2018 – 2022, residents increasingly disagreed that public transport was affordable, reliable, and frequent enough for their needs.



Q. Thinking about the public transport in the district, how strongly do you agree or disagree with the following statements? Base size n=1000
The square box on the chart indicates this year's result is a statistically significant change from last year's result.

Figure 13. Survey results for indicators of public transport from 2018 – 2022[17]

Cause 3: Infrequent Services

Queenstown's bus and ferry system suffers from infrequent services, especially during off-peak hours, and lacks coverage in the early morning and late evening. These timetables fail to adequately meet the community's needs and do not provide an attractive level of service in Queenstown.

- The bus routes operate on intervals ranging from 30 to 60 minutes, except for Route 1 which runs every 15 minutes. Most services commence at 6:00 am and cease at 10:00 pm, with only Route 1 extending to midnight.
- Individuals with varied schedules and multiple destinations struggle to rely on infrequent public transport and it hinder commuters' ability to plan their journeys efficiently. This has been worsened in recent years due to service cancellations meaning people have been stranded and waiting for a long time for the next service to arrive.
- The lack of services before 6:00 am and after 10:00 pm present a significant barrier to many people, exacerbated by Queenstown's tourism-driven economy with diverse working hours.

Overall, the inability of public transport to meet the diverse travel needs of Queenstown's residents and visitors leads to a negative overall perception the system. This is pushing people toward more reliable transportation options. People then have an unwillingness to return to public transport without significant service improvements being made.[18]

[17] Quality of Life 2022 Survey Report, Queenstown Lakes District Council (2022)
[18] Mayor Lewers launches full attack on ORC as bus service fails, Crux 2023

Cause 4: Poor Bus Stop Facilities

Residents have observed that the growth of tourists has placed pressure on current infrastructure and that infrastructure is insufficient to meet people's needs, for example, the lack of bus stops especially close to accommodation (Quality of Life 2022 Survey Report).[19] Research shows that bus stops with the appropriate facilities are important in terms of improving a rider's experience and ridership.[20]

The quality of existing public transport facilities in Queenstown is limited and is consistent with public transport facilities provided historically across New Zealand, for example:

- Bus stops often lack signage, shelters, seating, and timetables/real time information.
- Pedestrian access to bus stops is often via routes that are without the appropriate infrastructure such as kerb cutdowns, tactile pavers, and safe crossing points (particularly on high speed and high volume roads).

Appendix C provides more detail about five specific bus stop locations reviewed as a desktop study.

Improved facilities can be used to reduce disincentives or barriers for any potential new bus users. This is especially pertinent for users who are vulnerable or unfamiliar with public transport. A programme of works is underway by QLDC to provide shelters, lighting, bins, and ski racks but there is currently a lack of consistency across the network.

Figure 14. Example of typical bus stop - 672 Peninsula Rd, Kelvin Heights

[19] Quality of Life 2022 Survey Report, Queenstown Lakes District Council (2022)

[20] Why Bus Stops Matter, Transit Center (2018)

Consequences

To enable the growth anticipated for Queenstown Lakes, it is critical that public transport mode share increases. However, the consequences of a public transport service that is considered unattractive will result in continued car dependency and emissions, social and transport inequity, and impacts on tourism as shown in Figure 15.

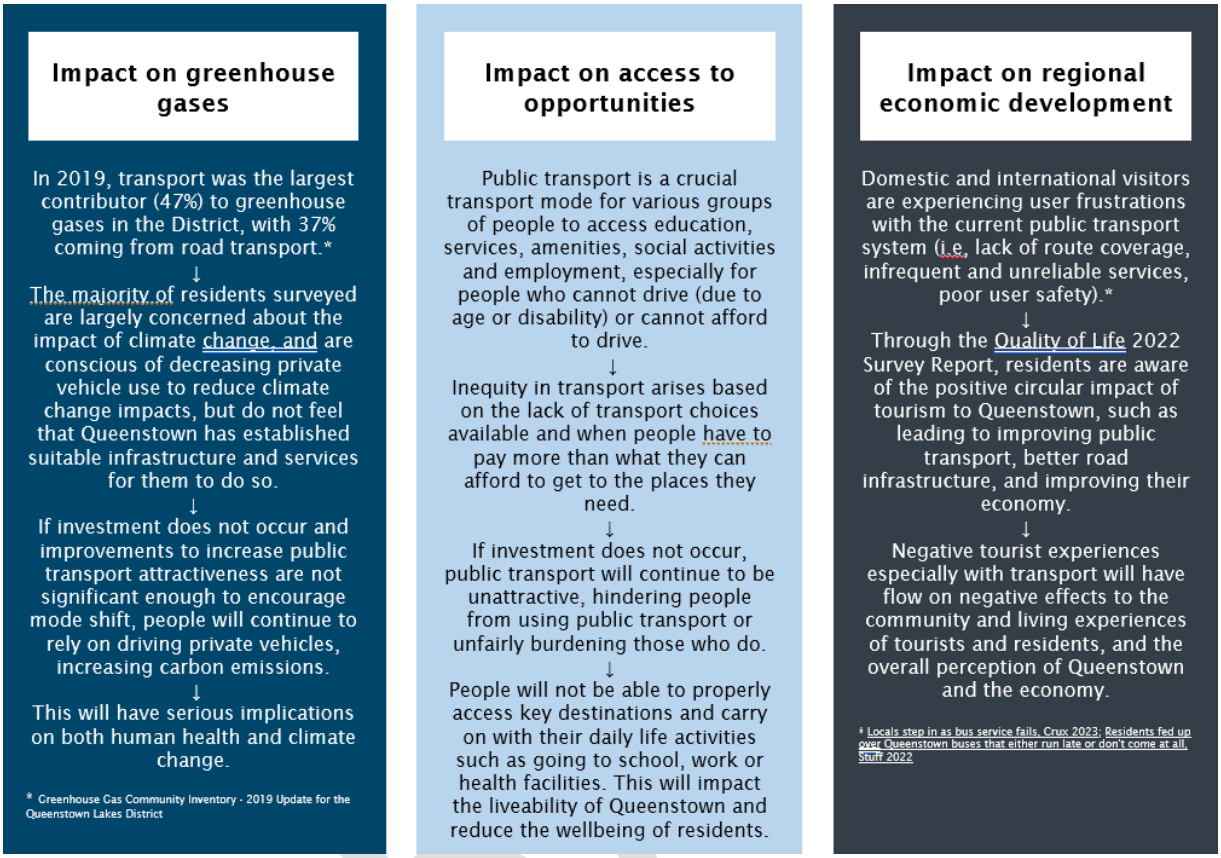


Figure 15. Consequences of Problem Statement Two, QPTBC

Implications

The main implications of not addressing Problem Statement Two are the barriers to public transport uptake in Queenstown Lakes will remain, and residents and visitors will continue to rely on single occupancy vehicles for daily travel. This will increase the accessibility-related challenges that the District is facing and people will miss out on economic and social opportunities as a result. This will make it increasingly difficult for the District to achieve:

- An attractive public transport network that meets the needs of the community,
- The goals ofInāia tonu nei: a low emissions future for Aotearoa, and
- The vision of the Queenstown Lakes Spatial Plan.

4 STRATEGIC ALIGNMENT

Investment in Queenstown's public transport services aligns strongly with national, regional, and local policies, strategies, and plans as shown in Table 3.

Table 3. Alignment of QPTBC with Key Strategies, Policies, andPplans

DOCUMENT	ALIGNMENT	
NATIONAL		
Te Tauākī Kaupapa Here a te Kāwanatanga mō ngā waka whenua | Government Policy Statement on Land Transport 2021	 HIGH	The QPTBC aligns with the Government Policy Statement (on Land Transport) 2021 by supporting the GPS strategic priorities of: • *Better Travel Options* – the focus of the project is to provide enhanced viable and attractive public transport choices for people in the Whakatipu Basin. • *Climate Change* – through providing transport choice this enables mode shift from private vehicle trips to zero-, or lower-, emission public transport trips which will reduce emissions and VKT.
Te Tauākī Kaupapa Here a te Kāwanatanga mō ngā waka whenua | Government Policy Statement on Land Transport 2024 (draft)	 HIGH	The QPTBC aligns with the draft Government Policy Statement (on Land Transport) 2024 by supporting the GPS strategic priorities of: • *Reducing emissions* – investment in the public transport network is crucial to transitioning Queenstown to a lower carbon transport system that provides affordable, accessible, and low-emission choices. • *Sustainable urban and regional development* – a reliable and frequent public transport network is key to managing road congestion and supporting housing and urban growth in the Whakatipu Basin.
The Living Standards Framework 2021	 MEDIUM	The Treasury Living Standards Framework enables consideration of policy impacts on the dimensions of wellbeing in a systematic and evidenced way. The QPTBC aligns with this framework through enabling an efficient and equitable public transport system in Queenstown. In turn this will contribute to individual and collective wellbeing through enabling communities to have safe access and reliable connections to key services, employment and amenities.
Ināia tonu nei: a low emissions future for Aotearoa (2021)	 HIGH	The QPTBC supports the Climate Change Commission's advice to reduce emissions and transition to a low-emissions Aotearoa. It does this by helping people reduce their need to travel by single occupancy vehicle through improving peoples' access to active modes and public transport and encouraging these low emissions transport options over private vehicle use in Queenstown.
Te hau mārohi ki anamata | Aotearoa New Zealand's first emissions reduction plan (2022)	 HIGH	The emissions reduction plan is a commitment to a low-emissions, climate-resilient economy with a transition to net zero emissions by 2050 that is equitable for everyone. Key actions for the transport sector that the QPTBC supports are: reducing reliance on cars; and supporting people to use public transport and active modes with the intent of reducing carbon emissions.
Toitū Te Taiao | Our Sustainability Action Plan (2020)	 MEDIUM	This plan is shaped by the Avoid – Shift – Improve model: avoid/reduce reliance on private motor vehicles through integrated land use and transport planning; shift the travel of people and freight to low-emission modes, public transport, active and/or shared transport modes; and improve the energy efficiency of the vehicle fleet. The QPTBC aligns with the public transport elements of this plan.

Waka Kotahi Keeping Cities Moving (2019)	 HIGH	Keeping Cities Moving is a plan to improve travel choice and reduce car dependency in six high growth urban centres, one of which is Queenstown. Keeping Cities Moving and the QPTBC share the same goal to transition away from car-centric infrastructure and develop public transport in Queenstown through public transport investment.
To Tātou Mahere mō te pūnaha waka whenua | Arataki (V2)	 HIGH	The QPTBC aligns with the Arataki 30-year focus in Ōtākou / Otago to encourage increased use of public transport to support urban development and thriving communities in Queenstown (and Dunedin). Arataki lists the most important issues to be resolved in the next decade in Ōtākou / Otago, with the first listed important issue being: • *Begin to reduce vehicle kilometres travelled, focusing on Tāhuna Queenstown and Ōtepoti Dunedin, in a way that's equitable and improves people's quality of life.* The QPTBC is a key strategic response to this issue.
REGIONAL		
Otago/Southland Regional Public Transport Plan (2021 - 2023)	 HIGH	The QPTBC aligns with the vision and the four objectives of the RPTP in terms of providing an inclusive, accessible and attractive and integrated public transport system in Queenstown that promotes mode choice, reduces congestion and carbon emissions through mode shift, is affordable and adapted to future land use and traffic demand.
Otago Southland Regional Land Transport Plan (2021 - 2023)	 MEDIUM	The QPTBC supports the RLTP Strategic Objective 3 (Connectivity and Choice), Objective 4 (Environmental Sustainability) and Objective 5 (Future Focused). Creating genuine mode choice (which the QPTBC seeks to deliver) is listed as one of the 10-year priorities in the RLTP with specific reference to investment in multi-modal transport options.
LOCAL		
Better Ways to Go (2022)	 HIGH	Better Ways to Go is the mode shift plan for the Queenstown Lakes District. The QPTBC aligns with Better Ways to Go by investing in Public Transport to accommodate for growth and increasing mode share of active travel and public transport.
Queenstown Town Centre Masterplan (2017) & Frankton Masterplan (2020)	 MEDIUM	The QPTBC is aligned with these Masterplans, seeking to present public transport services that will improve the overall experience, liveability and meet future demand.
Grow Well | Whaiora Spatial Plan (2021)	 MEDIUM	The Queenstown Lakes Spatial Plan documents the vision and framework to align decision-making for the Queenstown Lakes District. The QPTBC uses the Spatial Plan as the basis for growth projections underpinning the business case, and supports the overall vision of the Spatial Plan.
Queenstown Lakes District Climate and Biodiversity 2022 - 2025	 MEDIUM	The plan outlines the District's response to Climate Change. Transport is considered a key challenge with the plan listing ten actions that together seek to achieve a transport system that is low-emission and better connected. The QPTBC aligns with the public transport elements of this plan.

5 BENEFITS AND INVESTMENT OBJECTIVES

Benefits of Investment

The benefits of successfully investing to address the problems were identified and agreed by Project Partners as part of the ILM workshop in October 2022. The workshop participants identified and agreed to the following benefits and associated weightings:

- Improved public transport mode choice (40 percent).
- Improved access to economic and social destinations (40 percent).
- Reduced emissions from land transport (20 percent).

The above benefits were re-confirmed again at a subsequent workshop on 16th May 2023.

Investment Objectives

From the Problem Statements, evidence gathered, and identified Benefits of Investment, three Investment Objectives were developed and agreed with Project Partners. The Investment Objectives developed for the Queenstown Public Transport Business Case are shown in Figure 16.

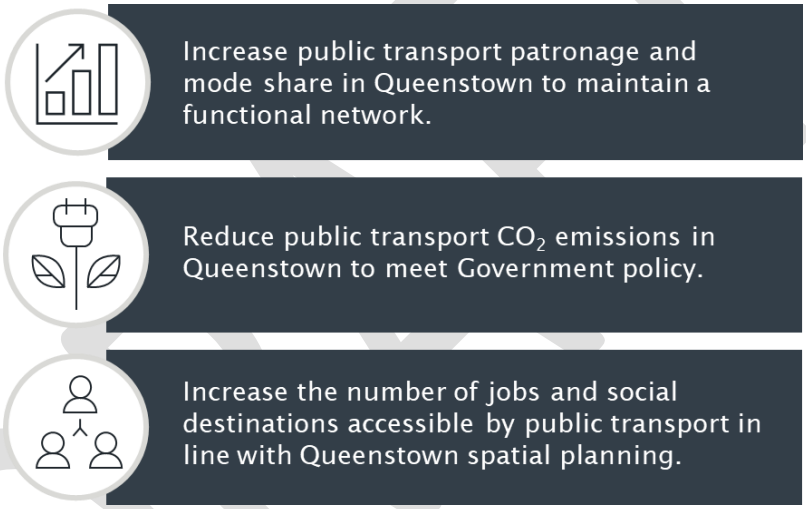


Figure 16. Investment Objectives, QPTBC

The Investment Objectives outlined above will be used throughout the options assessment phase (the Economic Case) as a basis for assessing how proposed solutions or options align with the desired outcomes of the QPTBC.

Critical Success Factors

Critical Success Factors for this business case were also agreed with W2G partners. The Critical Success Factors are:

- Capacity (to accommodate targeted mode share)
- Implementability (is the infrastructure required within the scope of this business case)
- Consentability (for infrastructure required)
- Emissions (ability to meet zero tailpipe emission requirement for public transport vehicles)
- Readiness (is there sufficient technological and support within required timescales)

These Critical Success Factors will also guide the assessment of options through the Economic Case.

Key Performance Indicators

Table 4 maps the alignment of the potential benefits to Key Performance Indicators (KPIs) and the Waka Kotahi Land Transport Benefits Framework. Further details for each KPI, in terms of the measurement method, baseline and expected results will be further detailed for the Preferred Option in the Management Case.

[Note: The draft outcomes and KPIs presented below will be validated as part of Part B]

Table 4. Draft Outcomes and Key Performance Indicators Mapping

BENEFITS	INVESTMENT OBJECTIVE	LAND TRANSPORT BENEFITS FRAMEWORK		KPIS / MEASURES	TARGET
Improved public transport mode choice	Increase public transport patronage and mode share in Queenstown to maintain a functional network	8.1: Impact on GHG emissions	8.1.2: Mode Shift from Single Occupancy Private vehicles	KPI 1: Increased mode share/mode shift from single occupancy private vehicles	Increase mode share by 2053: - Southern Corridor: 50%; - Eastern Corridor: 35%; - Western Corridor: 48%
		5.1: Impact on system reliability	5.1.1: Punctuality – Public Transport	KPI 2: More reliable journey times for public transport	Percentage of scheduled service trips between 59 seconds before and four minutes 59 seconds after the scheduled departure time of selected point, improves by xx% by 2053
Reduced emissions from land transport	Reduce public transport CO_2 emissions in Queenstown to meet Government policy	8.1: Impact on GHG emissions	8.1.1: CO_2 emission	KPI 1: CO_2 emissions	Reduce public transport CO_2 emissions by 100% by 2053
			8.1.3 Light vehicle use impacts	KPI 2: VKT reduction	Reduce VKT by xx% by 2053. (measure to be set, corresponding decrease in VKT by meeting mode share targets below)
Improved access to economic and social destinations	Increase the number of jobs and social destinations accessible by public transport in line with Queenstown spatial planning	10.3: Impact on access to opportunities	10.3.1: Access to key social destinations	KPI 1: Jobs accessible within 20 minute trip on public transport	Jobs accessible within 20 minute trip on public transport increases by 20% by 2053
				KPI 2: Destinations accessible within 30 minute trip on public transport	Destinations accessible within 30 minute trip on public transport increases by 20% by 2053.

6 UNCERTAINTIES LOG

[Note: The list of issues and constraints below will be validated as part B and part C of the business case are completed.]

The role of the Uncertainty Log is to identify areas of uncertainty that exist in the context of the QPTBC that may be within the sphere of influence of the Business Case. The Uncertainty Log includes the assumptions made that might influence the understanding of the Problem Statements and which may affect the effectiveness and feasibility of the alternatives and options developed (refer to the Economic Case).

The initial project risks and uncertainties identified through the development of the Strategic Case are outlined in Table 5. These will be further explored through the Business Case and the Uncertainty Log will be progressively updated through the project.

Table 5. Uncertainty Log - QPTBC

FACTOR	COMMENTS
Scale of growth is higher than anticipated	This may result in key road links being at capacity sooner than expected, increase in the number of private vehicles used, increased pressure on public transport demand and impact mode share targets. **Mitigation:** Include sensitivity testing for growth assumptions to confirm the Preferred Option is deemed to offer the best overall value and economic advantage compared to the alternatives.
Constrained road space	There is limited road space for which to cater for private vehicles and road-based public transport (buses). Infrastructure improvements such as bus lanes, bus priority, road widening or an off-line public transport system are beyond the scope of this business case. **Mitigation:** Apply Waka Kotahi Early Appraisal Sifting Tool in the Economic Case to assess the alternatives and options and remove any that are out of scope or fatally flawed.
Legislation and policies developing or changing simultaneously/ faster than the development in the QPTBC	Change in policies may cause changes in transport investment. This may impact the strategic direction of this project. **Mitigation:** Demonstrate a strong case for investment. Monitor changes.
Price escalation due to inflation	Inflation may impact costs set out in the Financial Case. **Mitigation:** Cost estimate to be undertaken by a QS with appropriate contingencies applied based on current and anticipated market behaviours (trends) to account for cost escalation.
Influence and interactions with other related projects and developments	Policy / legislation development outside of the QPTBC may impact business case outcomes (for example MoT Congestion Charging). **Mitigation:** Demonstrate a strong case for investment. Monitor changes.
Unable to acquire land and/or resource consents	Queenstown's topography is challenging with less opportunities to acquire suitable flat land e.g., SH6 next to Lake Wakatipu. **Mitigation:** Early conversations with landowners and maintain frequent and transparent communication. Complete pre-application meeting(s) to understand the likely consent requirements / constraints.

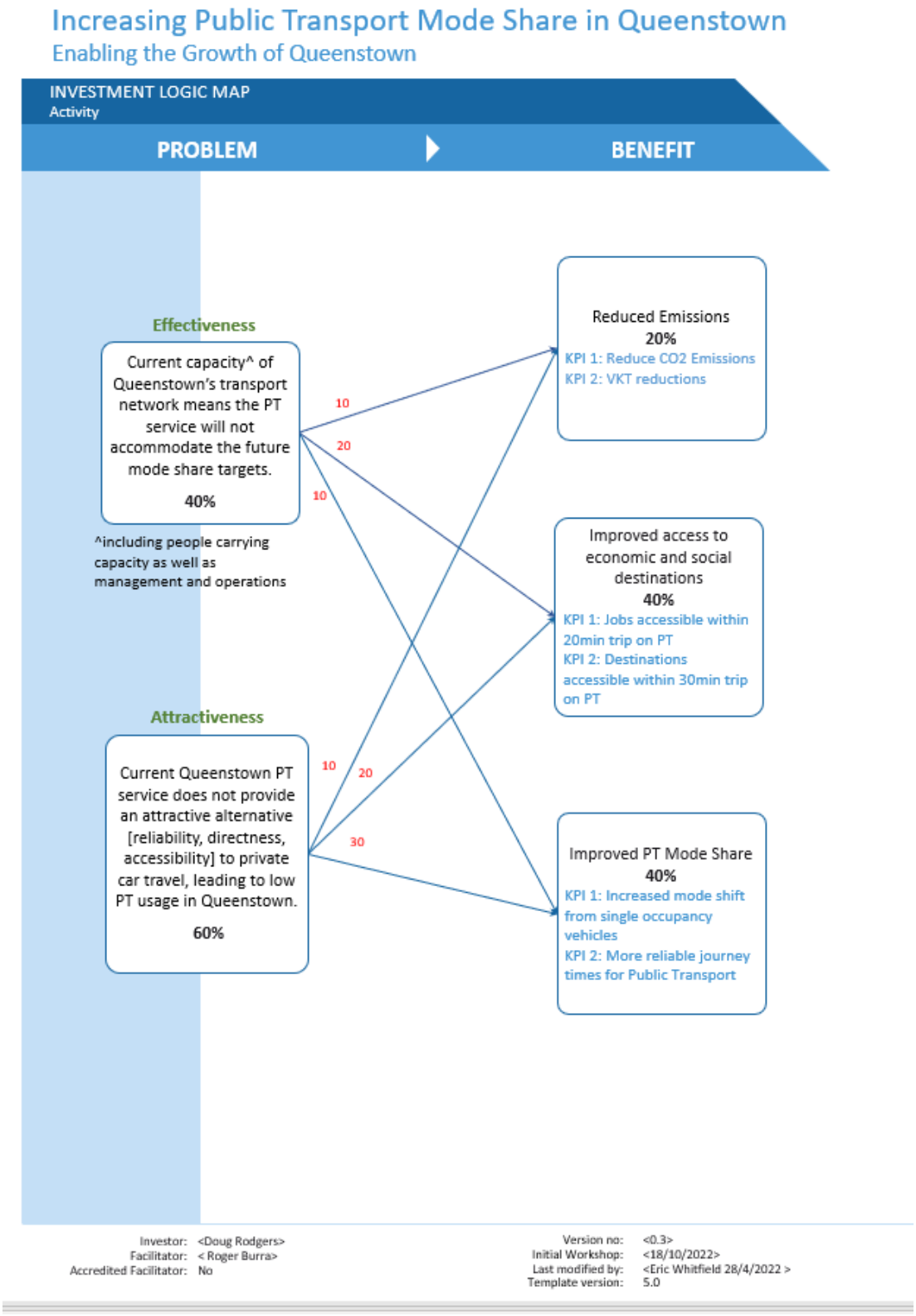
Programme partners not aligned with overall business case goals	ORC, QLDC and Waka Kotahi have investment / business case interests in this business case and are coordinated through the W2G partnership. **Mitigation:** Oversight of this partnership is provided by the W2G Partnership Governance Group which acts to provide confidence in well-aligned delivery of the W2G programme.
Disagreement from community during consultation	This could result in potential impacts to programme and reputation or organised opposition to emerging Preferred Option. **Mitigation:** Regular and targeted consultation with key parties to understand concerns.
Demand may be different than forecast i.e MoE school patronage; NZUP	Assumptions have been made regarding the NZUP Package in the modelling methodology. Modelling does not specifically cover school bus patronage. These factors could influence model outputs and may change the requirements of the transport response. **Mitigation:** Include sensitivity testing for patronage to confirm the Preferred Option is deemed to offer the best overall value and economic advantage compared to the alternatives.
Travel and waiting time reliability	Impacts the level of confidence that customers have in the reliability of Queenstown public transport network which impacts public transport uptake. **Mitigation:** Include sensitivity testing for public transport uptake to confirm the Preferred Option is deemed to offer the best overall value and economic advantage compared to the alternatives.

7 THE CASE FOR CHANGE

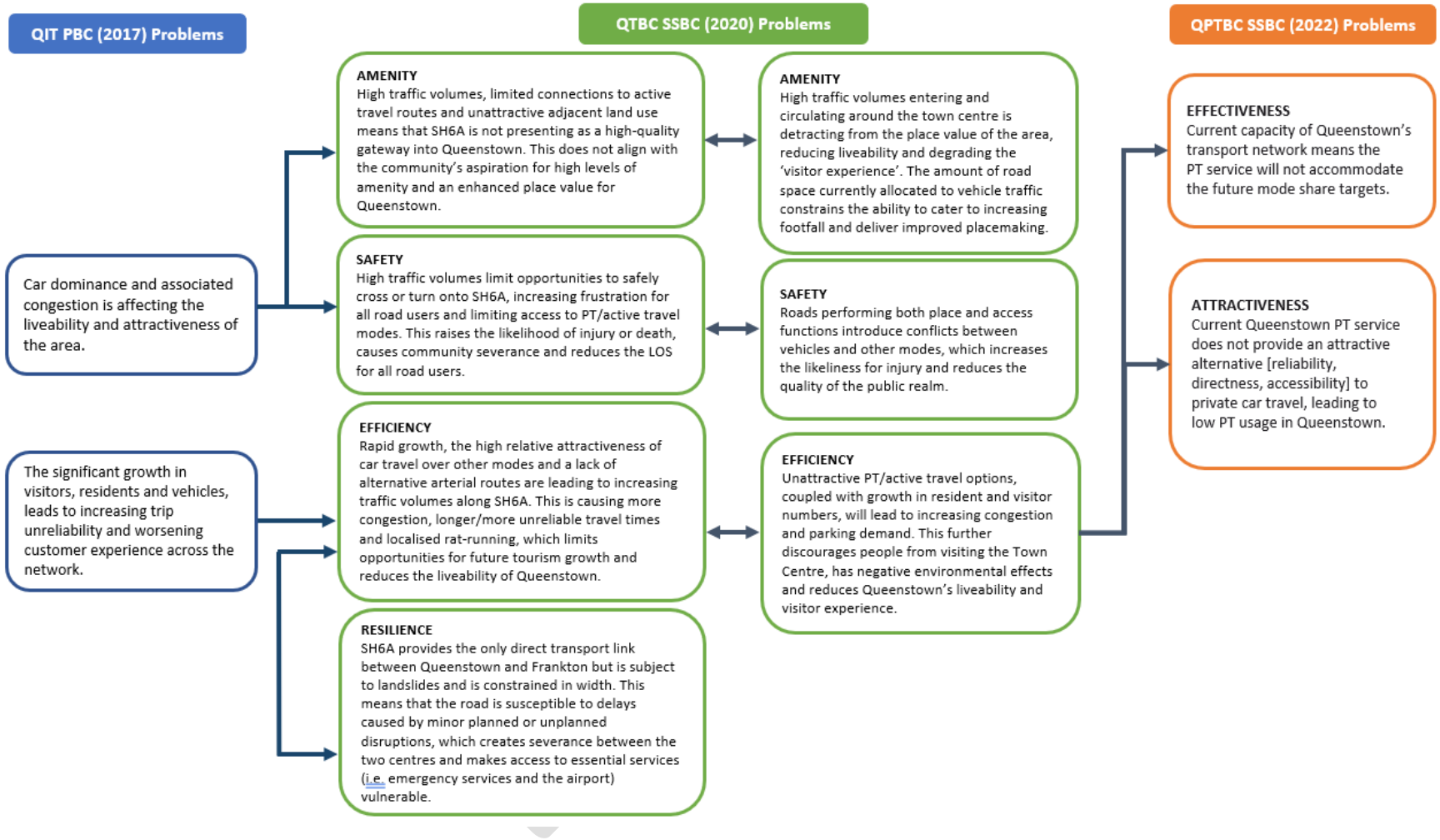
- In the face of population growth that will double in the next thirty years, tourism growth, worsening traffic congestion, and pressing environmental concerns, the need for significant investment in public transport has never been more critical in Queenstown.
- Queenstown currently stands at a crossroads, where a congested network needs rapid intervention through a mode shift to non-car modes. Investing in robust public transport services is a pivotal step towards supporting a sustainable, efficient, and more accessible Queenstown that will thrive in the future and bring economic benefits to the region and Aotearoa New Zealand.
- There is also a risk of not acting – which may cause Queenstown to stagnate resulting in negative economic and reputational outcomes for the area and the rest of New Zealand. Visitor feedback already indicates that traffic congestion is the single biggest negative in an otherwise very highly regarded visitor destination with the consequent risk of Queenstown being bypassed by visitors.
- Significant investment has been committed to infrastructure improvements in the Whakatipu Basin. This provides the opportunity to review public transport services and ancillary infrastructure in line with the committed infrastructure improvements to make the best use of this investment.
- This Strategic Case demonstrates a clear case for change.

APPENDICES

Appendix A: Investment Logic Map



Evolution of statements

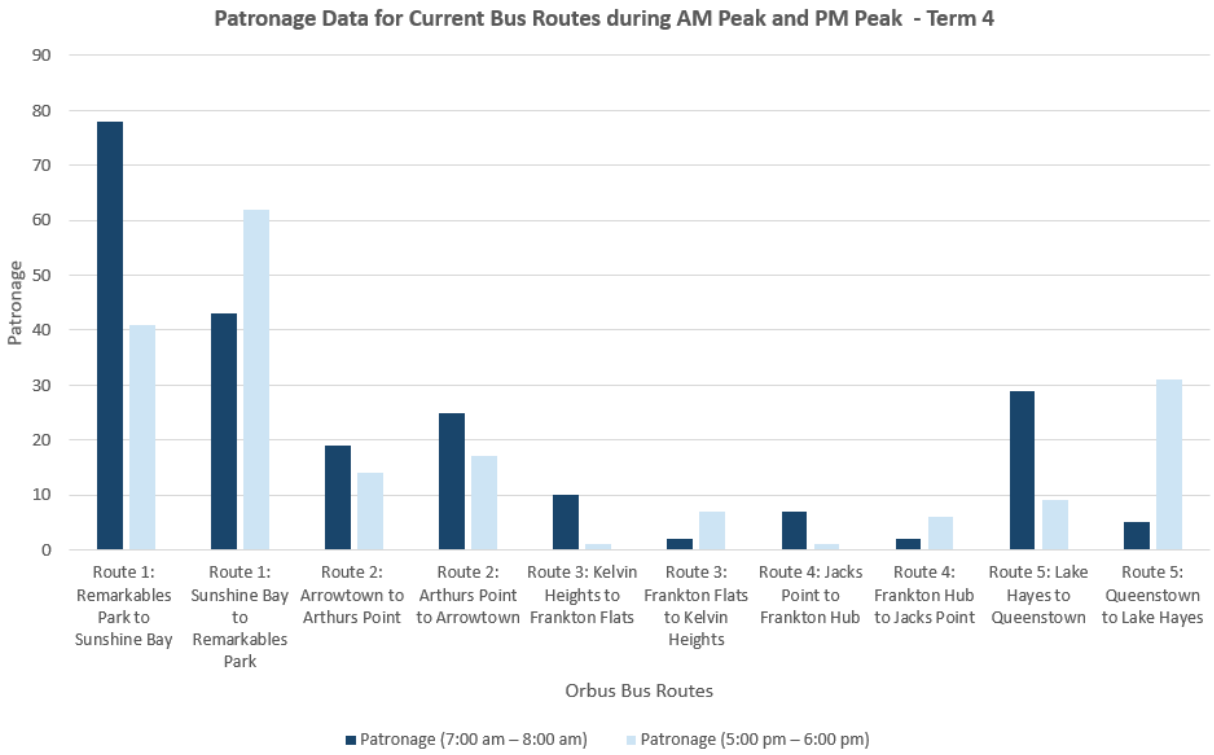


Evolution of problem statements from previous business case stages to the current QPTBC SSBC (2022)

Appendix C: Bus Patronage Data

Orbus Bus Route Patronage Data[21]

	Orbus Bus Route	Patronage (7:00 am – 8:00 am)	Patronage (5:00 pm – 6:00 pm)
Route 1	Remarkables Park to Sunshine Bay	78	41
	Sunshine Bay to Remarkables Park	43	62
Route 2	Arrowtown to Arthurs Point	19	14
	Arthurs Point to Arrowtown	25	17
Route 3	Kelvin Heights to Frankton Flats	10	1
	Frankton Flats to Kelvin Heights	2	7
Route 4	Jacks Point to Frankton Hub	7	1
	Frankton Hub to Jacks Point	2	6
Route 5	Lake Hayes to Queenstown	29	9
	Queenstown to Lake Hayes	5	31

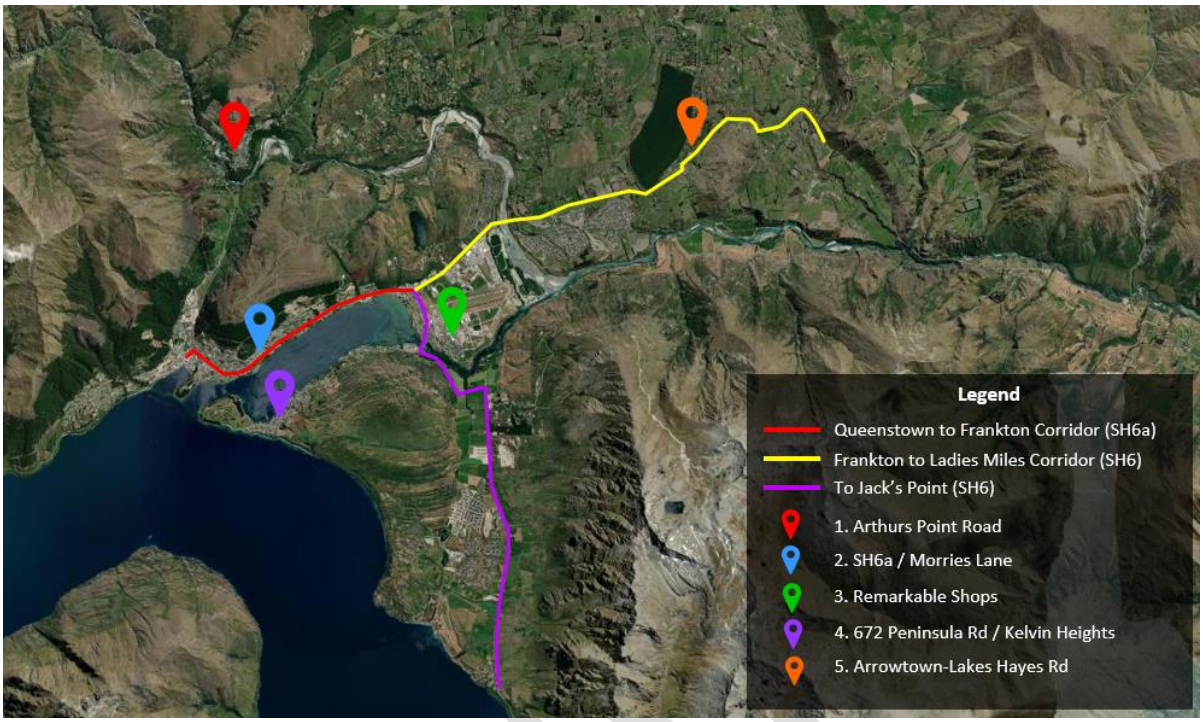


Patronage data for current bus network during morning peak (7am - 8am) and afternoon peak (5pm – 6pm) in Term 4 2021 (Source: Otago Regional Council)

[21] For more information, see Advisory Paper 3 – Service Patterns

Appendix D: Bus Shelter Study

To explore the pain-point further, five bus stop locations were chosen for a sample desktop study.



Map showing the 5 bus stops selected for the mini study. (Base Map Source: QLDC Operative and Proposed District Plan Map Viewer)

Results of the Bus Stop Desktop Study

Bus Stop Location	Facilities Present	Facilities Missing
1. Arthurs Point Road – near Morning Star Terrace 	• Bus stop signage • 2x shelter • Bus timetable • Near a streetlight	• No seats present • Mid-block crossing near bus stop • No real-time information timetable • No dedicated bus stop lighting
2. SH6A / Morries Lane 	• Bus stop signage • Near a streetlight	• No static/ real-time bus timetables • No seating • No shelter • No nearby pedestrian crossing facilities • No dedicated bus stop lighting

3. Remarkable Shops 	• Pedestrian zebra crossings on both ends of the bus stop • Static bus timetable • Lighting present	• No bus seats • No bus shelters • No bus stop sign • No real-time bus timetable
4. 672 Peninsula Rd – Kelvin Heights 	• Bus stop signage • Static bus timetable	• No bus seats • No bus shelters • No safe pedestrian crossing • No lighting • No real-time bus timetable
5. Arrowtown Lakes Hayes Road 		• No bus stop signage • No bus shelters • No seating • No static/real-time bus timetable • No nearby safe pedestrian crossing facilities • No lighting

QUEENSTOWN PUBLIC TRANSPORT BUSINESS CASE

Part B – Economic Case – DRAFT (Final)

12 JANUARY 2024

VERSION 2.0

WAKA KOTAHI NZ TRANSPORT AGENCY
QUEENSTOWN LAKES DISTRICT COUNCIL
Otago Regional Council
WAY TO GO

Document Version History

DATE	VERSION	AUTHOR	CHANGES
12 December 2023	1.0 Draft for Comment	Laura Goodman	
12 January 2024	2.0 Final	Laura Goodman	Responses to peer reviewers and Client review

Document Review

ROLE	NAME	REVIEW STATUS
Team Leader	Eric Whitfield	Draft for Comment
Principal Transport Planner	Chris Groom	Final

Contents

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Glossary of Terms

ABBREVIATION	TERM
AADT	Annual Average Daily Traffic
AC	Assessment Criteria
AST	Appraisal Summary Table
BCR	Benefit Cost Ratio
Business Case	Queenstown Public Transport Business Case
CSF	Critical Success Factor
District	Queenstown Lakes District Council
FAR	Funding Assistance Rate
FY	Financial Year
GDP	Gross Domestic Product
GHG	Greenhouse gases
GPS	Government Policy Statement (on Land Transport)
IDMF	Investment Decision Making Framework
ILM	Investment Logic Map
IO	Investment Objective
IPM	Investment Prioritisation Method
IQA	Investment Quality Assurance
KPI	Key Performance Indicator
LCLR	Low-cost low-risk
MBCM	Monetised Benefits and Costs Manual
MCA	Multi-Criteria Analysis
MoE	Ministry of Education
MoT	Ministry of Transport
NMBCM	Non-Monetised Benefits and Costs Manual
NLTP	National Land Transport Programme
NZ	New Zealand
NZTA	NZ Transport Agency Waka Kotahi
NZUP	New Zealand Upgrade Programme
ORC	Otago Regional Council
PAX	Passenger
PBC	Programme Business Case
PT	Public transport
QLDC	Queenstown Lakes District Council
QBC	Queenstown Business Case
QIT PBC	Queenstown Integrated Transport Programme Business Case
QPTBC	Queenstown Public Transport Business Case
RCA	Road Controlling Authority
RLTP	Regional Land Transport Plan

RPTP	Regional Public Transport Plan
SH6	State Highway 6
SH6A	State Highway 6A
SME	Subject Matter Expert
SOV	Single occupancy vehicle
SSBC	Single Stage Business Case
TDM	Travel Demand Management
VKT	Vehicle kilometres travelled
W2G	Way to Go Partnership
WEBs	Wider Economic Benefits

1 OPTIONS DEVELOPMENT AND ASSESSMENT

The Economic Case is the second of the five Cases. The purpose of the Economic Case is to identify and assess options to address the problems and opportunities for public transport in the Whakatipu Basin. The analysis builds on the Case for Change and evaluates how options will help achieve an effective and attractive public transport system. The Economic Case:

- **Outlines the 'do minimum' base case.** As a benchmark to compare and assess options, the 'do minimum' base case assumes no additional investment beyond what has already been committed and/or funded. It assumes maintaining the status quo service levels and, while it is not a 'do nothing' scenario, it can more or less be described as a 'do nothing beyond current practice' scenario.
- **Summarises the approach to option development.** The options development process adopted for this Business Case is consistent with the NZ Transport Agency Waka Kotahi (NZTA) guidelines, intervention hierarchy and optioneering process, which encourages making best use of the existing system, and then considering what new infrastructure might be needed to ensure that the Whakatipu Basin public transport services and network are fit for its growing future role.
- **Presents the Long List assessment.** The Long List was split into two sub-lists. The first considered service pattern options, building on the previous work presented in the Queenstown Business Case. The second sub-list considered technologies to decarbonise the public transport system. Each sub-list was assessed via a Multi-Criteria Analysis (MCA) process with Subject Matter Expert (SME) input and Partner decision conferencing to produce a short list for further consideration.
- **Presents the Short List assessment and identifies an emerging preferred solution.** The emerging preferred solution was found by evaluating the Short List via an MCA process with SME input and Partner decision conferencing. This confirmed the 30-year investment plan best aligned with the need for an effective and attractive public transport system is to operate an enhanced Bus Max service pattern (the 'composite' option) with Battery Electric vehicles (buses and ferries).

To support the QPTBC, eight Advisory Papers were prepared, which provide details on the critical components of the public transport assessment. These are:

- **Appendix A – Service of Demand**, which discusses the Spatial Plan for future land growth, land use characteristics, and how this will inform land use and travel demand changes.
- **Appendix B - Fleet Decarbonisation**, which describes the relevant transport and emissions policies and how they relate to the Project, the benefits/disbenefit of slow or fast fleet decarbonisation implementation and potential technologies for decarbonising the public transport system.
- **Appendix C - Service Patterns**, how the public transport network should best meet future demand over the next 30 years through different bus types and service patterns options. The Service Patterns Paper develops a long list of service patterns, undertakes an initial assessment, and recommends a short list of service patterns for further development and assessment.
- **Appendix D - On-Demand Services**, identifies the potential for on-demand services to be included within Queenstown's proposed public transport network for areas that cannot be easily served by services on the fixed bus route network.
- **Appendix E - Park and Ride**, tests the options for park-and-ride sites as part of Queenstown's future public transport network and how these can complement fixed route and on demand services.

- **Appendix F - Public Transport Hubs and Infrastructure**, which describes the staging and life of the Frankton and Stanley Street bus hubs and a new bus depot taking into consideration forecast fleet numbers.
- **Appendix G - Asset Ownership and System Management**, which covers changes that could be adopted in the future to existing ownership and operating models, and what resources, systems and ongoing maintenance are required to deliver the step change in upgraded service and whether these proposals are deliverable.
- **Appendix H - Sustainable Funding**, which sets out the appropriate funding mix from ratepayers, central government, and other alternative sources of revenue, including parking and developer/third party contributions.

This Business Case has been prepared in accordance with the NZTA guidelines.

1.1 Do Minimum

The Do Minimum is the scenario that all other options were assessed against. In confirming the Do Minimum with the Project Partners, both Treasury and NZTA guidance on how to define the Do Minimum were considered. In this case, the Do Minimum scenario defines what the public transport services, and wider transportation network, will look like and how they will perform with no additional investment beyond what has already been committed and/or funded.

In accordance with the NZTA Monetised Benefits and Costs Manual (MBCM), the Do Minimum does not take advantage of further change opportunities that may arise, such as the introduction of additional services or decarbonisation technologies. However, it should not be confused with a 'do nothing', as maintaining the current arrangements will have consequences and incur costs. Essentially, the Do Minimum scenario involves maintaining the status quo service levels and, while it is not a 'do nothing' scenario, it can be described as a 'do nothing beyond current practice' scenario.

The agreed assumptions for the Do Minimum for this Business Case are shown in Figure 1-1, aligned with the three pillars of investment documented in the Queenstown Business Case (QBC).

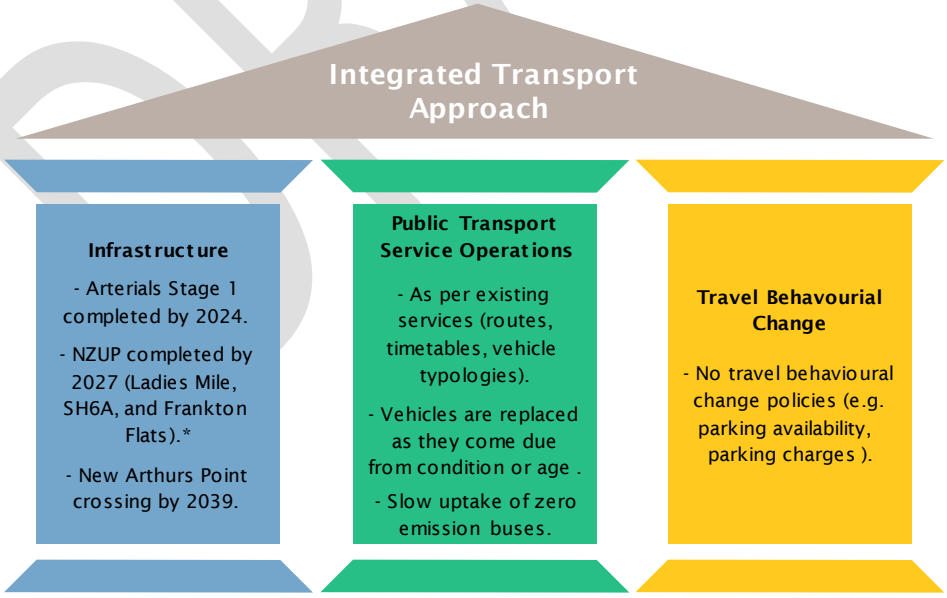

Figure 1-1: Do Minimum Assumptions, QPTBC

** Note: NZUP Queenstown Package has committed funding. However, due to the rising costs, the scope and timing of NZUP is to be confirmed in Quarter 1 2024.*

1.2 Options Identification

1.2.1 Intervention Hierarchy

This Business Case was developed giving consideration to a range of alternatives and options that seek to resolve the problems identified in alignment with NZTA's Intervention Hierarchy (Figure 1-2).

Figure 1-2: NZTA Intervention Hierarchy[1]

Integrated Planning

The Strategic Case detailed the numerous national, regional, and local policies and plans that have led to the development of this Business Case, including:

- Government Policy Statement on Land Transport
- Aotearoa New Zealand's Emissions Reduction Plan
- Arataki (v2)
- Keeping Cities Moving and Better Ways to Go
- Otago Southland Regional Public Transport Plan
- Otago Southland Regional Land Transport Plan
- Queenstown Lakes Spatial Plan
- Queenstown Lakes District Climate and Diversity Plan
- Queenstown Business Case.

Explicitly highlighted within these strategic documents is an absolute need to increase the mode share of public transport in the Whakatipu Basin as a key enabler of future growth. Consequently, the investments proposed through this Business Case are seen as the strategic response to many of these policies and plans.

The current, and future, congestion and capacity constraints on the transport network must be addressed if the outcomes being sought through the integrated land use planning that is underway

[1] New Zealand Government, Te Manatū Waka, 2023. Te Tauākī Kaupapa Here a te Kāwanatanga mō ngā waka whenua | Draft Government Policy Statement on land transport 2024/25-2033/34. Retrieved 17 August 2023 from Draft-Government-Policy-Statement-on-land-transport-2024.pdf

are to be achieved. To this end, this Business Case does not seek to reduce travel demand through integrated planning. Instead, its primary focus is on facilitating significant mode shift towards public transport as land use changes are realised in Queenstown. The options developed through this Business Case will consider how public transport can become more viable for a wider range of potential users through service changes and/or infrastructure enhancements.

Demand Management

Public transport is a critical component of promoting transport choice and reducing carbon emissions. This Business Case is being developed, in part, to determine the necessary public transport response resulting from broader demand management initiatives (planned or anticipated) aimed at reducing private vehicle travel. This Business Case aims to both increase the demand for public transport journeys by enhancing its attractiveness as a mode of choice, and to provide the necessary capacity to accommodate the mode shift that those wider demand management programmes and policies create. This will go some of the way to keep people and freight moving in the Whakatipu Basin.

Best Use of the Existing System

The primary focus of this Business Case is to make **best use of the existing** (and committed) **system** to ensure that the Whakatipu Basin public transport services and network are fit for its growing future role. Increasing public transport services will make best use of the existing road infrastructure as more people are able to be moved with fewer vehicles.

New Infrastructure

Limited new infrastructure is proposed in this Business Case. The NZUP Queenstown Package already commits significant public transport infrastructure investment in the Whakatipu Basin. It is therefore the role of this Business Case to build onto the existing programme of works to fulfil the next step envisioned by the NZUP investment (i.e. to deliver the public transport services for the bus priority).

"…it's looking closely at how to best use buses and ferries and the investment decisions we'll all need to make over the next 15-plus years." – ORC Transport Manager, September 2023

[2] **Picture and Quote source:** Crux News, 2023. *Authorities ask what's best for buses and ferries in Queenstown.* Retrieved from Authorities ask what's best for buses and ferries in Queenstown | Crux - Local News - Queenstown, Wānaka and Cromwell.

1.2.2 Options Identification Methodology

The Whakatipu Basin public transport network is a complex system. The complexity is due to:

- The high degree of geographical and topographical constraints, influencing the historical and future development of the transport network and land use patterns.
- The presence of multiple interconnected projects currently being investigated or implemented in the Whakatipu Basin that will shape travel behaviours.
- Significant growth projections and new growth areas, particularly in the Southern Corridor.
- Fiscal challenges locally and nationally with significant systemwide investment required to achieve the required non-car mode share to get Queenstown moving.
- The limited timeframe available to make system changes to achieve the headline mode share targets before the network congestion will have significant economic, environmental, and social impacts.
- The various roles and responsibilities of all parties involved in delivering a quality public transport service in the Whakatipu Basin for residents and visitors.

Therefore, a detailed transport planning approach, which considers the three pillars of investment (infrastructure, public transport service operations, and travel behaviour change) in a holistic way was required to develop the long list. Specifically, the long list for this Business Case was developed through a dual-track process that involved the creation of two sub-lists in parallel.

- The first sub-list considered **service pattern** options, building on the previous work presented in the QBC. The objective was to identify the most suitable service routes, vehicles, and service frequencies, based on new Spatial Plan projections, to meet the projected demands of the local population and visitors in a way that is effective and attractive.
- The second sub-list considered **technologies to decarbonise** the public transport system. The objective was to identify technologies and solutions to minimise the environmental impact of the public transport system. Each technology was evaluated in terms of its feasibility, readiness for implementation, cost-effectiveness, health and safety, and potential to reduce carbon emissions.

Each sub-list was assessed via a Multi-Criteria Analysis (MCA) process with Subject Matter Expert (SME) input and partner organisation decision conferencing to produce a short list for further consideration.

This systematic approach, involving the concurrent development of these two sub-lists, positioned this Business Case to deliver an investment plan for a public transportation system that not only adapts to the evolving demands of the Whakatipu Basin's community, but also plays a substantial role in making meaningful progress towards decarbonisation commitments.

For completeness, aspects of the system that were out of scope for this Business Case are:

- Review of pricing mechanisms (such as public transport fares and parking charges).
- Development of a travel demand management (TDM) implementation plan.
- Off-line options for public transport, other than to recommend when an off-line service should be investigated.
- Development of a new strategic public transport model.
- Detailed planning (e.g. bus stop locations) for new development proposals.

1.2.3 Long List - Service Patterns

The long list options for Service Patterns were identified through a five-step process:

- Review previous business case work.
- Forecast public transport demand forecasts.
- Agree service design principles.
- Assess fleet options.
- Develop long list for service patterns.

This Economic Case provides a high-level summary of these steps. Full detail is provided in Appendix C –Service Patterns Advisory Paper.

Step One: Review Previous Business Case Work

An extract of the Preferred Option of the Queenstown Business Case is included below.

Meeting public transport demand will be undertaken through road based public transport priority, expansion of the bus network and an upgrade of the bus fleet… The strategy is for a road-based solution with vehicles increasing in scale over time from the current single-decker bust fleet to environmentally friendly (electric or hybrid) articulated vehicles… aimed at delivering a step change in high quality, high capacity services… This will require a staged fleet upgrade over time and future investment in new depot facilities to provide for the expanded fleet.
Queenstown Business Case – Preferred Option Assessment (November 2020).

The proposed network, referred to as "Bus Max", which uses three high-capacity routes on SH6A heading to Jacks Point, Ladies Mile/ Lake Hayes, and Arrowtown (Figure 1-3). The key features are:

- Routes 1-3 inter-time on SH6A to provide a 3-4 minute peak frequency, and 5 minute all day frequency service between Queenstown and Frankton Hub.
- Largely a one-seat ride to minimise end-to-end journey times (and transfers).
- Frequent services 6am to midnight on all routes.
- Limited midnight to dawn services to provide 24/7 service.
- High-capacity vehicles on routes 1, 2, and 3.
- Public transport priority on SH6 East, SH6 South, and SH6A.

The QBC developed the Bus Max concept to an Indicative Business Case level and therefore the concepts were expanded on during this Business Case, which included checking the validity of the previous work done against the new Spatial Plan forecasts.

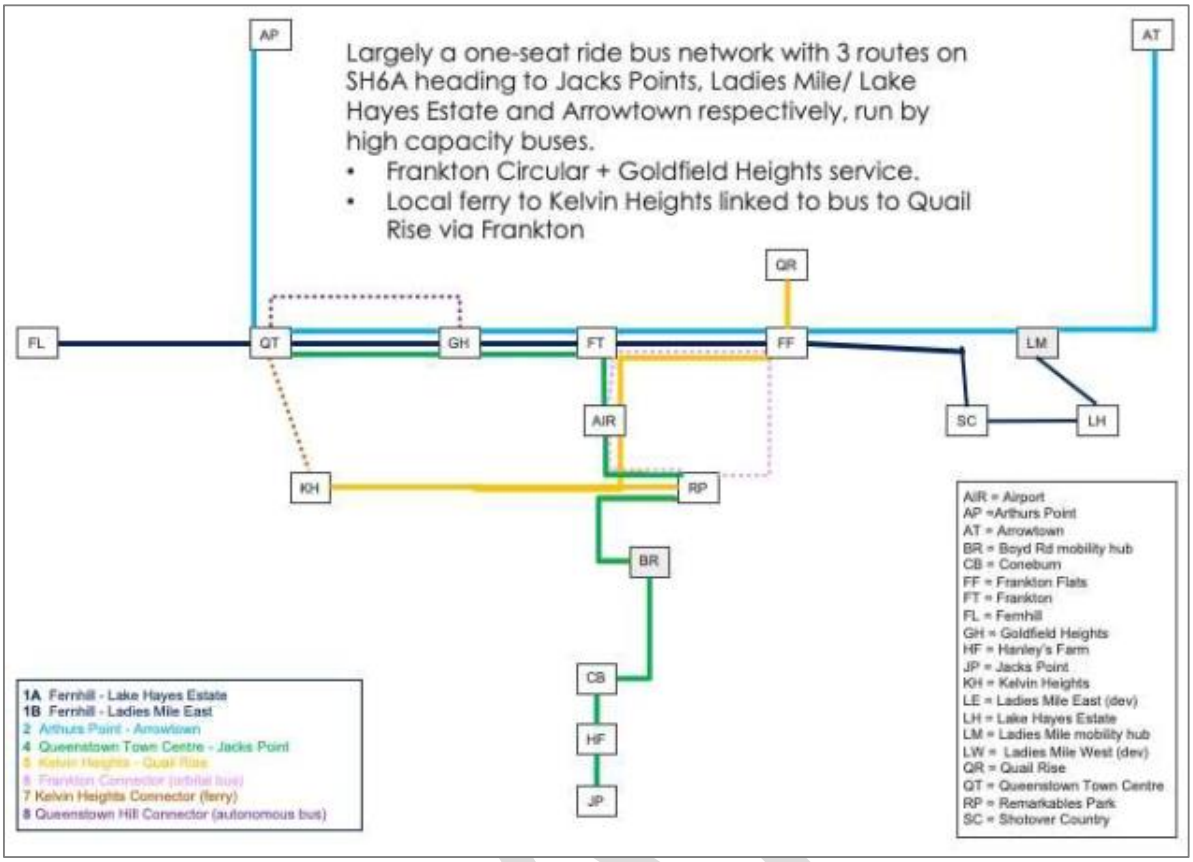

Figure 1-3: Indicated Preferred Network, Queenstown Business Case

By way of supplement, the Lake Whakatipu Public Water Ferry Service DBC (2019) assessed options for a Frankton Arm ferry service to be integrated into the public transport network. The preferred option consists of a ferry between Frankton Beach to Steamer Wharf (Queenstown), with incentive payment to the operator and capital costs for wharf upgrades.

Step Two: Forecast Public Transport Demand Forecasts

Public transport demand forecasts were made using the vehicle matrixes from the TRACKS 3-stage model and feeding these into a logic-based mode choice model. Demand forecasts in the short- (five years), medium- (15 years), and long-term (30 years) were considered. Details of the modelling methodology and results can be found in Appendix A –Forecasting Demand Advisory Paper.

Step Three: Agree Service Design Principles

Seven service design principles were used to guide the development of the service pattern options which are informed by international and national practices for network design. The service design principles are shown in Figure 1-4.

Figure 1-4: Service Design Principles, QPTBC

Step Four: Fleet Option Assessment

An outcome of the demand forecasting (refer to Step Two) was the confirmation that the current vehicle fleet of standard sized buses will be unable to meet the forecasted demand along SH6A even when running at a frequency of 30 buses per hour (one bus every two minutes). Accordingly, a range of different types of public transport vehicles were considered as replacements for the current bus fleet.

The assessment recommended **articulated buses for core routes** as they would be able to provide sufficient capacity to meet mode shift targets whilst providing a reliable service, without needing a change to NZ legislation (required for bi-articulated vehicles). Articulated buses are recommended over double-deck buses due to passenger carrying capacity (approximately 110 passengers per vehicle), faster boarding and alighting times from multiple doors and the lack of stairs. The additional capacity also means that fewer bus drivers would be required compared to operating the service with standard buses; hiring and retaining bus drivers is a challenge both in Queenstown and nationally.

For secondary bus routes the lower passenger demand means that standard single deck buses could be used. Therefore, articulated buses would be limited to main corridors where the higher capacity is needed.

Full detail is provided in Appendix C – Service Patterns Advisory Paper.

Step Five: Develop Long List for Service Patterns

From a public transport planning perspective, the topography of Queenstown presents the opportunity to create a high-frequency and high-capacity service along the main residential corridors. These are the southern corridor (Jack's Point to Queenstown via Frankton) and eastern corridor (Lake Hayes Estate to Queenstown via Frankton). However, the challenge of having one main road between Queenstown and Frankton is that service duplication will need to be balanced against public transport access.

Building from the service design principles, the forecast demand, and the previous work, a long list of 11 network options was developed. This process involved initially identifying four different service themes, and subsequently creating options that aligned with these themes. During this stage, all online public transport modes were considered, including networks which require transfers and those which maximise one seat rides.

The long list options for service patterns are documented in Table 1-1. Schematic network maps are available in Appendix C – Service Patterns Advisory Paper.

Table 1-1: Long List Options – Service Patterns, QPTBC

SERVICE THEME	OPTION NAME	OPTION DESCRIPTION
Multiple high-capacity bus routes with minimal transfers	1A – Bus Max	As proposed in the Queenstown Business Case with one seat rides[3] from Jacks Point, Arrowtown, and Lake Hayes to Queenstown via high-capacity bus routes.
	1B – Bus Max with additional Kawarau River Bridge	As per Option 1A except routes the Jacks Point service via a new bridge at the southern end of Remarkables Park, which removes the need for the Frankton Loop service as the Kelvin Heights to Quail Rise service caters for the cross Frankton transfers.
	1C – Bus Max via Malaghans Road	As per Option 1B except the Arrowtown to Queenstown high-capacity service is via Malaghans Road rather than SH6A. This creates more capacity on SH6A for buses. This option assumes an

[3] One seat ride = a single uninterrupted journey on public transportation without the need to transfer to another vehicle/service.

SERVICE THEME	OPTION NAME	OPTION DESCRIPTION
		express (no-stop) service between Arrowtown and Arthurs Point, unless a Park and Ride is provided for Speargrass Flat.
Single high-capacity bus routes	2A – Queenstown to Frankton spine	A closed network public transport corridor between Queenstown and Frankton with connecting buses to outer suburbs.
	2B – Queenstown to Lake Hayes spine	As per Option 2A except extends the public transport corridor to Lake Hayes. This reduces the number of transfers required compared to 2A.
	2C – Queenstown to Remarkables Park spine	As per Option 2A except extends the public transport corridor to Remarkables Park via Queenstown Airport.
	2D – Queenstown to Jacks Point spine	As per Option 2A except extends the public transport corridor to Jacks Point via a new bridge at the southern end of Remarkables Park. Buses from Lake Hayes and Arrowtown 'hub' at Frankton.
One seat ride	3A – One Seat Ride Network	Similar to the current network, however delivered with high-frequency services and extends the Jacks Point bus to Queenstown.
Expand ferry services	4A – Frankton Beach ferry	High-capacity ferry services from Kelvin Heights and Frankton Beach. Jacks Point and Arrowtown buses continue to Queenstown.
	4B – Kawarau ferry	High frequency service using jet boats on the Kawarau River, with a feeder bus service to Lake Hayes, Shotover Country, and Ladies Mile.
	4C – Jacks Point ferry	High-capacity ferry to Homestead Bay, with supporting bus service from Jacks Point to Queenstown.

Note:

A key component of Options 1B, 1C, and 2D networks is a proposed bridge at the southern end of Remarkables Park, replacing a walking and cycling bridge as envisaged in the Spatial Plan. This would be a new public transport, walking, and cycling bridge approximately between Boyd Road and Red Oaks Drive over the Kawarau River. The reason for proposing a new bridge for public transport[4] in this Business Case is as follows:

- Shortens the travel time from Jacks Point to Frankton and Queenstown Town Centre which would make public transport more attractive (and more competitive compared to travel by private vehicle).
- Would enable public transport vehicles to bypass the anticipated traffic congestion on the existing Kawarau Falls Bridge when the southern growth area is developed.
- Would avoid the need to divert buses from Jacks Point off SH6 to Remarkables Park, reducing public transport operating costs.
- Would simplify the public transport network and avoid the need for the Frankton loop service because cross town connections could be made at Remarkables Park and Five Mile.

It is proposed that the new bridge would be in place by 2038 which is tied to the development timeline for the southern growth area.

1.2.4 Long List - Decarbonisation Technology

Informed by a review of national, regional, and local policies to decarbonise the public transport system, and complemented by SME knowledge of trends and developments both nationally and internationally, the following options were long listed:

[4] Note, this Business Case refers to a new bridge for public transport. It is in fact envisioned that the bridge will also cater to active modes, as identified in the Whakatipu Active Travel Network Business Case.

- Battery Electric
- Hydrogen Fuel Cell
- Renewable Natural Gas
- Bio-diesel
- Hybrid.

Full detail of the options considered for decarbonisation technology is provided in Appendix B –Fleet Decarbonisation Advisory Paper.

1.3 Long List Assessment

1.3.1 Options Assessment Framework

Table 1-2 presents the MCA framework that was developed to use as a tool to evaluate the Long List options and assess their effectiveness in delivering an effective and attractive public transport system. The project specific MCA framework was developed with reference to the NZTA MCA user guidance and sample framework, consisting of the Investment Objectives (IOs), Critical Success Factors (CSFs), and Opportunities and Impacts (O&Is).

Table 1-2: Long List MCA Criteria, QPTBC

CRITERIA	SCORING CONSIDERATIONS
IO1: Increase public transport patronage and mode share in Queenstown to maintain functional network	To what degree is the option likely to attract, and retain, new passengers to the service? To what degree might the option contribute to achieving light VKT[5] reduction targets?
IO2: Reduce Queenstown public transport vehicle CO_2 emissions to meet Government policy	To what degree will the option reduce emissions from public transport vehicles in Queenstown to meet the requirement of zero tailpipe emissions?
IO3: Increase the number of jobs and social destinations accessible by public transport in line with Queenstown spatial planning	To what degree will the option enable transport choice and mobility as per the strategic priorities? How might the option support land-use decisions providing affordable and reliable access to services, employment, social needs?
CSF: Capacity	To what degree will the option be able to accommodate the targeted mode share?
CSF: Implementability	Is the infrastructure required to deliver the option within the scope of this Business Case? To what degree is the infrastructure considered technically feasible to implement?
CSF: Consentability	To what degree are there uncertainties / risks associated with consenting for the infrastructure required to deliver the option?
CSF: Readiness	Is there sufficient technology and support within the required timescales to deliver this option?
O&I: Environmental Impacts	What environmental impacts may be attributable to the option?
O&I: Social and Cultural Impacts	To what degree might the option impact communities, social frameworks, and cultural values. Identify both positive and negative repercussions on people and their way of life.

In addition to scoring the options against the MCA framework, some aspects of the system required further criteria to assess the merits, impacts, and opportunities of each option. Where this is the case, it has been documented in this Economic Case. These sub-criteria were a useful tool in developing, refining, and selecting options but were not considered a substitute for the IOs or the

[5] VKT = vehicle kilometres travelled

CSFs. This approach is considered to align with the NZTA MCA user guidance, which states, "*This guidance provides for flexibility in approach to accommodate a project's specific circumstances.*"[6]

For completeness, Table 1-3 documents the general MCA criteria from the NZTA guidance that were not selected for use in this Business Case, alongside rationale.

Table 1-3: General MCA Criteria, QPTBC

GENERAL CRITERIA	RATIONALE
Potential achievability	• Considerations of 'technical' and 'consentability' already included in the project critical success factors. Not included to avoid double counting. • 'Safety and design' was not considered to differentiate between service pattern options. It was however included in assessment criteria for decarbonisation technologies under the criteria 'safety and change management'.
Potential affordability / value for money	• Costs assessed at short list stage alongside MCA. Affordability / value for money therefore not included as a criterion due to not having mutual independence from cost.
Supplier capacity and capability	• Not considered to differentiate between service pattern options. Assessed in Part C of Business Case with respect to ownership and operating models, system management, and sustainable funding model. • However, included in assessment criteria for decarbonisation technologies under the criteria 'skills, deliverability, and operational risk'.
Scheduling / programming	• Double counts with 'Readiness' critical success factor.
Climate change mitigation	• Impact on carbon emissions and light VKT already considered in Investment Objectives. Not included to avoid double counting.
Climate change adaptation	• Exposure to climate change risk or other natural hazards, and ability to adjust infrastructure and systems to better cope with the impacts of climate change, considered similar for each option, therefore not considered to differentiate between options.
Environmental effects (cumulative)	• Cumulative effects of the option, for example energy efficiency, resource/material scarcity, ecological footprint considered similar for each service pattern option. Considered for decarbonisation options.
Impacts on te ao Māori	• Not included as a criteria line-item in the MCA framework. Iwi involvement addressed in wider dialogue with ORC.
Property impacts	• Wholescale property impacts and acquisition not anticipated as part of this Business Case except for localised matters regarding specific infrastructure (e.g. depot, interchanges, stop locations, Park and Ride), therefore not considered to differentiate between options (i.e. all service pattern options will required a depot).

[6] NZ Transport Agency Waka Kotahi, 2023. Multi-criteria analysis: user guidance (February 2023, version 2). Pp 4. Retrieved 29 October 2023 from Multi-criteria analysis: user guidance (nzta.govt.nz)

Scoring

A standard seven-point scoring system was used to score the options, as presented in Table 1-4. When scoring, the options were compared against the Do-Minimum scenario (defined in section 1.1 Do Minimum) which was assumed to have a neutral score of 0 against all criteria.

Table 1-4: Scoring scale, QPTBC

SCORE	DESCRIPTION
+3	Major positive impacts resulting in substantial and long-term improvements or enhancements of the existing environment.
+2	Moderate positive impact, possibly of short-, medium- or long-term duration. Positive outcome may be in terms of new opportunities and outcomes of enhancement or improvement.
+1	Minimal positive impact, possibly only lasting over the short-term. May be confined to a limited area.
0	Neutral – no discernible or predicted positive or negative impact.
-1	Minimal negative impact, possibly only lasting over the short-term, and able to be managed or mitigated. May be confined to a small area.
-2	Moderate negative impact. Impacts may be short-, medium-, or long-term and are likely to respond to management actions.
-3	Impacts with serious, long-term and possibly irreversible effect leading to serious damage, degradation or deterioration of the physical, economic, cultural or social environment. Required major rescope of concept, design, location, and justification, or requires major commitment to extensive management strategies to mitigate the effect.

[7] **Picture source:** Otago Regional Council, 2022. *Media Release: ORC provides PT Support for Queenstown students*. Retrieved from Media Release: ORC provides PT Support for Queenstown students | Otago Regional Council

1.3.2 Options Assessment - Service Patterns

The Long List options for Service Patterns were assessed at a workshop with Project Partners on 16 June 2023. Using **Early Assessment Sifting** principles, an SME conducted a modelling assessment for each option. The focus was morning peak capacity at key network locations (SH6A, Shotover Bridge, and Kawarau Falls Bridge) to identify 'non-starter' options, i.e. those lacking sufficient passenger capacity to achieve the headline mode share targets. The key findings of the capacity assessment were:

- Options which do not provide high-capacity buses to Jacks Point fail to provide sufficient capacity to the southern growth corridor.
- A one-seat ride network which uses standard buses does not provide sufficient capacity at any key point in the network.
- Options which only use ferry or jet boats do not provide sufficient capacity because they do not have the coverage to replace road based public transport modes.
- Bus Max options provide sufficient capacity to meet mode shift targets.

Long list service pattern options that were assessed as unable of providing sufficient capacity to meet the 2053 mode share were removed from further consideration. This was because they were fatally flawed for Investment Objective 1[8]. The options determined to be fatally flawed were:

- ✗ 2A – Queenstown to Frankton spine
- ✗ 2B – Queenstown to Lake Hayes spine
- ✗ 2C – Queenstown to Remarkables Park spine
- ✗ 3A – One Seat Ride Network
- ✗ 4A – Frankton Beach ferry
- ✗ 4B – Kawarau ferry
- ✗ 4C – Jacks Point ferry

The remaining four long list options were assessed by Project Partners through decision conferencing[9]:

- Option 1A – Bus Max
- Option 1B – Bus Max with additional Kawarau River Bridge
- Option 1C – Bus Max via Malaghans Road
- Option 2D – Queenstown to Jacks Point spine.

The project MCA framework was used as a guidance tool, as shown in Table 1-5.

[8] Investment Objective 1: Increase public transport patronage and mode share in Queenstown to maintain functional network.
[9] Decision conferencing = a structured format among individuals in a meeting.

Table 1-5: Long List Assessment Results – Service Patterns, QPTBC

CRITERIA	DO MIN[10]	1A	1B	1C	2D	COMMENTARY
IO1: Increase public transport patronage and mode share	**0**	**2**	**3**	**3**	**2**	Criteria assessed using the results of the modelled bus patronage. Increasing the frequency and capacity of the service above the Do Minimum means all non-Do Minimum options scored positively. In addition, inclusion of the new bridge would increase patronage from the south (Options 1B and 1C ▲**1**). Similarly, routing via Malaghans Road has increased patronage due to the more reliable travel time. Option 2D has the increased patronage advantage from the new bridge, but has less patronage from Lake Hayes/Shotover Country compared to the other options due to the need for passengers to transfer (**no change**).
IO2: Reduce Queenstown public transport vehicle CO_2	-	-	-	-	-	Not assessed as not a differentiator for service patterns options.
IO3: Increase the number of jobs and social destinations accessible by public transport	**0**	**2**	**3**	**3**	**1**	Criteria assessed by considering number of transfers required to make key journeys. Bus Max (by design) reduces the number of transfers, therefore scored well (**2**). Options that include the proposed new public transport bridge scored best (**3**) as removes the need for the Frankton Loop and associated transfers. The Spine option (Option 2D) is an improvement on the Do Minimum for some journeys such as between Queenstown and Jacks Point (southern growth area) but will require increased transfers for other journeys (those not on the spine) and therefore was scored a **1**.
Capacity	**0**	**2**	**2**	**2**	**2**	All non-Do Minimum options that weren't removed by Early Assessment Sifting are able to provide sufficient capacity and thus scored as a **2**.
Implementability	**0**	**0**	**-3**	**-3**	**-3**	Options that require additional infrastructure (i.e. new bridge or new wharf) scored as a **-3** to recognise the technical risks involved in implementing the option. Note these items were agreed as being challenging to implement but <u>not</u> fatally flawed.
Consentability	**0**	**0**	**-2**	**-2**	**-2**	Options that require additional infrastructure (i.e. new bridge or new wharf) scored as a **-2** to recognise the risks of consenting requirements and timeframes adversely impacting project delivery.
Readiness	-	-	-	-	-	Not assessed as not a differentiator.
Environmental Impacts	**0**	**2**	**2**	**2**	**2**	Improved efficiency of resource utilisation with increased patronage compared to Do Minimum.
Social and Cultural Impacts	**0**	**2**	**3**	**3**	**1**	Enhanced accessibility improves inclusivity and ensures a broader demographic can benefit from public transport. This positively contributes to social equity and community cohesion. Potential concerns, such as personal safety during transfers (2D) may prevent some people from using the service.
Unweighted Score	**0**	**10**	**8**	**8**	**3**	

[10] 1A = Bus Max
1B = Bus Max with additional Kawarau River Bridge
1C = Bus Max via Malaghans Road
2D = Queenstown to Jacks Point spine

The assessment outcome for the Long List Service Pattern options, along with summary rationale, are shown in Table 1-6.

Table 1-6: Long List Assessment Outcomes – Service Patterns, QPTBC

OPTION	OUTCOME	SCORING RATIONALE
Do Minimum	Progress to short list	Progress as a comparator.
1A – Bus Max	Progress to short list	Option has the highest unweighted score, with strong alignment against the Investment Objectives and limited anticipated implementation difficulties.
1B – Bus Max with additional Kawarau River Bridge	Progress to short list	Options 1B and 1C have the second highest unweighted score. Further investigation is required to understand the technical difficulties and consenting risks associated with the additional infrastructure to deliver these options (i.e. the new bridge).
1C – Bus Max via Malaghans Road	Progress to short list	
2A – Queenstown to Frankton spine	Do not progress	Fatally flawed as does not meet capacity critical success factor.
2B – Queenstown to Lake Hayes spine	Do not progress	Fatally flawed as does not meet capacity critical success factor.
2C – Queenstown to Remarkables Park spine	Do not progress	Fatally flawed as does not meet capacity critical success factor.
2D – Queenstown to Jacks Point spine	Progress to short list	Option delivers improved service against for trips on the spine from Queenstown to Jacks Point and can provide sufficient capacity for 2053 demands. Further testing with the community required to understand their views on transfer penalties for trips not on the spine. Further investigation is required to understand the technical difficulties and consenting risks associated with the additional infrastructure to deliver this option (i.e. the new bridge).
3A – One Seat Ride Network	Do not progress	Fatally flawed as does not meet capacity critical success factor.
4A – Frankton Beach ferry	Do not progress	Fatally flawed as does not meet capacity critical success factor.
4B – Kawarau ferry	Do not progress	Fatally flawed as does not meet capacity critical success factor.
4C – Jacks Point ferry	Do not progress	Fatally flawed as does not meet capacity critical success factor.

Short List Recommendation (Service Patterns)

Following the Long List MCA assessment with Project Partners, five options were identified for progression to the Short List. In discussions with Project Partners and SMEs, it became apparent that the options recommended for progression to the Short List from the Long List primarily centred around two key choices: **Bus Max** compared to **Jacks Point Spine**. The other options, rather than presenting entirely distinct alternatives, resembled variants that could be integrated with either of these two central options. The options progressed to Short List was therefore redefined as shown in the matrix in Table 1-7.

Table 1-7: Service Pattern Options progressed to Short List, QPTBC

CORE SERVICE PATTERN	VARIANTS			
	No variant	Additional Kawarau River Bridge (v1)	Malaghans Road (v2)	Jacks Point Ferry (v3)
Bus Max (1A)	Option 1A	Option 1A v1	Option 1A v2	Option 1A v3
Queenstown to Jacks Point Spine (2D)	Option 2D	Option 2D v1	Option 2D v2	Option 2D v3

Ferry services

Additional ferry services were considered as part of the public transport network with the ferry option that was taken forward to the short list stage being a Kack's Point to Steamer Bay service. An enhanced Frankton Arm ferry service is included in all the options as this provides a direct connection from Kelvin Heights to the town centre. The reasons why other ferry services were not included in the short list of options are as follows

Kawarau River ferry

The shallow depth of the Kawarau Falls means that the size of vessels would be limited to speed boats and therefore relatively few passengers could be carried. Due to the small size of the vessel, higher labour costs and greater maintenance requirements; ferry services have higher operating costs than the equivalent bus service. The development patterns of Remarkables Park and Lake Hayes also do not support a ferry service as the town centre is an 800m walk from the river which is beyond a comfortable walking distance. Similarly for Lakes Hayes Estate the nearest houses to the river are a 500m walk on an unsealed path.

Frankton Beach ferry

A proposal had been made for a Frankton Beach to Steamer Wharf ferry service that would connect to the airport via a walking and cycling corridor on Humphrey Street and Douglas Street. However, it is considered that it is not feasible for people to walk from the airport to the wharf as the distance is 1km or a 10-15min walk and most people would be travelling with bags. Although this distance is easy to travel on a bike it would be difficult for people to take their bikes on a ferry and most visitors to Queenstown do not have access to a bike. Furthermore, the location of the existing Willows wharf on a shallow section of Lake Whakatipu (less than 1m in depth) means that only jet boats can access the wharf (Figure 1-5). To reach a lake depth of 2m would require an approximately 350m long wharf or dredging, both of which have.

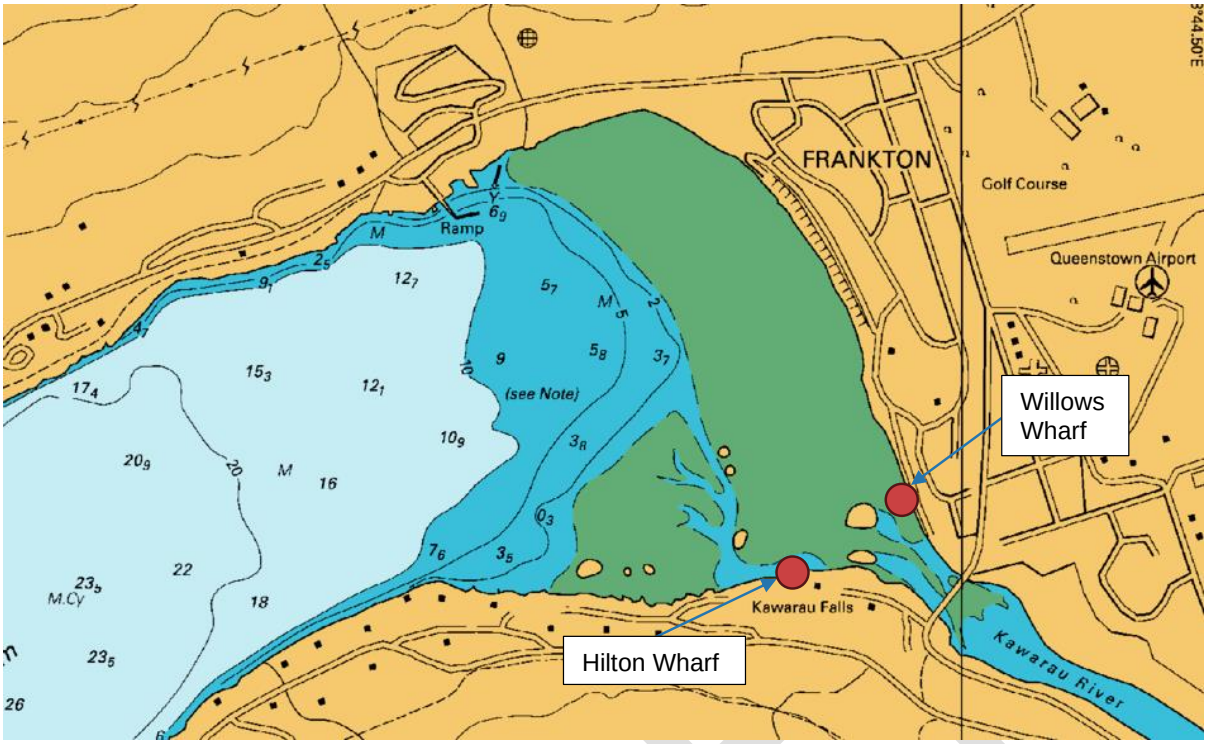

Figure 1-5: Marine Map of Lake Whakatipu showing that Hilton Wharf is in 1m of water and Willows Wharf is in less an 1m water (source: LINZ)

1.3.3 Options Assessment - Decarbonisation Technology

The Long List options for decarbonisation technology were also assessed at the workshop with Project Partners on 16 June 2023. A high-level assessment of the technologies prepared by the SME (replicated in Table 1-8) was used for **Early Assessment Sifting.**

Table 1-8: Decarbonisation Technologies Comparison, QPTBC

CRITERIA	BATTERY ELECTRIC	HYDROGEN FUEL CELL	RENEWABLE NATURAL GAS	BIO-DIESEL	HYBRID
Tailpipe emissions	No tailpipe emissions	No tailpipe emissions	Tailpipe emissions	Tailpipe emissions	Tailpipe emissions
Operational readiness	Available now	Trial only, lease only	Not in NZ	Limited availability	Available, but not imported in NZ
Value for Money	Higher cost than diesel	Much higher cost than diesel	Similar to diesel costs	Similar to diesel costs	Similar to diesel costs
Resilience and future proofing	Upgrades & recycling available	Uncertain	Uncertain future path	Uncertain future path	Uncertain future path
Skills, deliverability, & operational risk	Some new skills required	Major new specialised skills, H&S & policy changes required	Some new skills required	No change	New skills required, increased complexity, & weight
Safety and change management	Well understood, manageable	Complex, major changes, hazardous substance approved handler required	Well understood	Well understood	Complex
Overall Rating			**Fatally Flawed**	**Fatally Flawed**	**Fatally Flawed**

Propulsion technologies were removed from further consideration if they do not meet the zero-tailpipe emissions requirement[11], and therefore were fatally flawed for Investment Objective 2[12]:

- ✗ Renewable Natural Gas
- ✗ Bio-Diesel
- ✗ Hybrid

The remaining two Long List options were assessed by Project Partners through decision conferencing. The options were assessed as fuel sources for both buses and ferries to confirm suitability for the network. The project MCA framework was used as a guidance tool, as shown in Table 1-9.

[11] By 2025, Government will only allow zero-emission vehicles to be purchased for public transport.
[12] Investment Objective 2: Reduce public transport CO_2 emissions in Queenstown to meet Government policy.

Table 1-9: Long List Assessment Results – Decarbonisation Technology, QPTBC

CRITERIA	DO MINIMUM	BATTERY ELECTRIC	HYDROGEN FUEL CELL	COMMENTARY
Increase public transport patronage and mode share in Queenstown	-	-	-	Not assessed as not a differentiator for decarbonisation options.
Reduce Queenstown public transport vehicle CO_2 emissions	**0**	**3**	**3**	Technology either meets policy of all new buses needing to have zero tailpipe emissions by 2025, or it does not (i.e. the Do Min).
Increase the number of jobs and social destinations accessible by public transport	-	-	-	Not assessed as not a differentiator for decarbonisation options.
Capacity	-	-	-	
Implementability	-	-	-	
Consentability	**0**	**3**	**-1**	Hydrogen technology requires substantial upstream infrastructure that will require consenting. Health and safety requirements of hydrogen vehicle refuelling requires an "approved hazardous gas handler" to undertake the transfer and restricts the possible locations for a depot. This may change as legislation moves forward - NZ does not currently have a complete set of policies or legislation in place to deal with bulk hydrogen. This is in progress but has not been promulgated.
Readiness	**0**	**2**	**1**	Battery electric scored a **2** as technology is already available but has an approximate 12-36 month procurement period. Hydrogen fuel cell scored a **1** as refilling technology is limited and consenting/operational matters have uncertainty.
Environmental Impacts	**0**	**2**	**2**	Reduced air and noise pollution, and potential for increased energy efficiency as technology develops for both non-diesel propulsion options. Resource considerations for battery production, but compares to resource depletion for diesel.
Social and Cultural Impacts	**0**	**2**	**1**	Positive perception due to sustainability of non-diesel propulsion options. Potential for negative public concerns about hydrogen production, storage and use for fuelling.
Unweighted Score	**0**	**12**	**6**	

Short List Recommendation (Decarbonisation Technology)

The assessment outcome for the Long List decarbonisation technology options is shown in Table 1-10.

Table 1-10: Long List Assessment Outcomes – Decarbonisation Technology, QPTBC

OPTION	OUTCOME	RATIONALE FOR INCLUSION / EXCLUSION
Do Minimum	Progress to short list	Progress as a comparator.
Battery Electric	Progress to short list	Considered the most suitable as the technology is already available in New Zealand, and has zero-tailpipe emissions.
Hydrogen Fuel Cell	Progress to short list	Technology has zero-tailpipe emissions, however the technology is still being developed and is not likely to be ready for implementation within the project timeframes.
Renewable Natural Gas	Do not progress	Fatally flawed as does not meet zero tailpipe emissions requirement.
Bio-Diesel	Do not progress	
Hybrid	Do not progress	

[13] Picture source: Ritchies in Queenstown (myguidequeenstown.com)

1.4 Short List Assessment

1.4.1 Short List Public Engagement

To inform the Short List assessment, four drop-in events were scheduled in the Queenstown area for residents and visitors to discuss the Short List Service Pattern options[14] with the project team:

- Thursday 21 September 10am to 2:30pm, Frankton
- Thursday 21 September 4pm to 6pm, Stanley Street Bus Hub
- Saturday 23 September 10am to 2pm, Arrowtown – **Cancelled due to weather events**[15]
- Saturday 30 September 9am to 2pm, Queenstown CBD.

An option to provide online feedback was also made available.

The 230 pieces of feedback received from the online, postal, and in-person surveys revealed key community sentiments and recurring themes:

The majority (52 percent) of respondents preferred Bus Max, citing minimal transfers as the reason for their preference. 16 percent favoured either option, and seven percent favoured the Jacks Point Spine.

Significant support (72 percent of respondents) for Malaghans Road sub-option due to avoiding congestion on the state highway network.

Support for retaining the existing Fernhill to Remarkables Park service, enabling an airport focussed service with fleet configuration to accommodate luggage and to accommodate airport workers.

Support for a direct connection to Five Mile and Remarkables Park, recognising that local trips for essential services, retail, and entertainment options now tend to favour these locations over the Queenstown Town Centre (which is seen by residents to have evolved into a tourist-dominant destination).

Desire for increased ferry sailings and cheaper fares (outside of the remit of this Business Case).

[14] Propulsion technology options were considered to be a technical and policy driven decision and were not consulted on with the public to retain the focus on the Service Pattern options.
[15] A state of emergency was declared for Queenstown on 22 September 2023 following a high rainfall event that resulted in localised flooding, debris flows, and land instability across the district. The state of emergency was lifted on 24 September.

1.4.2 Short List Organisation Feedback

Four feedback submissions were received from stakeholder organisations:

- Ministry of Education.
- Queenstown Airport.
- RealNZ.
- The Lightfoot Initiative.

Ministry of Education

Following the routine review of Ministry-funded bus routes in Queenstown and engagement with ORC in 2022, a significant number of students no longer meet the eligibility criteria for school bus services. The Ministry of Education submission primarily focuses on students moving from school bus services to the public transport network. The Ministry highlighted the need to consider the increased patronage on public transport from the change, supported minimal bus transfers for students, and raised the suitability of bus stop locations near schools.

Queenstown Airport

Queenstown Airport supports Bus Max increasing frequency and span of services, the Malaghans Road variant, and On Demand services (Queenstown Hill and Goldfield Heights). The Airport noted the following investments would improve the travel experience for airport employees and visitors:

- More airport focused services with less transfers (e.g. Queenstown Town Centre to the airport).
- Buses with sufficient luggage capacity.
- Improvements to ticketing.

The Airport indicated disappointment that a Frankton Beach ferry service was not included.

RealNZ

RealNZ supports the development of an integrated transport plan and network, and the decarbonisation of public buses and ferry fleet. They support bus priority measures on the SH6 and 6A and recommend the prioritisation of private tourist commuter buses alongside public buses.

Like Queenstown Airport, RealNZ would like the ferry service offering expanded recommending services to Lake Hayes Estate, Homestead Bay, and Kingston. RealNZ also saw potential for a more ambitious On Demand service, including Jack's Point, Hanley's Farm, Homestead Bay, and the airport.

The Lightfoot Initiative

The Lightfoot Initiative supports Bus Max and reducing the number of transfers, the Malaghans Road variant, and On Demand services (Queenstown Hill and Goldfield Heights). Their submission suggested the following additions / modifications:

- Five minute service frequency during peak hours.
- A frequent and low cost airport focused service.
- On Demand for Arrowtown.
- Investigations into a ferry terminal at the jetty near Kawarau Falls Bridge.
- Park and Ride (Boyd Road, Gorge Road and Morven Ferry Road).

A full summary of the short list engagement is provided in Appendix I – Short List Options Engagement Report.

1.4.3 Short List Assessment Criteria

To enhance the granularity of the Short List assessment, further criteria were incorporated into the options assessment framework (agreed with Project Partners). These additional criteria were included to robustly interrogate and compare each option, allowing for a more thorough understanding of their suitability and potential impact. This broader evaluation scope aids in more informed decision-making, confirming the selection of the most suitable public transport solution that aligns closely with the community's needs and priorities.

Table 1-11 documents the further criteria. These criteria were categorised into two sections: those for scoring service patterns, and those for evaluating decarbonisation technology. This segmentation was done to retain a compact list of criteria that would be able to differentiate between options and appropriately reflect the main objectives of the project.

Table 1-11: Short List Assessment Criteria, QPTBC

CRITERIA	DESCRIPTION	USED TO ASSESS
Operational flexibility	Ease with which public transport vehicles could be moved around the network in response to operational issues.	**Service patterns**
Frequency	How long customers are anticipated to need to wait for services.	
Travel time	End to end travel time considering level of priority, mode, and transfers.	
Transfers	Number of transfers required for cross town journeys.	
Resilience and future proofing	Is there a clear future path for this technology? Is there ability to reuse or recycle technology at end of life?	**Decarbonisation technology**
Skills, deliverability, and operational risk	Degree to which new skills, operating procedures, and policies will be required.	
Safety and change management	Degree to which new safety issues or risks, and associated safety procedure are required for the technology.	

1.4.4 Short List Assessment - Service Patterns

The service patterns options were assessed in October 2023 with Project Partners to agree an emerging preferred option. To facilitate an informed decision-making process, the project SMEs presented the options for comparison with summary of key analysis undertaken, including:

- Transport modelling results (refer to Appendix A - Forecasting Demand Advisory Paper)
- Summary of public engagement (refer to Appendix I - Short List Options Engagement Report)
- High level costs and benefits (refer to Appendix J – Economic Assessment Methodology)

The short list options were then scored through decision conferencing with the Project Partners against the MCA framework. A summary of the discussions raised during the scoring process is provided, followed by the scoring in Table 1-12.

- **Bus Max** is the preferred core service pattern as it attracts higher public transport mode share, has greater reliability, has greater VKT reduction, and provides better accessibility, in particular cross-town journeys are faster without the need to transfer.

- The **Malaghans Road** variant does not provide a significant measurable difference to mode share compared to the core Bus Max option. However, it provides a degree of resilience to the public transport network, provides mitigation for the disruption to journeys as a result from NZUP construction on SH6A, and was strongly supported by community feedback.

- The **additional Kawarau River Bridge** was shown by the transport model to increase mode share and accessibility. However, a new bridge would have potentially significant technical complexities and consenting risks based on initial investigations finding poor ground conditions as part of the proposal for an active mode bridge. This is considered reasonably lead to significant capital cost with uncertain funding sources in a challenging fiscal environment.

  As an alternative, there is an opportunity to create northbound bus lanes on SH6 with a proposed extent being from Boyd Road to the existing Kawarau Falls Bridge. As a significant increase in public transport mode share will be needed to prevent the Kawarau Falls bridge from being over capacity, implementing bus lanes would be beneficial to support this mode shift. This is because bus lanes would provide a queue jump for buses that improves journey times and reliability for commuters which helps to make public transport a more attractive mode. The bus lanes south of the bridge would be a continuation of the bus lanes proposed as part of the NZUP Queenstown package. The design would need to consider the interactions with the Whakatipu active travel network A7 Hillside cycle route (Jack's Point to Frankton).

- The **Jack's Point Ferry** was shown by the transport model to increase mode share and accessibility similar to the additional bridge. Like the additional bridge, the ferry will have significant capital costs associated with infrastructure, such as the construction of a new wharf and breakwater at Jacks Point, upgrades to the Steamer Bay wharf, and the purchase of the ferries. There is also a risk that the ferry is competing to attract the same demand that the bus service caters to. There was concern that the cost per new customer would be unsupportable and **therefore agreement to not progress the Jack's Point ferry within this Business Case**. Note this does not preclude revisiting this decision should funding be sourced for the capital costs.

- There is Partner support for splitting the Queenstown to Jacks Point service into two separate services: one from Fernhill to Remarkables Park, and one from Queenstown to Jacks Point bypassing Remarkables Park (although this then requires a transfer to travel from Jacks Point to Remarkables Park). This is not represented in the current variants but was agreed to be added for consideration in the Composite Option (see below).

Based on the workshop discussion and the engagement feedback, a further option was identified by the Project Partners and then subsequently scored with Partners (also shown in Table 1-12). The additional option, referred to as the **Composite Option,** uses Bus Max as the core service pattern complemented with what was considered the preferred variants:

- Bus lanes on SH6 (instead of the new bridge).
- Services via Malaghans Road.
- Splitting the Jacks Point service.
- No additional Jacks Point Ferry.

The Composite Option is shown schematically in Figure 1-66Figure 1-667.

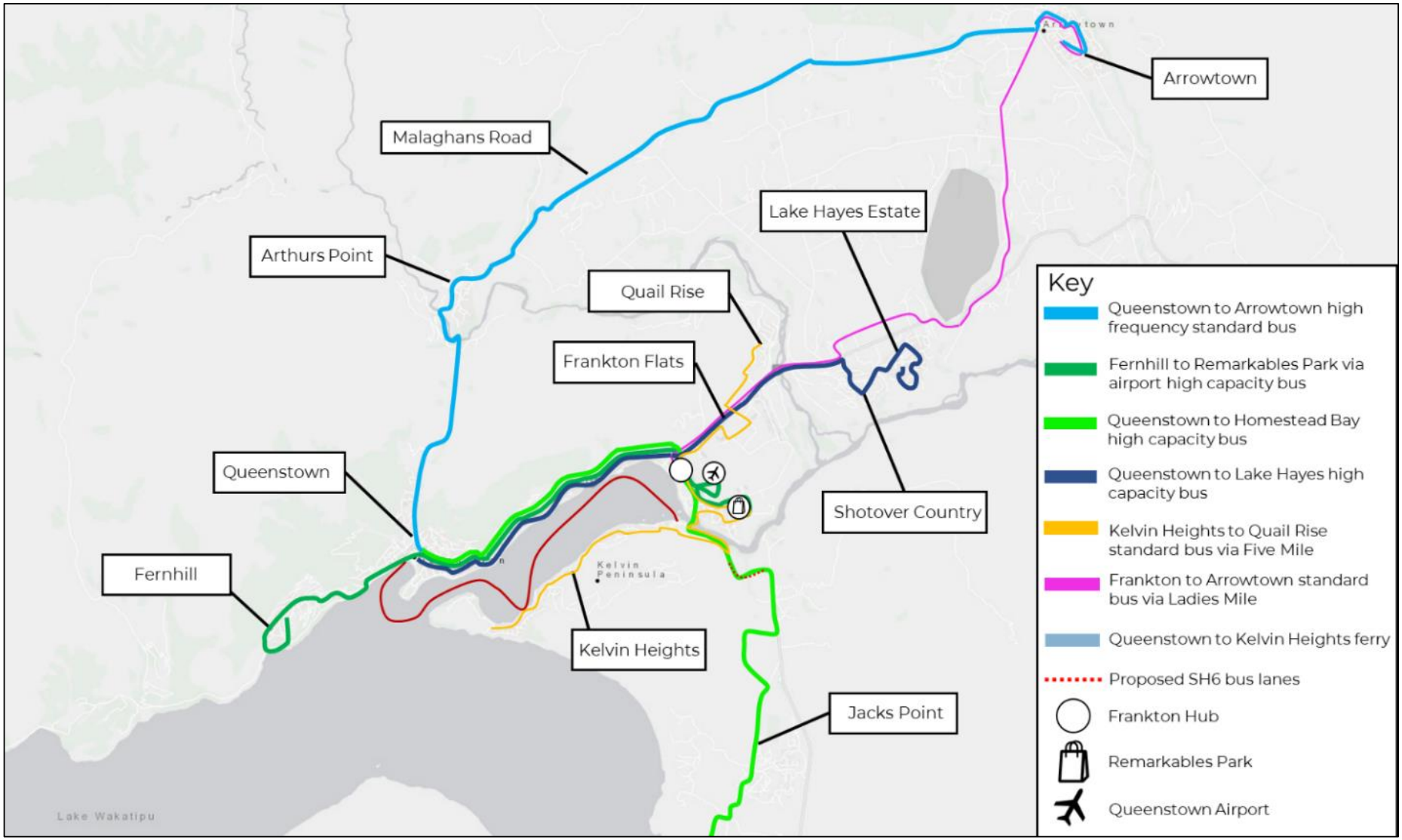

Figure 1-667: Composite Option, QPTBC

Table 1-12: Short List Assessment Results – Service Patterns, QPTBC

CRITERIA	DO MINIMUM	BUS MAX	BUS MAX + NEW BRIDGE	BUS MAX + MALAGHANS ROAD	BUS MAX + NEW FERRY	JACKS POINT SPINE	JACKS POINT SPINE + NEW BRIDGE	JACKS POINT SPINE + MALAGHANS ROAD	JACKS POINT SPINE + NEW FERRY	COMPOSITE OPTION
IO 1 KPI 1[16]	0	2	3	2	3	1	2	1	2	3
	Assessed using results from transport modelling. Under Bus Max patronage is forecast to generally triple from 2027 to 2053 (**2**). Jacks Point Spine has less additional patronage than Bus Max (**1**). Adding the bridge variant increases patronage above the base core service pattern, as does the new ferry (▲**1**). Malaghans Road has no material difference in total patronage to the base service pattern (no change). Composite option increases patronage on Bus Max base (▲**1**).									
IO 1 KPI 2[17]	0	2	2	2	3	1	2	1	2	3
	Assessed using results from transport modelling comparing afternoon peak to off-peak modelled bus travel times. Do Minimum has 8-minute variability for Jacks Point to Queenstown. This reduces to 6-minutes for the Spine (**1**), 4-minutes for Bus Max (**2**), and 2-minutes for the Composite Option (**3**). Ferry allows trips for some users to avoid congestion on SH6A which is source of travel time variability (▲**1**). Malaghans Road also allows some users to avoid SH6A congestion, but overall only minor improvement due majority of demand being on the southern growth corridor and therefore not influenced by Malaghans Road option (no change).									
IO 2 KPI 1[18]	0	1	2	1	3	1	2	1	3	3
	Assessed using results from transport modelling. All non Do-Minimum options provide an estimated VKT reduction in the range of 1.7 to 2.3 percent. This reduction is low as the model includes all trips, for example rural and intercity trips that are higher in VKT and less likely to transfer to public transport. The Jacks Point Ferry variants and the Composite Option resulted in the greatest reduction in VKT (**3**).									
IO 3 KPI 1[19]	0	1	2	1	2	1	2	1	2	2
	Assessed using results from transport modelling using simplified matrix from main suburbs to Queenstown, Five Mile, and Remarkables Park. All journey times (waiting time plus travel time) are improved compared to the Do Minimum. The new bridge and the new ferry both reduce travel time for trips from Jacks Point (▲**1**). Likewise, splitting the route in the Composite Option combined with the northbound bus lane also reduces travel time for trips from Jacks Point (▲**1**). Malaghans Road reduces travel time for trips from Arrowtown, but like IO 1 KPI 2 the overall improvement for the network is minor (no change).									
IO 3 KPI 2[20]	0	1	2	1	2	1	2	1	2	2
	Scoring assigned as per IO 3 KPI 1 as jobs and destinations tend to be located in the same place.									

[16] Increase mode shift away from single occupant vehicles by 2053.
[17] Increase percentage of scheduled service trips between 59 seconds before and four minutes and 59 seconds after the scheduled departure time of selected point by 2053.
[18] Reduce VKT by 2053.
[19] Increase jobs accessible within a 20-minute trip on public transport by 2053.
[20] Increase destinations accessible within a 30-minute trip on public transport by 2053.

CRITERIA	DO MINIMUM	BUS MAX	BUS MAX + NEW BRIDGE	BUS MAX + MALAGHANS ROAD	BUS MAX + NEW FERRY	JACKS POINT SPINE	JACKS POINT SPINE + NEW BRIDGE	JACKS POINT SPINE + MALAGHANS ROAD	JACKS POINT SPINE + NEW FERRY	COMPOSITE OPTION
Capacity	0	2	2	2	3	2	2	2	3	2
	Both core service patterns (Bus Max and Jacks Point Spine) provide enough capacity to meet the targeted mode share (**2**). Variants other than the new ferry do not materially impact capacity (no change). The ferry provides a supplementary service for the southern growth corridor which could be used to increase overall capacity (▲**1**).									
Implementability	0	0	-2	0	-2	0	-3	0	-2	-1
	The new bridge is technically challenging due to ground conditions (**-3**). The new ferry requires a new wharf which will involve dredging or piling, this is considered to be less challenging from an engineering point of view (**-2**). The bus lanes in the Composite Option will involve sealing an existing grass shoulder than will need to be assessed for changes to stormwater (**-1**). *Note: the scoring for Bus Max + New Bridge was revised from -3 to -2 during the workshop session to reflect there is an opportunity to create northbound bus lanes on SH6 leading to the existing Kawarau Falls Bridge instead of constructing a new bridge, with the former anticipated to have lesser implementability challenges.*									
Consentability	0	0	-2	0	-2	0	-2	0	-2	-1
	Anticipated consenting complexities with permitting new wharf/marina at Jacks Point, and new piers in Kawarau River for new bridge (**-2**). Other options do not have infrastructure outside of the road reserve, however the bus lanes in the Composite Option will involve sealing an existing grass shoulder than will need to be assessed for changes to stormwater (**-1**).									
Readiness	-	-	-	-	-	-	-	-	-	-
	Not assessed as not a differentiator.									
Environmental Impacts	0	2	2	2	2	2	2	2	2	2
	Improved efficiency of resource utilisation with increased patronage compared to Do Minimum. Localised environmental impacts may occur regarding specific infrastructure (e.g. depot, interchanges, stop locations, Park and Ride), therefore not considered to differentiate between options (i.e. all service pattern options will require a depot).									
Social and Cultural Impacts	0	2	3	3	3	1	1	1	1	3
	Enhanced accessibility improves inclusivity and ensures a broader demographic can benefit from public transport. This positively contributes to social equity and community cohesion. Potential concerns, such as personal safety during transfers (spine options) may prevent some people from using the service.									
Operational flexibility	0	-1	-1	-1	-2	-1	-1	-1	-2	-1
	Do Minimum uses standard fleet vehicles (10m length) which can, for the most part, divert to alternative routes (if available) if the route is blocked, e.g. a crash. Articulated vehicles, which are proposed for capacity reason, would be restricted to only using prior approved routes. This reduces operational flexibility (**-1**). The ferry option would be restricted in the sense that a wharf was damaged, the service would not be able to berth elsewhere (**-2**).									

CRITERIA	DO MINIMUM	BUS MAX	BUS MAX + NEW BRIDGE	BUS MAX + MALAGHANS ROAD	BUS MAX + NEW FERRY	JACKS POINT SPINE	JACKS POINT SPINE + NEW BRIDGE	JACKS POINT SPINE + MALAGHANS ROAD	JACKS POINT SPINE + NEW FERRY	COMPOSITE OPTION
Frequency	0	2	2	2	2	2	2	2	2	2
	Do Minimum longest average weight time is 30-minutes for Jacks Point journeys. Under Bus Max and Jacks Point Spine service patterns, the longest average wait time is 7.5-minutes for Kelvin Heights. Variants do not change timetable frequencies, however public transport priority measures (e.g. new bridge, bus lanes, new ferry) will reduce travel time variability which would provide customers with more consistent wait times day to day.									
Travel time	0	1	3	3	3	0	1	1	1	3
	Bus Max service pattern reduces the number of transfers by design, and therefore reduces travel time (**1**). Jacks Point Spine results in increased transfers for journeys not contained within the spine, and therefore increased total travel time for customers from Arrowtown, Lake Hayes, Arthurs Point, and Fernhill. The new bridge, Malaghans Road, the new ferry, and the Composite Option all improve travel time to/from different areas than the base service pattern.									
Transfers	0	0	0	0	0	-3	-2	-3	-3	0
	For the Jacks Point Spine options, two transfers are required to get from Fernhill / Arthurs Point to Five Mile / Lake Hayes / Arrowtown (**-3**), although the new bridge reduces the need for transfers to get from Jacks Point to Remarkables Park (▲**1**). For all other options, one transfer is needed to travel to Frankton destinations that are not directly served (no change from Do Minimum).									
OPEX (high-level est.)	0	-2	-1	-2	-3	-1	-1	-1	-2	-2
	Current operating costs are approximately $7.5M. Operational costs for Bus Max estimated at $23M (**-2**) and Jacks Point Spine estimated at $19.5M (**-1**). Adding the bridge has operating costs savings by reducing the route length (▲**1**). Malaghans Road has only minor impact, approximately $1M, on operating costs (no change). New ferry increases operational costs due to costs associated with the ferry, estimated at approximately $6.8M per annum (▼**1**). Splitting the Remarkables Park services in the Composite Option is estimated to cost $1.1M more (no change).									
CAPEX (high-level est.)	0	-1	-3	-2	-2	-2	-3	-2	-2	-1
	Capital cost estimate for Bus Max is $50M including costs for a bus depot and minor corridor infrastructure improvements. The new bridge is a significant additional cost (▼**2**). Malaghans Road assumes cost for a Park and Ride (▼**1**), although this may be removed from the option. The ferry requires capital expenditure for the new wharf and breakwater (▼**1**).									
Economic Efficiency	0	1	2	2	2	2	3	3	3	3
	All non Do-Minimum options are in the 'low' BCR[21] range between 1.0 and 3.0. Either core option provides significant benefit above Do Minimum. Jacks Point Spine performs better than Bus Max due to the lower operating costs (approximately $50M, discounted) over the 40-year appraisal period. Benefits include crash cost reduction, air pollutions, GHG emissions, travel time, VOC, and congestion reduction.									
Unweighted Score	**0**	**13**	**16**	**16**	**17**	**7**	**9**	**9**	**10**	**22**

[21] BCR = Benefit Cost Ratio

Sensitivity Testing

Sensitivity testing, which involves adjusting weightings, sharpens the decision-making process. Systematically varying these weights pinpoints influential factors, leading to informed decisions aligned with the strategic objectives. This approach enhances the evaluation framework's resilience and flexibility. The sensitivity tests applied to the Short List MCA scores are shown in Table 1-13. In all tests, the Composite Option was favoured.

Table 1-13: Sensitivity Testing – Service Patterns, QPTBC

WEIGHTINGS[22] (PERCENTAGE)				DO MINIMUM	BUS MAX	BUS MAX + NEW BRIDGE	BUS MAX + MALAGHANS ROAD	BUS MAX + NEW FERRY	JACKS POINT SPINE	JACKS POINT SPINE + NEW BRIDGE	JACKS POINT SPINE + MALAGHANS ROAD	JACKS POINT SPINE + NEW FERRY	COMPOSITE OPTION
IOs	CSFs	ACs	C&EE										
33	33	33	0	0.0	5.0	6.0	6.0	6.7	2.7	3.3	3.0	3.7	7.3
50	25	25	0	0.0	5.5	7.3	6.3	8.3	3.3	5.0	3.5	5.5	8.8
25	50	25	0	0.0	5.3	5.3	6.3	6.0	3.3	2.5	3.5	3.3	6.8
25	25	50	0	0.0	4.3	5.5	5.5	5.8	1.5	2.5	2.0	2.3	6.5
25	25	25	25	0.0	3.3	4.0	4.0	4.3	1.8	2.3	2.3	2.5	5.5
16	16	16	50	0.0	1.5	2.0	2.0	1.8	0.8	1.2	1.5	1.3	3.7
10	40	10	40	0.0	2.5	1.9	3.1	2.0	1.9	0.6	2.4	1.3	3.7

[22] IOs Investment Objectives
CSFs Critical Success Factors and Opportunities & Impacts
ACs Assessment Criteria (short list)
C&EE High level costs and economic efficiency

Cost Benefits Analysis

Cost Benefits Analysis, including incremental analysis, was used as another tool to assess the Short List options. For the incremental analysis, Jacks Point Spine was the lowest cost option that all other Short List options were compared to in order to ascertain whether the incremental benefits outweigh the incremental costs. All options except Jacks Point Spine + Malaghans Road had a positive incremental BCR. The Composite option had the highest overall BCR and highest incremental BCR.

Table 1-14: CBA – Service Patterns, QPTBC

	BUS MAX	BUS MAX + NEW BRIDGE	BUS MAX + MALAGHANS ROAD	BUS MAX + NEW FERRY	JACKS POINT SPINE	JACKS POINT SPINE + NEW BRIDGE	JACKS POINT SPINE + MALAGHANS ROAD	JACKS POINT SPINE + NEW FERRY	COMPOSITE OPTION
Net Benefit	$563M	$781M	$554M	$819M	$520M	$738M	$510M	$775M	$756M
Net Cost	$306M	$356M	$319M	$383M	$281M	$335M	$294M	$358M	$311M
BCR	**1.8**	**2.2**	**1.7**	**2.1**	**1.9**	**2.2**	**1.7**	**2.2**	**2.4**
Incremental Benefit	$43M	$261M	$34M	$299M	-	$218M	-$10M	$255M	$236M
Incremental Cost	$25M	$75M	$38M	$102M	-	$54M	$13M	$77M	$30M
Incremental BCR	**1.7**	**3.5**	**0.9**	**2.9**	**-**	**4.0**	**-0.8**	**3.3**	**7.9**

Emerging Preferred Way Forward – Service Patterns

It is recommended to further consider the **Composite Option** as the preferred Service Pattern to achieve the public transport attractiveness and effectiveness objectives of the Queenstown Public Transport Business Case, and to support the integrated land use planning of national, regional, and local transport policies.

The Composite Option is considered to be an enhanced and refined version of the Bus Max option initially recommended in the Queenstown Business Case.

1.4.5 Short List Assessment - Decarbonisation Technology

The Short List options for decarbonisation technology were also assessed at the workshop with Project Partners on 20 October 2023. The purpose of this workshop was to agree an emerging preferred option. To achieve this through informed decision-making, the project SME for decarbonisation technologies presented the options for comparison. Key workshop discussion points raised were:

- Hydrogen needs a Class II hazardous gas operator to refuel. This is currently a very bespoke skillset in New Zealand. This could mean it would be difficult for ORC to have a competitive supply arrangement that offers value for money as they would be limited to a small number of suppliers who are certified. Further, consenting and policy restrictions on transporting and refuelling hydrogen are quite substantial due to the explosive risk.
- It is incorrect to state there are zero emissions with either of these technologies. Hydrogen, in particular, has significant upstream emissions as generation, cooling, storage, and distribution of hydrogen all create a carbon load.
- Both technologies have resilience challenges. Hydrogen trials in New Zealand currently have limits on storage volumes (i.e. one day of supply). On the other hand, battery electric relying on overnight charging may have next-day service disruptions if there is a power outage.
- The Edith Cavell bridge has a current weight constraint of 50T. Recognising the additional weight of a battery electric bus compared to a diesel bus, routes that cross this bridge may need to be retained as diesel in the near-term, or the timeframe for the bridge duplication may need to be advanced, or smaller sized buses (and therefore lighter) may be required.

Based on the above discussion points, the options were scored through decision conferencing with the Project Partners against the MCA framework as shown in Table 1-15.

Table 1-15: Short List Assessment Results – Decarbonisation Technology, QPTBC

CRITERIA	DO MINIMUM	BATTERY ELECTRIC	HYDROGEN FUEL CELL	COMMENTARY
IO1: Increase public transport patronage and mode share …	-	-	-	Not assessed as not a differentiator.
IO2: Reduce Queenstown public transport vehicle CO_2 emissions to meet Government policy	**0**	**3**	**1**	Both non-do minimum technologies comply with the zero-tailpipe emissions requirement. However, infrastructure for hydrogen (e.g. refuelling) not expected to be available in New Zealand until after 2030. This timeframe means the existing fleet will need to be kept in service for longer, resulting in increased emissions compared to battery electric technology which is already available.
IO3: Increase the number of jobs and social destinations accessible by public transport …	-	-	-	Not assessed as not a differentiator.
Capacity	-	-	-	
Implementability	-	-	-	
Consentability	**0**	**3**	**-1**	Battery technology already available in New Zealand. Hydrogen for use in public transport is not yet consented in New

				Zealand, nor is publicly accessible refuelling as hydrogen is a Class II hazardous gas.
Readiness	0	3	-3	Battery technology already available in New Zealand. Hydrogen technology is still in trials, currently expected to be ready by 2030. Hydrogen refuelling is not ready in New Zealand, expected in selected locations in North Island by 2030.
Environmental Impacts	0	2	2	Reduced air and noise pollution, and potential for increased energy efficiency as technology develops for both non-diesel propulsion options. Resource considerations for battery production, but compares to resource depletion for diesel.
Social and Cultural Impacts	0	2	1	Positive perception due to sustainability of non-diesel propulsion options. Potential for negative public concerns about hydrogen production, storage and use for fuelling.
Resilience and futureproofing	0	2	-2	Batteries can be guaranteed by the supplier for 8 to 10 years, and then can be used in a 'second life' before commercial recycling. Hydrogen components (nano-scale materials, catalytic carbon wound resins etc) cannot be recycled.
Skills, deliverability, and operational risk	0	2	-2	Battery electric skills are developing and growing in a number of cities and transport hubs in New Zealand, for example Scania has announced 172 technicians in service for their battery electric trucks. Hydrogen is more problematic, and very few skills exist in New Zealand currently.
Safety and change management	0	-1	-3	Any energy storage is a fire risk, however new LiPo[23] batteries are less likely to combust. Hydrogen is extremely explosive and cannot be used near open heat sources. Compressions and distribution of hydrogen must comply with Class II hazardous gas regulations.
Unweighted Score	**0**	**16**	**-7**	

Sensitivity Testing, Cost Benefits Analysis, and Appraisal Summary Table

These were undertaken for decarbonisation technology as there was a clear mandate from the assessment to progress with battery electric. Specifically, hydrogen technology was considered to be fatally flawed for use (i.e. not suitably advanced in New Zealand) in the first 15 years of the investment plan.

Emerging Preferred Way Forward – Decarbonisation Technology

It is recommended to further consider **battery electric** buses and ferries as the preferred technology to achieve the decarbonisation objectives of the Queenstown Public Transport Business Case, and to address the requirements of the Emissions Reduction Plan and other regional and local transport policies.

[23] LiPo = Lithium Polymer

1.5 Supporting Measures

As outlined in section 1.2 - Options Identification, following the identification of an emerging preferred option, this Business Case considered the complementary elements of the system (supporting measures) that would support efficient and attractive public transport in the Whakatipu Basin. This included assessment of:

- On-demand services
- Public transport hub and interchange requirements
- Bus depot requirements
- Park and Ride facilities
- Physical road network changes.

1.5.1 On-Demand Services

The role of on-demand services, as well as their limitations, were documented based on existing schemes and trials in Aotearoa New Zealand and Australia. Table 1-16 presents the fourteen opportunities that were identified and assessed in the Whakatipu Basin. Assessment considered:

- Expected peak time travel demands and destination
- Walkability of the area
- Availability of fixed route public transport under the proposed Bus Max service pattern.

For further detail, refer to Appendix D – On-Demand Services Advisory Paper.

Table 1-16: Assessment of Potential On-demand Services, QPTBC

LOCATION / SERVICE GAP	DESTINATION	WALKABILITY	PROPOSED FIXED ROUTE NETWORK	RECOMMENDATION
Queenstown Hill and Goldfield Heights	Stanley Street and Frankton Hub	Poor: 20-minute walk to top of hill	Frequent bus routes along SH6A	**Investigate on-demand services**
Quail Rise	Frankton	Good: typically five-minute walk to Ferry Hill Drive	Frequent bus route to Frankton	Increase frequency on fixed route service for both Quail Rise and cross-Frankton trips
Kelvin Heights	Frankton	Good: short walk to Peninsula Road	Frequent bus route to Frankton	Increase frequency on fixed route service for both Kelvin Heights and cross-Frankton trips
Ladies Mile	SH6	Good: five-minute walk on flat	Frequent bus route along SH6	Serve Ladies Mile with fixed bus route from Arrowtown
Lower Shotover	Frankton and Queenstown	Poor: 15-minute walk to nearest bus stop (up to)	Frequent bus route along Stalker Road	Amend fixed route service to serve Tonis Terrace
Queenstown Airport	Stanley Street	Good: stop is 50m from terminal	Frequent bus route to Queenstown	Better suited to high-capacity fixed bus service due to high demand
Jacks Point	Frankton and Queenstown	TBD: depends on road links and routing	Frequent bus route to Queenstown	Investigate once clarity on internal road connections available

LOCATION / SERVICE GAP	DESTINATION	WALKABILITY	PROPOSED FIXED ROUTE NETWORK	RECOMMENDATION
Queenstown tourists	Tourism destinations e.g. ski fields	N/A	Not served	Out of scope for public network. Private operators to provide.
Speargrass Flat	Frankton and Queenstown	Poor: rural area	Option for bus route along Malaghans Road	Investigate Park and Ride which is better suited to serving a rural area with high levels of car ownership
Arrowtown	Frankton and Queenstown	Good, excluding Manse Road area	Frequent bus route to Queenstown	Increase frequency on fixed route service due to long trip distance
Fernhill	Queenstown	Good: five-minute walk to Fernhill Road	Frequent bus route to Queenstown	Retain a fixed route service as is easy to serve as an extension of bus route from South or East
Queenstown late night	Suburban areas	Depends on journey	Span of service up to midnight	Long span of fixed route service combined with availability of taxis/app-based rideshare potentially limits demand
Arthurs Point	Queenstown	Good: five-minute walk to Arthurs Point Road	Frequent bus route to Queenstown	Retain a fixed route service as is easy to serve as an extension of bus route from South or East
All suburbs	Whakatipu High School	Depends on journey	Frequent bus route from Jacks Point, Quail Rise, and Kelvin Heights	Demand too high for on-demand. School served by both public buses and MoE school buses

RECOMMENDATION

This assessment identified Queenstown Hill and Goldfield Heights as the areas with the most promising potential for on-demand transit in Queenstown. This is because the steep terrain makes it challenging to walk to fixed bus routes on SH6A, and the steep and winding streets present challenges to service this area with a conventional sized bus, and the likely high potential to replace car trips to Queenstown Central.

There was some support for on-demand services in the Short List public engagement with 24 percent of respondents stating they would use an on-demand service for Queenstown Hill and Goldfield Heights. Note this will be skewed based on the transport needs of each respondent, for example a resident of Arrowtown would likely respond that they would not use this service.

It is outside of the scope of this Business Case to undertake detailed investigation of, or present a funding case for, on-demand services in the Whakatipu Basin. However, if on-demand services were pursued for the Whakatipu Basin, the recommendation would be to consider Queenstown Hill and Goldfield Heights for further investigation.

1.5.2 Public Transport Hubs and Interchanges

Interchanges play an important function in a connected public transport network. The existing hubs in Stanley Street and Frankton were reviewed by the Project Team to ascertain if their design can accommodate the Composite Bus Max proposal. A need for two new interchanges were also identified at Five Mile and Remarkables Park to align with the proposal as outlined below.

For further detail, refer to Appendix E – Public Transport Hubs and Infrastructure Advisory Paper.

Stanley Street Hub

Concept designs for the Stanley Street Hub and surrounds as part of the Queenstown Town Centre upgrade were taken as the starting point (Figure 1-7Figure 1-78). As part of the Queenstown arterials project there will be changes to the way in which buses and general traffic move around the town centre. The changes that are relevant to bus operations are that the stage 1 arterials project is expected to reduce (but not remove) general traffic volumes on Stanley Street. Other changes are:

- Consolidating Stanley Street stopping points in a single block and widening Stanley Street to have a bus lane in each direction.
- A plaza between Athol Street and Stanley Street with new bus shelters and footpaths.
- The intersection of Camp Street and Ballarat Street would be closed to traffic and therefore terminating buses would need to turn around using Stanley Street.

Figure 1-78: Concept design for Stanley Street and surrounding streets

Two design options were then developed for the Hub considering the proposed Composite Bus Max service pattern routing and design vehicles, being the Do Minimum and the Do More. Through workshop discussions with the Project Partners, the Do Minimum was preferred, which consists of the following changes:

- Mid-block kerb build-out
- Removal of left-turn lane from Stanley Street to Shotover Street
- Lengthening of bus bays and kerb realignment to allow for articulated bus design vehicle

As the timing for the Stanley Street Hub upgrades as part of the Town Centre streetscaping works is uncertain, interim improvements have been considered to guarantee that the Hub can remain operational, meeting the requirements for an efficient and attractive public transport service. The interim option forms part of the funding request for this Business Case and consists of:

- Reconfiguration and lengthening of bus bays to provide for articulated bus design vehicle
- Kerb realignment
- Closure of driveways (consultation with landowners required)
- Supporting infrastructure including bus shelters, hard stand area, signage and driver amenities

Frankton Hub

Similar to the Stanley Street Hub, the assessment for the Frankton Hub started with the concept designs from the committed NZUP investment for Stage One (Figure 1-8). The features from the proposed designs are:

- Increased number of bus bays with mixed sawtooth and linear layout
- Dedicated tourist operator bays
- Dedicated taxi stands
- Signalised access to the bus hub from SH6A
- New bus shelters and increased seating
- Facilities for bus drivers

Figure 1-89: Artist impression, Frankton Bus Hub NZUP Stage One[24]

The Stage One improvements were considered along with the proposed Composite Bus Max service pattern routing and articulated vehicles. Three options were developed, being the Do Minimum, the Do More, and the Do Maximum. Through workshop discussions with the Project Partners, the Do Minimum was preferred, which consists of the following changes:

- Minor layout improvements to reduce pedestrian walking distances and reduce conflicts.
- Lengthening of sawtooth bus bays to allow for articulated bus design vehicle.

The longer-term plan for the Frankton Hub through NZUP is an off-road facility with station building on golf course land using an angled platform design. The existing bus hub would be converted to

[24] Gallery | Waka Kotahi NZ Transport Agency (nzta.govt.nz)

tour coach use with public buses using the new facility (Figure 1-9). This Business Case considers this investment can be delayed for the following reasons:

- The proposed service pattern uses a regular instead of pulse timetable[25]. As a result of the shift to a high frequency network, buses are not needed to arrive at the same time as the wait between connecting services is short. This change would decrease the number of passengers and buses that would use Frankton hub at any one time.
- The proposed service pattern uses a multi-interchange design rather than relying solely on Frankton Hub. This means improved bus stop infrastructure provide at Five Mile and Remarkables Park, enabling passengers to make transfers that provide for more direct journeys (and not necessarily needing to transit at Frankton Hub).
- As the Frankton Hub is being extended as part of the NZ Upgrade there will be enough bus stops to service the forecast number of buses until 2053 based on the forecast passenger demand for public services. Therefore, an off-road interchange is not warranted for capacity purposes.

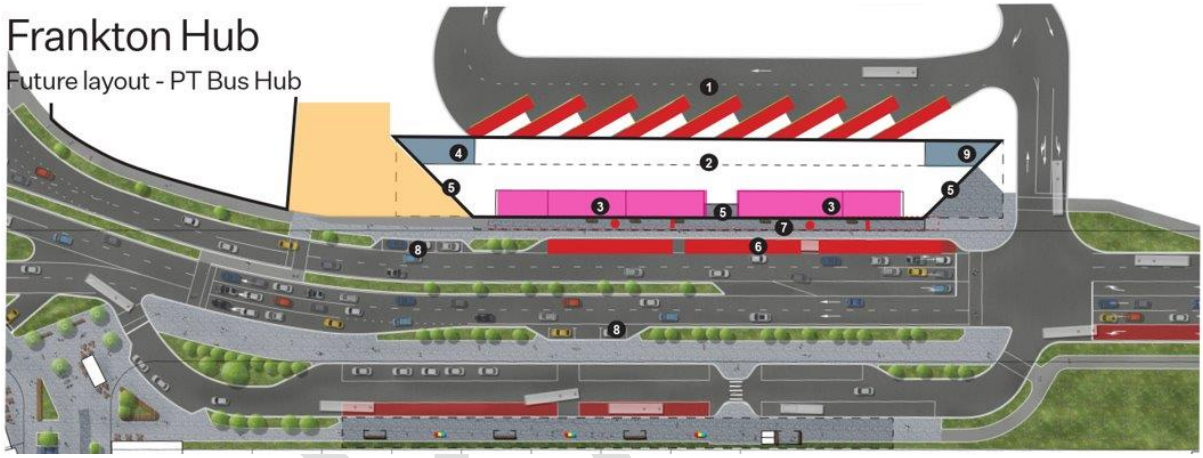

Figure 1-910: Concept for long-term layout of Frankton Hub, NZUP

Five Mile Interchange

Five Mile was identified for an interchange in the Bus Max service pattern as the surrounding land use at Five Mile is a major retail destination which will attract trips and people, and therefore a higher level of amenity and facilities is warranted.

As the current bus stops are not suitable for the proposed service pattern options, the first step in the assessment was to identify the preferred location for an interchange. Five locations were compared for their respective performance against the following criteria:

- Distance between interchange stops
- Maximum number of lanes to cross (pedestrians)
- Total traffic volume of roads to cross
- Distance to nearest facility
- Availability of kerbside space
- Availability of space to provide shelter
- Property ownership
- Complexity of delivering civil works

[25] A pulse timetable is when all buses are timed to arrive at the same time which is useful for transfers in a low frequency network.

The preferred location for the Five Mile Interchange is **Grant Road (far side of the intersection with Central Street).** This is because Grant Road has a central location that is close to shops and services. This location would make use of existing bus stop infrastructure in the southbound direction, and would minimise delays for bus journeys as would not require additional routing through Five Mile.

Remarkables Park Interchange

A similar process was followed for an interchange in Remarkables Park. Four locations were compared for their respective performance against the same criteria developed for the Five Mile Interchange.

The preferred location for the Remarkables Park Interchange is **Hawthorne Drive near Tex Smith Lane.** An interchange in this location is close to the town centre and amenities and would provide the most direct route for buses.

RECOMMENDATION

This assessment recommends changes to the concept designs for the Stanley Street and Frankton Hubs to accommodate the proposed Bus Max service pattern and the proposed articulated bus design vehicle. These changes should be included in the programme of works for the Town Centre upgrade and the NZUP Frankton improvements, respectively. However, to account for uncertainty of implementation timeframes of the Town Centre changes, an interim option is also recommended. Interchanges in Five Mile and Remarkables Park are also recommended to facilitate transfers.

1.5.3 Bus Depot

A single depot serving the network was recommended by the project SMEs[26], rather than many satellite depots, due to the limited availability of land in Queenstown and the relatively small scale of the public transport network.

The existing bus depot on Glenda Drive was assessed for re-use. This site is approximately 3,800 m^2 and is under the ownership of the private transport operator for bus services in Queenstown. However, this site was ruled out as it is too small to accommodate the increase in peak vehicle requirement that would result from increased service levels. The existing site also has challenges with respect to high voltage power connection that is needed for electric bus charging.

Options for an electric bus depot were initially developed at a suburb level of detail, rather than evaluating individual sites. Ten options were long-listed and assessed for:

- Availability of suitably zoned land (i.e. Commercial or Industrial) of sufficient parcel size and currently undeveloped.
- Flat topography.
- Proximity to termini.
- Anticipated complexity to provide required power connection.
- Distance to Cromwell.[27]

[26] SME = Subject Matter Expert

[27] Anecdotally it is known that some bus drivers live in Cromwell and commute to work in Queenstown. This is because Cromwell has lower housing costs. However, Cromwell is a 45-minute drive from Frankton not accounting for traffic. Therefore, a bus depot that is located on the eastern side of Queenstown would be more accessible for staff travelling from Cromwell.

Three options were progressed to a short list for further assessment, being **Queenstown (Gorge Road)**, **Frankton**, and **Coneburn**. An initial Planning assessment was then undertaken to confirm any fatal flaws with respect to zoning provisions, activity status, and potential consenting pathways and constraints. This found zoning restrictions in Frankton south of the airport runway, and ecological and water supply restrictions in Coneburn could present challenges.

Full detail of the options and consideration for a bus depot are provided in Appendix E –Public Transport Hubs and Infrastructure Advisory Paper.

RECOMMENDATION

This assessment identified Frankton and Coneburn as the areas with the most promising potential for an electric bus depot in Queenstown, with a preference for Frankton north of the airport. At the time of writing, positive conversations have been held with Queenstown Airport regarding a potential lease site in Frankton.

Further due diligence is recommended to understand development costs, land availability, and engagement with Aurora Energy[28] to confirm electric grid capacity and resourcing required for the high voltage power connection.

1.5.4 Park and Ride

Options for Park and Ride were developed with review of strategic context (parking strategy, masterplans, network operating framework), population density and development patterns, reference to the Whakatipu Park and Ride SSBC, and accessibility mapping of the proposed Bus Max service pattern (refer to Figure 1-10).

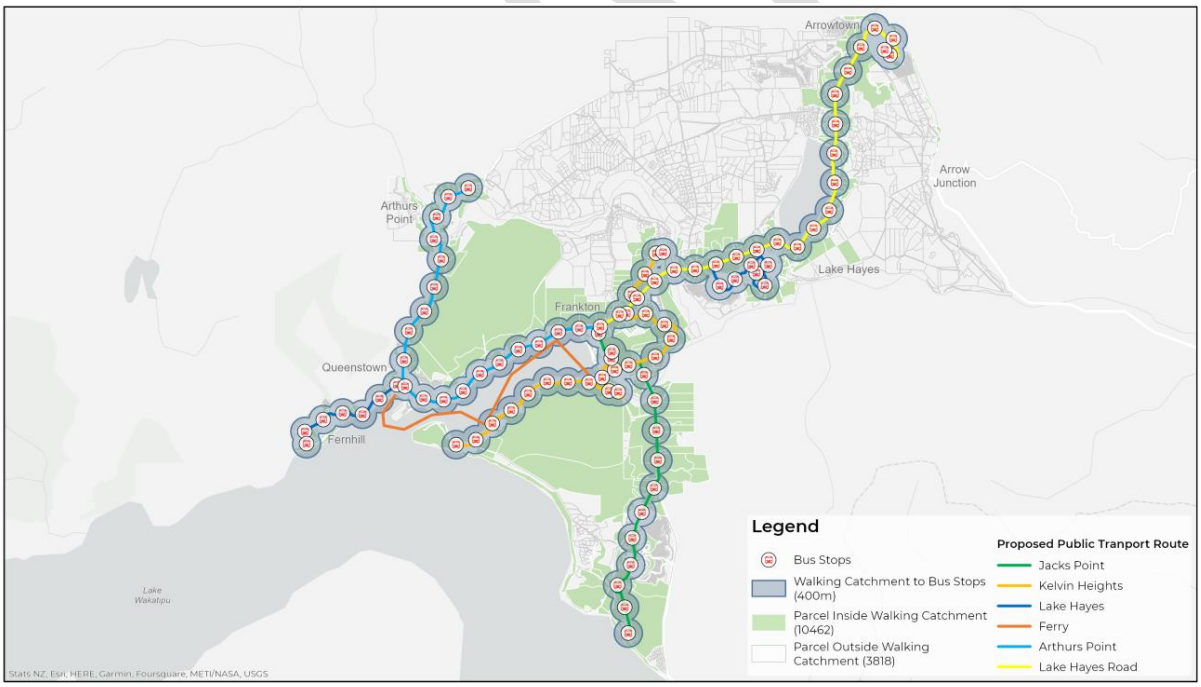

Figure 1-1011: 400m Walking Catchments, Proposed Bus Max Service Pattern[29], QPTBC

[28] Aurora Energy is the Distribution Company for Queenstown-Lakes District (as well as Dunedin and Central Otago).
[29] Theoretical stop spacing

Three options were short-listed:

- Speargrass Flat Park and Ride, to improve coverage of this semi-rural area reducing the number of private vehicle trips to Queenstown. If progressed, this location would need to be serviced by a bus route, likely the Malaghans Road add-on potential route.
- Cromwell Park and Ride, to support a Cromwell to Queenstown service.
- No Park and Ride.

For further detail, refer to Appendix F – Park and Ride Advisory Paper.

RECOMMENDATION

In discussions with SMEs it was agreed that significant investment in a Speargrass Flat Park and Ride was not justified due to the limited patronage uplift seen in the demand modelling results. This was due to the park and ride not offering a travel time advantage compared to driving due to the lack of bus priority on Gorge Road. Furthermore, the residents of Sparegrass Flats typically have a low price sensitivity due to high incomes and therefore the cost of parking in Queenstown was found to have less of an impact on mode choice.

For the Cromwell park and ride the modelling results showed moderate patronage on a Cromwell to Frankton service which did not warrant the high operating costs of a 100km round trip service. Furthermore, the presence of private transport providers offering transfers between Queenstown airport and Cromwell means that demand would be split between multiple services. The forecast land use within Cromwell has a higher share of local employment which reduces the demand for Cromwell to Queenstown commuter trips. As a publicly funded Cromwell to Frankton service is not recommended, then a Cromwell park and ride is not required.

1.5.5 Physical Network Changes

To understand any road network constraints on the operation of buses across the proposed Composite Bus Max network, vehicle tracking was completed using AutoCAD. Tracking curves were plotted for a 19 m articulated bus (Auckland Transport specification) and a 12.6 m long rigid large bus. These buses are larger than the current bus fleet in Queenstown which are 10 m rigid buses. Larger buses will be required on the Queenstown public transport network in the future in order to accommodate growth in passenger numbers.

Three intersections in Lake Hayes were identified as being a constraint for bus operations, with an example shown in Figure 1-11. In these locations, minor intersection modifications have been proposed so that the intersections are able to accommodate the planned bus movements.

Other network changes identified in this assessment related to the design of existing bus stop infrastructure. As articulated buses are introduced to the network, the length of bus stops, including entry and exit tapers if not in-lane stops, will need to be amended. In some locations this may present challenges such as a reduction in on-street parking, a need for sight distance assessments, and changing of drop kerbs and tactile paver infrastructure to align with doors.

For further detail, refer to Appendix E – Public Transport Hubs and Infrastructure Advisory Paper.

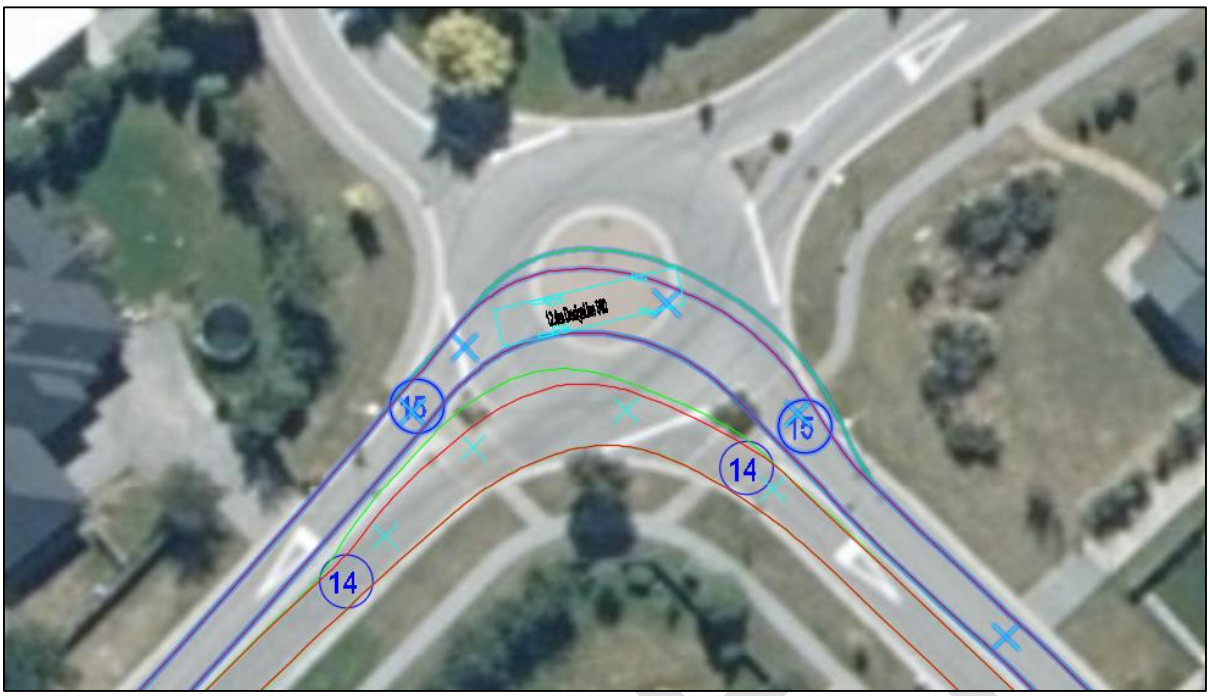

Figure 1-1112: Bus Tracking, QPTBC

RECOMMENDATION

It is recommended that these street upgrades are scheduled to be completed as part of low-cost low-risk (LCLR) programmes for QLDC and NZTA (dependant on the RCA[30]). If these upgrades are not completed, an interim response would be to operate medium sized buses (equivalent to the current bus fleet) at the expense of ridership capacity.

[30] RCA = Road Controlling Authority

2 PREFERRED OPTION

The 30-year investment plan best aligned with the need for an effective and attractive public transport system is to operate an enhanced Bus Max service pattern (the 'composite' option) with Battery Electric vehicles (buses and ferries) with supporting system improvements.

2.1 Selection of Preferred Option

Overall, the Preferred Option was agreed by the Project Partners for the following reasons:

- Providing reduced average wait times, a reduced need for transfers, and improved travel time reliability, resulting in attracting higher public transport mode share and greater VKT reduction demonstrated through the transport modelling.
- Providing the more direct, and therefore more efficient and attractive, service for the southern growth area (Jacks Point / Homestead Bay) to Queenstown but not at the expense of other customers making trips elsewhere on the network.
- Providing bus priority on the southern growth corridor, resulting in journey times that are more competitive with journey by private vehicle thereby reducing the public transport travel time.
- Retaining a Fernhill to Remarkables Park service, connecting hotels to the airport, as strongly requested through the public engagement. This service can be extended as Hawthorne Drive develops.
- Providing a service via Malaghans Road that was strongly supported by public engagement feedback for journeys between Arrowtown and Queenstown.
- Using proven, safer, and readily deployable zero emissions technologies that can service the required range for bus services in Queenstown.
- Enabling the benefits of the NZUP investment in supportive infrastructure start to be realised from the first day of the programme roll-out and endure for a predicted 30 years.
- Presenting a strong investment story (addressing the community's immediate transport access needs whilst also playing a substantial role in making meaningful progress towards decarbonisation commitments).
- The stakeholder consultation strongly indicates that stakeholders are likely to support the Preferred Option.

Through the MCA process, the Preferred Option fulfilled the Investment Objectives, Critical Success Factors and assessment criteria to the same (or higher) extent as the other options, with similar or smaller impacts and risks. Incremental Cost Benefit Analysis showed the Preferred Option to have the highest BCR and highest incremental BCR, providing reassurance that value for money has been sought.

The MCA process also reflected there are some disadvantages with the Preferred Option, but these were assessed to be outweighed by the benefits, with less drawbacks compared to the other options:

- A transfer is currently required at Frankton Hub to travel from Jacks Point/Homestead Bay to Remarkables Park. This is unchanged by the Preferred Option.
- Increased operational costs as a direct trade-off of increasing frequency of services, extending the timetable hours of operation, and extending routes (e.g. Frankton to Jacks Point becomes Queenstown to Homestead Bay).

The selection of the Preferred Option was made cognisant of, but without being influenced by, the challenges associated with providing a public transport depot in the Whakatipu Basin. All options would require a depot and therefore would be equally affected by the challenges. However, it is appreciated that the depot is a critical component of a successful public transport system.

2.2 Description of Preferred Option

The Preferred Option is to operate an enhanced Bus Max service pattern (the 'composite' option) with battery electric vehicles (buses and ferries) with supporting system improvements. The Preferred Option is shown schematically in Figure 2-1.

Once fully realised, the Preferred Option will provide a high frequency, high-capacity bus network with core routes running from Queenstown to main suburbs and secondary routes connecting at Frankton. This public transport network supports the planned housing growth in the southern and eastern corridors, provides public transport travel times that are competitive with driving, and provides greater access to employment, shops, and services.

The initial public transport service changes would be made using the current bus fleet and by varying the existing operating contracts. The largest changes would be aligned with the new bus operating contracts in 2028 when a fleet of new battery electric articulated buses could be implemented. As demand increases further articulated buses would be brought into the fleet with the remaining diesel buses being replaced as they reach the end of their useful life.

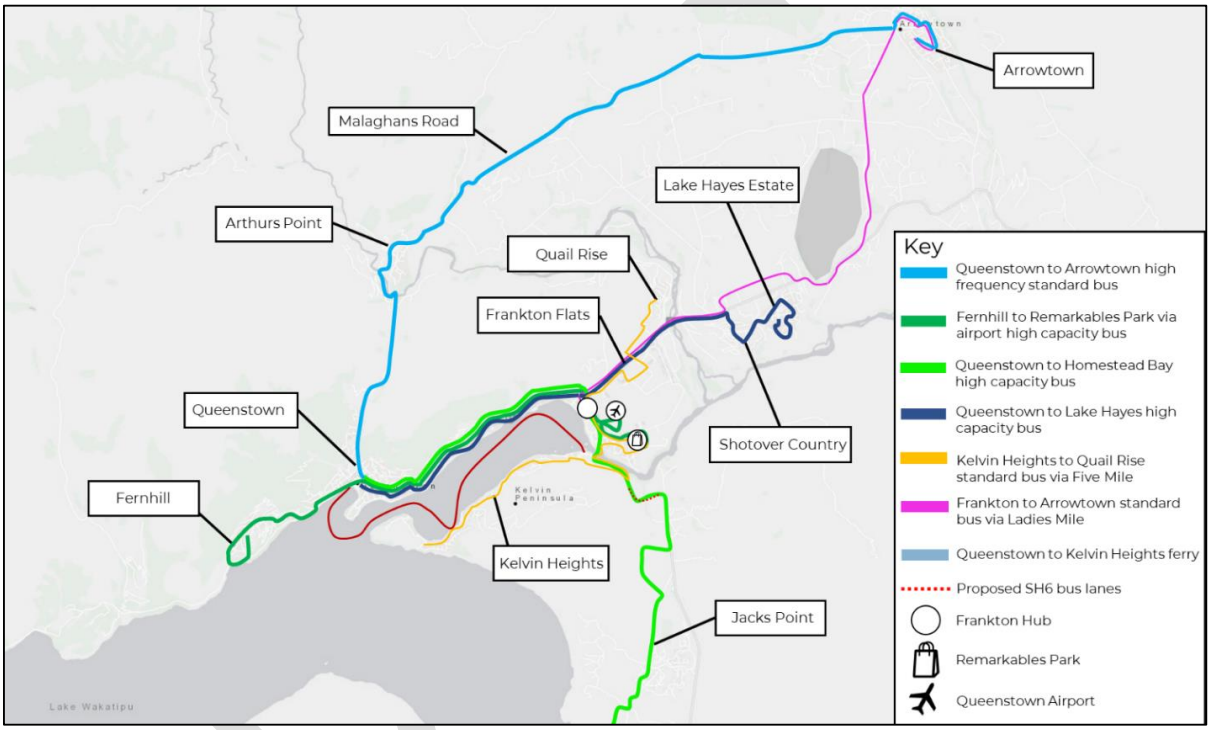

Figure 2-1: Preferred Option, QPTBC

In Scope

The Preferred Option comprises eight core interventions:

- Public Transport Service and Fleet Improvements
- Stanley Street Hub changes
- Frankton Hub changes
- Establishment of a depot for electric buses
- SH6 bus lanes (approximately Kawarau Falls Bridge to William Rees Cottage)
- Local road minor intersection improvements (to accommodate articulated buses)
- Bus stop changes and related infrastructure / signage on local roads
- Bus stop changes and related infrastructure / signage on state highways

Specific detail of the above interventions is provided in the appended Advisory Papers.

It is acknowledged there are limited bus priority interventions in the Preferred Option however these are embedded into the existing NZUP programme in the Do Minimum of this Business Case. The NZUP Queenstown Package commits significant public transport infrastructure investment, and this Business Case is tasked with fulfilling the next step envisioned by the NZUP investment. Nonetheless, it is believed a similar outcome (total package of NZUP plus QPTBC Preferred Option) would have ended up as preferred had this Business Case started from a blank sheet.

Additional Scope

A key finding of the Preferred Option assessment is that the Investment Objective to "maintain a functional network" cannot be fully achieved by the public transport services alone proposed in this Business Case. There are further aspects that, if delivered, will support the success of the investment and drive further mode shift to travel modes other than the private motor vehicle, such as:

- Demand management tools, including promotion, education and travel planning.
- Price based demand management tools, including bus fares and parking/congestion/time of use charges.
- First and last mile improvements for active modes.
- Limiting access via car.
- Infrastructure investment in further improving bus competitiveness beyond NZUP e.g. bus priority at traffic signals.

Additionally, while outside the scope of this business case, an offline public transport system has the potential to drive further uptake in public transport. It is also recommended that the project partners investigate offline public transport options within the next NLTP period.

Out of Scope

Matters out of scope include:

- Structural condition assessments and upgrade of ferry infrastructure (such as wharves)
- Development of a new strategic public transport model
- Detailed planning (e.g. bus stop locations) for new development proposals
- Public transport fare structure

2.2.1 Taking a Staged Approach

The Preferred Option is to stage investment and implementation over time to take the current network to the desired future state by 2039, as summarised in Figure 2-2, with the aim being to increase all routes to a walk out and catch frequency (15min or better). The public transport services have been designed to be able to accommodate the expected increase in demand over the next 30 years through further increases in frequencies (up to 5min).

The transition to electric buses is planned to occur from 2028 when the new bus operator contract commences with the first tranche of battery electric buses being implemented at this point. All buses would be decarbonised by 2035 in line with government policy with the gradual replacement of remaining diesel buses.

The transition from standard to articulated buses will also align with a new bus operator contract (from 2028). The infrastructure changes required before articulated buses can be implemented are modifications to the Stanley Street Bus Hub, Frankton Bus Hub (proposed to occur as part of NZUP), lengthening of idented bus stops and modifications to some intersections.

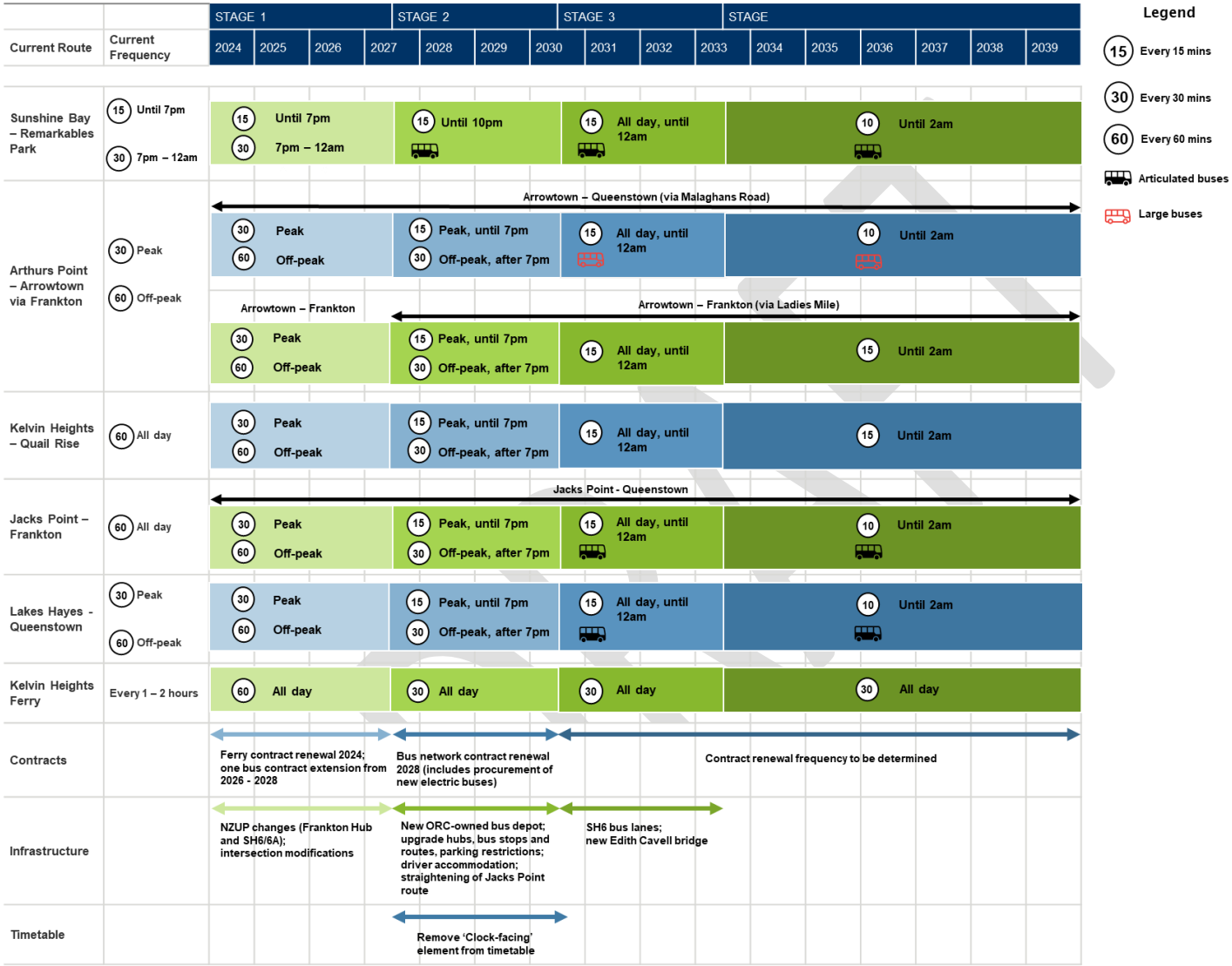

Figure 2-2: Indicative Staging, QPTBC

3 PREFERRED OPTION – ASSESSMENT

This section identifies impacts and outcomes of the proposal in order to fulfil ORC and NZTA requirements for appraisal. In particular, this section assesses the performance of the Preferred Option against three key measures:

- Economic analysis
- Project outcomes evaluation
- Investment prioritisation.

3.1 Preferred Option Economic Analysis

The Preferred Option has been economically evaluated in accordance with the guidance provided within the NZTA Monetised Benefits and Costs Manual (MBCM), 2023. Provided below is a summary of the economic evaluation, this is supplemented by Appendix J – Economic Assessment Methodology.

3.1.1 Assumptions

The core assumptions which have informed the economic analysis are listed below and in Table 3-1.

- 40-year economic evaluation, 2024 to 2063 inclusive.
- Capital expenditure is spent in 2024 and intervention is operational the following year.
- 4% discount rate.

Table 3-1: Economic Evaluation – Assumptions, QPTBC

TIMING	
Earliest implementation date	2024
Expected duration of implementation	One year
ECONOMIC EFFICIENCY	
Time Zero	2024
Base date for Costs and Benefits	2022

3.1.2 Benefits

Table 3-2 provides a summary of the benefits that have been derived through the MBCM procedures, and the primary data sources that were used.

Table 3-2: Economic Evaluation – Benefits, QPTBC

DATA SOURCE	BENEFIT TYPE	MONETISED (MILLION $)
Annualised Crash Costs from TRACKS Network Model Output from Abley.	Impact on social cost of deaths and serious injurie	$54
VEPM Emission Factors. VKT from TRACKS Network Model Output from Abley. MBCM.	Impact of air emissions on health	$39
VEPM Emission Factors. MBCM.	Impact on greenhouse gas emissions	$7

VOC, Congestion, and Travel Time Costs from TRACKS Network Model Output from Abley.	Impact on network productivity and utilisation	$634

3.1.3 Cost Estimates

Capital Costs

A breakdown of the capital cost estimates for the Preferred Option is provided within Table 3-3. Further breakdown of the costs is provided in Appendix K – Cost Estimate Memorandum. The Do Minimum Option is assumed to have no capital cost.

Table 3-3: Economic Evaluation – Capital Cost Estimates, QPTBC

PROGRAMME ELEMENT	CAPITAL COST ESTIMATE
Stanley Street Bus Hub	$890,000
Frankton Bus Hub	$1,547,000
Nine Bus Stop Modifications	$1,134,000
Four Intersection Changes	$511,000
Five Mile and Remarkables Interchanges	$1,211,000
Electric Bus Depot	$58,400,000
SH6 Northbound Bus Lane (Kawarau Falls Bridge to Willian Rees Cottage)	$3,068,000

Maintenance Costs

Maintenance costs are assumed to be the same under both the Do Minimum and Preferred Option.

Operating Costs

A comparison of the annual Public Transport operating estimates for the Do Minimum and Preferred Option is provided within Table 3-4. Further breakdown of the costs is provided in Appendix L – Cost Estimate Memorandum.

Table 3-4: Economic Evaluation – Operating Cost Estimates, QPTBC

PROGRAMME ELEMENT	OPERATING COST ESTIMATE
Do Minimum	$11,130,150
Preferred	$23,618,222

3.1.4 Benefit Cost Ratio (BCR)

The Benefit Cost Ratio for the Preferred Option is estimated to be **2.3**.

Comparison with Earlier Stages

The Queenstown Business Case (2020) reported a BCR of 3.3 for Phase 2 of the recommended programme which includes: *public transport (BRT) services (incrementally rolled out and enabled by the investment already made through the NZUP) and travel behaviour change measures.*

Sensitivity and Risk Analysis

Sensitivity and risk analysis has been carried out to test how sensitive the assessed benefits and costs are to change to demonstrate the robustness of the assessment. The outcomes are presented in Table 3-5.

Table 3-5: Economic Evaluation – Sensitivity and Risk Analysis, QPTBC

SCENARIO	TEST	BCR
3% Discount Rate	3% Discount Rate	2.5
6% Discount Rate	6% Discount Rate	1.9
Capital cost underestimated	Capital Cost +20%	1.9
Capital cost overestimated	Capital Cost -20%	2.4
Benefits overestimated, and costs underestimated	Total benefits -20% and total costs +20%	1.5
Transport modelling benefits overestimated	Crash, air emissions, GHG, travel time, and congestion benefits -20% each	1.6

The sensitivity results demonstrate the Preferred Option represents a value for money investment through achieving a BCR above 1, even under scenarios where discount rates increase.

3.2 Outcomes Evaluation

Table 3-6 provides a summary of how the Preferred Option achieves the Investment Objectives for this Business Case.

Table 3-6: Preferred Option Investment Objectives Assessment, QPTBC

INVESTMENT OBJECTIVE	LTBF MEASURE	ALIGNMENT
Increase public transport patronage and mode share in Queenstown to maintain a functional network		
KPI 1-1: Increased mode share / mode shift from single occupancy private vehicles	8.1.2 Mode shift from single occupancy private vehicles	The preferred option is predicted to increase public transport mode share at all key points (SH6A, Shotover Bridge, and the Kawarau River Bridge). The greatest shift is in the AM peak on SH6A where public transport mode share is predicted to increase from 14% to 34% in 2053. However, this is short of achieving the investment objective of 47% public transport mode share at this location.
KPI 1-2: More reliable journey times for public transport	5.1.1 Punctuality – public transport	The preferred option reduces travel time variability for key public transport services in 2053. For example, the variability for the key Jack's Point to Queenstown service is predicted to reduce from eight to four minutes.
Reduce public transport CO_2 emissions in Queenstown to meet Government policy		
KPI 2-1: Reduce CO_2 emissions	8.1.1 Public transport CO_2 emissions	The preferred option fully decarbonises the public transportation system through the use of battery electric technology.
KPI 2-2: Reduce VKT by 2053	8.1.3 Light vehicle use impacts	The preferred option reduces morning peak period vkt by 4.2%, interpeak by 1.5% and PM peak by 3.3% compared to the do min in 2053.
Increase the number of jobs and social destinations accessible by public transport in line with Queenstown spatial planning		
KPI 3-1: Jobs accessible within 20-minute trip on public transport	10.3.1 Access to key social destinations	The preferred option reduces public transport waiting and travel times and are within 20 min except for the Arrowtown link.
KPI 3-2: Social destinations accessible within 30-minute trip on public transport		The preferred option reduces public transport waiting and travel times and are within 20 min except for the Arrowtown link.

A key finding of the Preferred Option assessment is that the Investment Objective to "maintain a functional network" cannot be fully achieved by the public transport services alone proposed in this Business Case. There are further aspects that, if delivered, will support the success of the investment and drive further mode shift to travel modes other than the private motor vehicle as documented in section 2.2.

3.3 Investment Assessment Profile

Cost Benefit Appraisal

NZTA is required to prioritise investments made through the NLTP and ensure that these investments achieve value for money. The GPS emphasises value for money to maximise the impact of money spent to achieve the Government's strategic priorities.

As shown in section 3.1.4 - Benefit Cost Ratio (BCR), a BCR of 2.3 was estimated for the Preferred Option. This indicates that the benefits of the proposal will provide a return on the expected costs over the life of the investment.

Investment Prioritisation Method Profile

The project has a 2021-24 IPM rating of 2, being **VH/H/M**.

The draft 2024-27 NZTA Investment Prioritisation Method (IPM) was applied to the pre-implementation and implementation phases of this proposal which is a **stage 2** IPM investment decision.

Note: Although a staged approach across multiple NLTP periods is proposed, the assessment has been done against the 2024-27 IPM. It is noted that it is possible that the investment sought may be subject to changes in transport policy.

An initial assessment indicated that this proposal aligns with NZTA policy and is eligible for NLTF funding from the **Public Transport Services**, **Public Transport Infrastructure**, **Local Road Improvements**, and **State Highway Improvements** activity classes (refer to Part C – Financial Case).

Note: As the proposal for improvements to public transport services are considered a step-change to lift levels of service, the proposal has been assessed as an improvement activity rather than a continuous programme.

GPS Alignment

The strategic alignment of the proposal against the six draft GPS 2024 strategic priorities is as follows:

- *Maintaining and operating the system:* not applicable. The proposal is not looking to address a level of service gap in the network through a maintenance-based intervention.
- *Increasing resilience:* **MEDIUM**. The proposal aligns with Action 8.6 (Invest in public transport and active transport) of the National Adaptation Plan: *Investment in multi-modal infrastructure can increase the resilience of the transport system and help manage the vulnerability of existing assets. More use of public transport and active modes will help reduce reliance on private vehicles. It will increase system redundancy, improve equity and support sustainable growth. Safe and attractive alternatives to driving create a more resilient transport system, support sustainable growth and reduce emissions.*
- *Reducing emissions:* **MEDIUM**. The proposal reduces CO_2 equivalent vehicle emissions for public transport vehicles by 100 percent through a transition to zero emission vehicles. The proposal estimates a 2.3 percent reduction in light vehicle VKT for all trips in the Whakatipu Basin.
- *Safety:* not applicable. The proposal is not looking to directly address risk corridors and intersections to achieve a reduction in deaths and serious injuries, however it is likely that there may be some transport safety benefits from increasing public transport services because of an implied reduction in light vehicle VKT.

- *Sustainable urban and regional development:* **HIGH**. This project addresses high priority access focused issues required to achieve agreed integrated land use and multi-modal plans. The emphasis is on reducing reliance on private cars and providing better travel options via public transport. The proposal reduces public transport wait and travel times, with most PT journeys under 20 minutes.
- *Integrated freight systems:* not applicable. The project does not explicitly seek to address this GPS priority. However, it is likely that there may be some freight benefits from increasing public transport services because of a reduction in light vehicle VKT.

The proposal shows strong multi-outcome alignment, and therefore has been assessed as a **HIGH** draft GPS alignment.

Scheduling

- *Criticality:*

  Given the rapid pace of growth in the Whakatipu Basin, the need for significant investment in public transport has never been more critical in Queenstown. Without investment in NLTP 2024-27, there will be significant challenges to maintain an efficient and productive transport network in Queenstown.

  The proposal aligns with the Minister's expectations in draft GPS 2024 which states that growth in the capacity, frequency and quality of public transport services are critical to our future.

  In addition, the ability of the proposal to help accelerate and deliver on the VKT reduction plan to achieve regional and national strategic priorities also cannot be understated.

- *Interdependency:*

  The proposal is part of the overall Queenstown Business Case recommended programme and non-delivery in the 2024-27 NLTP would significantly impact and delay the realisation of other parts of the programme. This includes the Crown infrastructure investment made through the NZUP funding.

  Taking a wider programme perspective, there is significant investment in the Do Minimum that will likely struggle to fully realise benefits without improvements to the public transport services, i.e bus lanes with few buses. This means there is risk of the NZUP investment being underutilised if this QPTBC is not progressed. This Business Case both maximises existing investment and relies upon it to make this investment in public transport services worthwhile.

The proposal therefore has been assessed as a **HIGH** rating for both criticality and interdependency. This is because the timing to deliver these activities and their importance to realising the benefits of the integrated package require immediate and sustained effort to deliver the component part, so the Queenstown programme as a whole can be delivered at the pace required.

Efficiency

The proposal has a BCR of 2.3 and therefore an efficiency rating of **LOW**.

Overall Ranking

Applying the draft 2024-27 IPM prioritisation matrix with **H** for GPS alignment, **H** for Scheduling, and **L** for Efficiency, this proposal has an overall investment priority score of **2**.

[31] **Picture source:** Orbus Queenstown

QUEENSTOWN PUBLIC TRANSPORT BUSINESS CASE

Part C – Monitoring and Delivery

19 DECEMBER 2023

VERSION 0.2

WAKA KOTAHI NZ TRANSPORT AGENCY | QUEENSTOWN LAKES DISTRICT COUNCIL | Otago Regional Council | WAY TO GO

Document Version History

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Document Review

ROLE	NAME	REVIEW STATUS
Head of Transport Planning and Advisory	Eric Whitfield	Draft
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1 Table of Contents

Glossary of Terms

ABBREVIATION	TERM
AADT	Annual Average Daily Traffic
AST	Appraisal Summary Table
BCR	Benefit Cost Ratio
CSF	Critical Success Factor
FAR	Funding Assistance Rate
FY	Financial Year
GDP	Gross Domestic Product
GHG	Greenhouse gases
GPS	Government Policy Statement on Land Transport
ILM	Investment Logic Map
IO	Investment Objective
IQA	Investment Quality Assurance
KPI	Key Performance Indicator
MCA	Multi-Criteria Analysis
MoE	Ministry of Education
MoT	Ministry of Transport
NLTP	National Land Transport Programme
NZ	New Zealand
NZUP	New Zealand Upgrade Programme
NZTA	New Zealand Transport Agency Waka Kotahi
ORC	Otago Regional Council
PAX	Passenger
PBC	Programme Business Case
PT	Public transport
QLDC	Queenstown Lakes District Council
QPTBC	Queenstown Public Transport Business Case
QTBC	Queenstown Transport Business Case
RLTP	Regional Land Transport Plan
RPTP	Regional Public Transport Plan
SH6	State Highway 6
SH6A	State Highway 6A
SOV	Single occupancy vehicle
SSBC	Single Stage Business Case
TDM	Travel Demand Management
VKT	Vehicle kilometres travelled
W2G	Way to Go Partnership

2 COMMERCIAL CASE

2.1 Purpose

The purpose of this Commercial Case is to provide decision-makers with appropriate assurance of the deliverability of the commercial elements of the preferred option. This includes:

- Procurement pathway
- Implementation pathway
- Consenting and property

2.2 Procurement Pathway

Currently, ORC contracts out the operation of public transport services to private transport operators, in accordance with the Public Transport Operating Model (PTOM). There are three units (groups of services) within Queenstown which are as follows:

Table 2-1: Public transport operating contracts from Otago Regional Public Transport Plan

Unit	Description	Contract Start Date	Contract End Date
6	Queenstown Airport to Fernhill; Jack's Point to Arrowtown	18 September 2017	19 November 2028
7	Arrowtown to Arthur's Point; Lake Hayes to Queenstown; Kelvin Heights to Frankton Flats	18 September 2017	19 November 2026
8	Trial Frankton Arm to Queenstown Bay ferry service	18 September 2017	30 June 2024

Units 6 and 7 were awarded to Ritchies which operates out of a depot in Frankton. Unit 8 is operated by Go Orange, whose parent company is Real NZ.

The current roles and functions for the provision of public transport services in Queenstown is shown in the following table:

Table 2-2: Organisation roles and functions in Queenstown's public transport network

Organisation	Role	Functions
Otago Regional Council	Procuring organisation	• Network planning • Procuring services • Funding partner • Monitoring services • Marketing
Queenstown Lakes District Council	Road controlling authority	• Provision of bus stops and bus priority on local roads • Funding partner

NZTA Waka Kotahi	Road controlling authority and regulator	• Provision of bus stops and bus priority on the state highway network • Funding partner • Regulation of vehicles including buses
Ritchies and Go Orange	Transport operators	• Provision of services • Employment of operational staff • Owners of fleet • Owners of depot

PTOM was replaced by the Sustainable Public Transport Framework (SPTF) in August 2022 and is required for the next round of public transport contract tenders. The SPTF supports a more holistic approach to providing public transport, focusing on improving services to support environmental and health outcomes, and fairer treatment of employees.

Future ownership and operating model options available under the SPTF were discussed with Way to Go (W2G) partners at a workshop on 18 August 2023.

Five options were considered:

- Full privatisation of depot and fleet
- Status quo
- Third-party ownership of assets
- Public ownership of assets
- Council-controlled organisation

The preferred option is for public ownership of the bus depot and for bus operators to retain ownership of the fleet and continue to run the services. If public ownership of the bus depot is not supported, then third-party (investor) ownership of the bus depot should be explored.

The reason for recommending public ownership of the bus depot is that there is limited industrial-zoned land in Queenstown that is of sufficient size to serve as a bus depot. This means that securing a site large enough for a bus depot would be an expensive and time-consuming process and likely be beyond bus operators' financial capability. Another important factor is the significant investment in battery electric bus charging infrastructure and associated power connection. Public ownership or third-party ownership would allow the investment in charging infrastructure and power connection to be protected and transferred to the next operator at the end of a contract term.

Procurement

It is recommended that the contract for Unit 7 be extended to match the completion date of Unit 6 – 19 November 2028. The purpose of this is to align the end dates of units 6 and 7 so that all bus services in Queenstown could be tendered as one combined unit. The combined unit is also recommended to include urban school bus services provided by ORC. It is considered that a combined unit would contribute to a more competitive tendering process as the larger contract size would be more attractive to new operators.

MoE has informed ORC that some of the school buses which it contracts in Queenstown no longer meets its eligibility policy. Therefore, it has been assumed that as a stop gap measure ORC would pickup the school bus contracts either with the current operator. It is intended that a review of school bus services within the Whakatipu Basin is completed by ORC before the new combined bus

contract is let. The purpose of the review is to identify any gaps in services, any duplication with the preferred bus network and any capacity issues. The reviewed school bus timetables would then be included in the new combined bus contract and implemented with the roll out of the new bus network.

It is recommended that ORC completes an advance notice to potential suppliers to inform bus operators of the future procurement opportunities. The reason for advance notice is to inform bus operators not in Queenstown of the upcoming contract tendering and that the level of public transport services is planned to significantly increase. Furthermore, the advance notice would provide bus operators with the opportunity to engage with bus manufacturers on options with the type of fleet requested (battery electric articulated and standard buses).

The next step would be a request for information that would be used by ORC to gauge interest in the contracts and the market capacity to deliver the services. This step would be especially important if public ownership of the bus depot is not progressed as then bus operators would need to secure a depot site.

The final procurement step would be a request for proposal where suppliers are formally asked to propose how they would achieve the outcomes sought and their prices for operating the services. Due to Queenstown's unique labour market (large tourism, hospitality and construction industries relative to population size) it is recommended that a high weighting is given to bus operators strategy and track record for hiring and retaining drivers.

At the time of writing this business case, there had been significant wait times for the delivery of new electric buses due to disrupted supply chains and high demand. Wait times of 12 months for standard battery electric buses and 18 months for bespoke battery electric buses (such as articulated buses). Therefore, it is recommended that sufficient time is provided to the successful tenderer to develop fleet specifications, engage with bus manufacturers, place an order and for the buses to be delivered before commencing the new contracts.

With regards to on-demand services, it is recommended that this is a separate unit from the bus services but is tendered at the same time as the bus unit. This is because on-demand service can be operated by a range of different types of companies, including taxi companies, bus operators and specialist on-demand providers. On-demand services also have specific system requirements for the booking of trips and dynamic route planning, which is different from the requirements for delivering bus services. Tendering simultaneously with the bus unit would allow bus operators to choose whether to also bid for the on-demand unit or just for the bus unit.

Implementation Strategy

It is anticipated that Queenstown's new public transport network will be delivered in stages every three years in accordance with National Land Transport Fund (NLTF) three-year periods.

Stage 1: 2024-2027

- Introduction of Arrowtown to Queenstown route via Malaghans Road
- Extension of Jack's Point service from Frankton to Queenstown
- Increased frequency of Kelvin Heights to Quail Rise and Jack's Point services to 30 minutes at peak times
- Renewal of ferry operator contract
- Increase the frequency of ferry services to be hourly
- Extension of Unit 7 contract until 2028

Concurrently, the New Zealand Upgrade Programme (NZUP) project will be under construction. This will result in an upgraded bus interchange in Frankton and bus lanes on SH6. The implementation of the Arrowtown to Queenstown via Malaghans Road route will allow some buses to avoid the expected congestion at the BP roundabout.

For the stage 1 improvements, ORC will work with the existing bus operator (Ritchies) to implement the service enhancements within the constraints of the existing depot, fleet, and driver numbers. Depending on how the current bus services have been scheduled, extending and increasing the frequency of the Jack's Point route may result in a small increase in peak vehicle requirements. It is recommended that ORC engage with Ritchies to discuss varying the existing contracts and transferring additional fleets and drivers (if required) from operations elsewhere in New Zealand. As with all negotiated contract variations, there is the risk that the best possible price might not be achieved; however, the potential for extending unit 7 contract to 2028 should act as an incentive for the operator.

Stage 2: 2027-2030

- Introduction of Arrowtown to Frankton route via Ladies Mile
- Increase the frequency of the Sunshine Bay to Remarkables Park to 15 minutes throughout the day
- Increase the frequency of other bus routes to 15 minutes peak and 30 minutes off peak
- Increase frequency of the ferry service to 30 minutes throughout the day
- Implementation of six articulated buses (plus spares) on core routes
- Implementation of the first tranche of electric buses (number will depend on when existing buses are coming to end of life)
- New bus operator contract from November 2028
- Infrastructure upgrades to the bus hub at Stanley Street and Frankton
- Infrastructure upgrades to bus stops to accommodate articulated buses
- New bus depot (owned by ORC or a third party)
- Straightening of Jack's Point service once the Jack's Point to Hanley Farm link road is complete
- Amending the Kelvin Heights to Quail Rise route once new Quail Rise to SH6 link road is complete
- Remove the 'clock-facing' element of the timetable and replace it with frequent connections

The new bus operating contracts in 2028 provide the opportunity to implement a new fleet and to increase service frequencies to walk out and catch on core routes. The 2027-2030 period would provide the step change in public transport service frequency and capacity that would attract new ridership. It is envisaged that articulated buses would be battery electric, with midlife standard diesel buses being used on secondary routes and school routes. As diesel buses reach the end of their useful life, they will be replaced with battery-electric buses.

Stage 3: 2030-2039

- Increase frequencies on all routes to 15 minutes all-day
- Increase span of Sunshine Bay to Remarkables Park to 4am to midnight to accommodate airport workers
- Increase the span of other bus services to 6am to midnight
- Implementation of additional 18 articulated buses (plus spares) for the Lakes Hayes to Queenstown and Jack's Point to Sunshine Bay routes
- Ongoing replacement of diesel buses with electric buses
- Implementation of bus lanes on SH6 south of Kawarau Falls Bridge
- Replacement of Edith Cavell Road bridge with a new two-lane bridge

The increases in service frequencies and span after 2028 would involve the varying of the new contract. It is recommended that a planned increase in peak vehicle requirements is contained in either a contract provision or a memorandum of understanding with the operator. This will make it easier to increase service frequencies as the operator is better able to manage their fleet as they have a long-term view of fleet numbers.

2.3 Property Strategy

The proposed electric bus depot will require the procurement of additional property. Other elements of the preferred option are expected to be accommodated within the existing road reserve. Accordingly, this section focusses on the proposed bus depot.

A new bus depot is necessary to house the larger bus fleet, which is needed to operate the new public transport network. The current bus depot on Glenda Drive is space-constrained and is not large enough for the number or size of buses required in the future. The bus depot is also where battery electric buses would be charged and therefore requires a high voltage power connection and secondary substation to provide sufficient power. Because of the limited availability of industrial zoned sites in Queenstown and the high cost of providing the charging infrastructure, it is recommended that ORC owns the bus depot. Public ownership of the bus depot would remove a significant barrier to entry for new bus operators, making the contract tendering more competitive. Public ownership is an ownership model enabled under the Sustainable Public Transport Framework with other councils in New Zealand perusing public ownership.

It is envisaged that on-demand vehicles would either be housed at the bus depot if both the bus and on-demand contracts are awarded to a bus company. If the bus and on-demand contracts go to different providers, then it is considered that the private market can provide a suitable depot for on-demand services. This is because the space required to house the on-demand vehicles is much smaller, and the power demand could be accommodated using the low-voltage power network.

Advisory Paper 5 – Public Transport Hubs and Infrastructure outlines the requirements for a bus depot and the best areas to locate a bus depot based on operational and urban planning criteria. This paper identified that a bus depot that could accommodate up to 56 articulated buses and seven standard buses would be required. Including the footprint required for electric charging, cleaning and maintenance, car parking and office space, it was estimated that just over 10,000m^2 would be required.

Frankton and Coneburn were identified as the most suitable locations for a bus depot, with the preferred location being Frankton. The criteria used to assess locations were:

- Number of flat, square(ish) sites of over 8,000m^2
- Number of undeveloped sites over 8,000m^2
- Complexity in providing sufficient power connection
- Distance to bus route termini

The 95th percentile capital cost estimate for the construction of a new electric bus depot is $54.4 million. This includes consultancy fees, management costs, construction of yard and office/ maintenance building and contingencies. Property costs depend on the on the location of the depot, an estimate based on average ratings values for commercial sites in Frankton gives $14 million for a 10,000m^2 site. Sites in Coneburn are likely to be cheaper however would have higher operating costs from longer dead runs.

Initial assessments of potential sites found no industrial zoned sites large enough to accommodate the new bus depot within Frankton. Therefore, utilising a site zoned for commercial uses, such as at Hawthorne Drive, and applying for resource consent would be more feasible. Another option would be to locate the site at Coneburn, which has larger industrial zoned sites and is currently in the land development stage so has greater availability of sites.

Once the business case has been endorsed by partners and the preferred ownership model for the bus depot has been confirmed, the next steps to identify a preferred location would be:

- Engage with Aurora early in the process to confirm electric grid capacity and plan high voltage power connection.
- Engage with landowners in Frankton and Coneburn on timeframes for subdivision and willingness to sell. Consider lease of land only if a long-term lease can be secured as a large investment in site improvements would be required to develop a depot.
- Engage with current and potential bus operators on their requirements for a depot.
- Undertake due diligence on preferred sites that investigates the cost of development and consenting risks.

It is also recommended to engage with Queenstown Airport regarding a potential long-term lease of Airport land for the depot, particularly currently undeveloped land off Hawthorne Drive on the north side of the runway. The advantages of leasing land from the Airport are that it would lower the upfront costs and would provide access to a centrally located site. The disadvantage of a lease arrangement is that it is more difficult to protect the investment in site improvements without favourable lease terms. If the lease arrangement was for a long timeframe (18 plus years) and aligned with the end date of the contract (2046 assuming two nine-year contracts), then a leased site could be suitable.

2.4 Consenting

This business case is for the investment into public transport services and associated infrastructure including bus hub upgrades, intersection upgrades, bus lanes and an electric bus depot. The provision of public transport services themselves is not expected to trigger the need for consents. The highest risk activity from a consenting perspective is the new electric bus depot and accordingly this section focuses on the depot. Consenting plans for supporting activities (such as local intersection changes and the southern corridor bus lane) will be developed alongside the technical assessments of those activities.

An initial planning analysis was undertaken for the bus depot. This is described in Advisory Paper 5 – Public Transport Hubs and Infrastructure and summarised here. The paper concludes that establishing a bus depot and ancillary offices at Frankton and Coneburn would be reasonably straightforward. A resource consent is required for the buildings.

QLDC currently has two district plans; the Operative Queenstown Lakes District Plan (ODP) and the Proposed Queenstown Lakes District Plan (PDP). The activity of a bus depot does not fit neatly into the definitions of the ODP or PDP, as it is a bespoke activity. It is considered that the best fit for a bus depot is a 'Service Activity', which is defined as the:

'…use of land and buildings for the primary purpose of the transport, storage, maintenance, or repair of goods.'

The assessment considers three possible locations for a bus depot; Coneburn Industrial Zone, Frankton Flats B Zone and Remarkables Park. To help alleviate the bus driver shortage in an expensive district such as Queenstown Lakes, the provision of driver accommodation at the bus depot is an option that has been considered. This would complicate the consenting process as it would require a residential activity being consented to in an industrial zone. In both locations, driver accommodation could be accommodated nearby as a preferable option.

2.4.1 Coneburn Industrial Zone

Coneburn is located along the southern growth corridor opposite SH6 of Jack's Point and Hanley's Farm residential developments. The PDP identifies the Coneburn Industrial Zone as:

"The Coneburn Industrial Zone provides for industrial and service activities. Conversely, standalone offices, residential and almost all retail uses are excluded within the zone in order to ensure that it does not become a mixed use zone where reverse sensitivity issues and land values make industrial and service activities unviable within the zone."

A bus depot would be permitted in the Coneburn Industrial Zone. Coneburn is not the preferred location because of the distance between Coneburn and the start/end of most proposed routes. However, it is an adequate alternative option if suitable land in Frankton is not available.

2.4.2 Frankton Flats B Zone (North of Airport)

The Frankton Flats B Zone has been excluded from the PDP. This zone has been split into six Activity Areas, as shown in Figure 2-1.

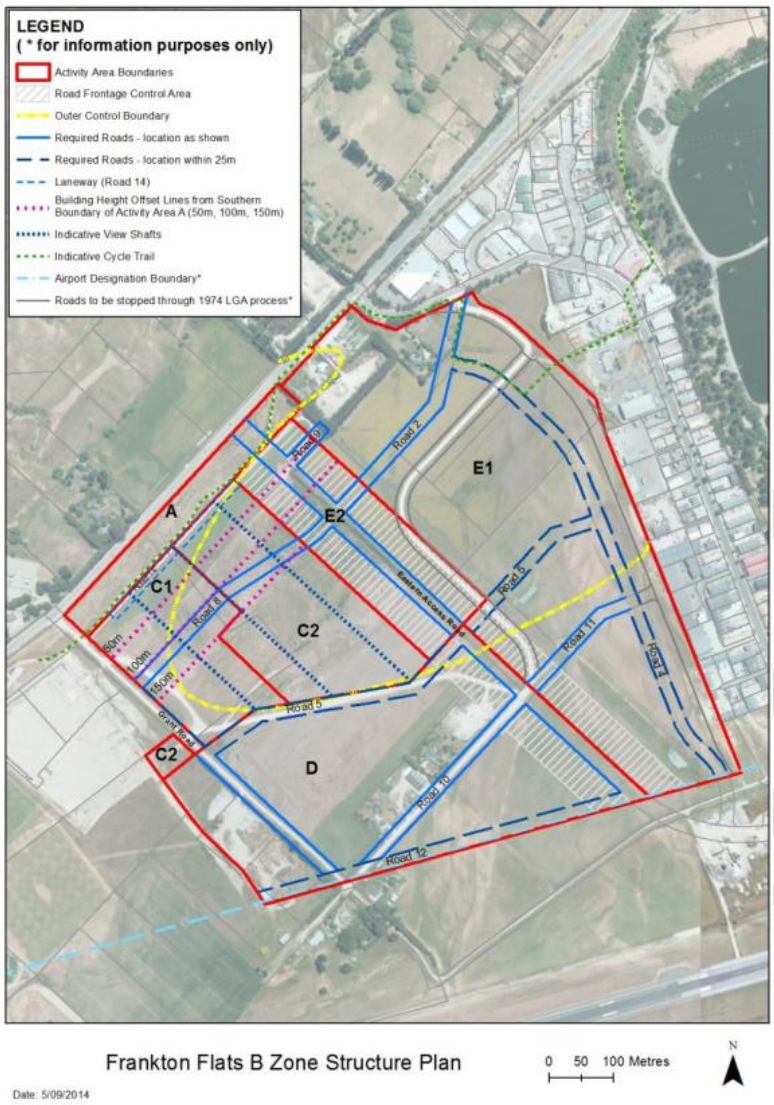

Figure 2-1: Frankton Flats B Zone Structure Plan

Table 2-3 shows the Activity Status for each of these six zones. Areas D and E1 are the most promising options for a bus depot.

Table 2-3: Frankton Flats B Zone Activity Status

Activity	Activity Area					
	A	C1	C2	D	E1	E2
Industrial Activities, Service Activities (including ancillary retail activities)	PRO	N-C	N-C	PER	PER	N-C
Offices Ancillary to and Permitted or Controlled Activity	PRO	PER	PER	PER	PER	PER
Residential Activities and Home Occupations located at ground floor*	PRO	NC where adjoining road 8, otherwise PER	PER	PRO	PRO	PRO

Residential Activities and Home Occupations located on levels other than ground floor	PRO	PER	PER	PRO	N-C	N-C
Activities Sensitive to Aircraft Noise within the Outer Control Boundary (OCB) as shown on the Structure Plan	PRO	PRO	PRO	PRO	PRO	PRO

PER= permitted; N-C = noncomplying; PRO - prohibited

Frankton is the preferred location for a bus depot due to its proximity to the start/end of most proposed bus routes and workforce.

2.4.3 Remarkables Park Special Zone

The Remarkables Park Special Zone is split into 10 Activity Areas. Service Activities, such as a bus depot, are prohibited in each of these areas.

2.5 Market capacity and capability assessment

2.5.1 Operation of proposed bus network

Private bus operators will continue to have responsibility for operating the bus network, including ownership of the required bus fleet and recruiting bus drivers, according to requirements set out in contracts with ORC. It is anticipated that just one operator will be required to operate Queenstown's bus network under one contract.

There are several bus operators in New Zealand which have the experience and capabilities to operate a network of the size planned for Queenstown. Table 2-4 provides an overview of the main bus companies and the types of services that they operate.

Table 2-4: Main urban bus public transport providers in NZ

Operator	Existing contracts	Fleet type	Propulsion type
Ritchies	Auckland Transport (including Northern Express) Otago Regional Council (including Queenstown) Environment Canterbury	Mixture of double deck and single deck buses	Mixture of electric and diesel powered
Tranzurban (owned by Tranzit Group)	Metlink Wellington (60% of Wellington's bus network) Manawatu, Whanganui, and Taranaki	Mixture of double deck and single deck buses	Mixture of electric and diesel powered
Kinetic	Auckland Transport Environment Canterbury Hawkes Bay Regional Council Otago Regional Council Metlink Wellington	Mixture of double deck and single deck buses	Mixture of electric and diesel powered

The preferred Queenstown public transport network utilises a fleet of battery electric standard and articulated buses. Articulated buses are uncommon in New Zealand however Metlink has committed to implementing articulated buses on route 2 in Wellington. It is expected that additional driver training will be required to enable the operation of articulated buses to account for the greater length of the vehicle. It is recommended that the modifications to bus stop,

intersections and bus hubs are scheduled for completion at least three months before the start date of the new contracts to allow time for on the road driver training. All main operators are experienced in operating battery electric buses therefore it is expected that cross company knowledge sharing would aid in the transition to battery electric buses in Queenstown.

From a service delivery perspective, there is high confidence in the capacity of the market to operate the planned services and procure the required fleet. Recruiting and retaining bus drivers in Queenstown may be more challenging and is discussed in in the Ownership and Operating model advisory paper.

2.5.2 Bus depot

A new, publicly-owned, bus depot will be a large and complex project that is on the critical path for the new contracts, the transition to battery electric buses and the implementation of articulated buses. The steps involved are to:

- Confirm ownership approach
- Procure site
- Design and consenting
- Construction
- Establish management system

A large infrastructure project such as this is not business-as-usual for ORC. Therefore the recommended approach to delivering the bus depot is to bring in external skills and experience with ORC maintaining oversight of the project. If third party ownership of the bus depot is the preferred ownership model then a private company would be responsible for delivering the depot with ORC having a coordination role. As previously discussed, it is not considered financially viable for bus operators to establish an electric bus depot of the size necessary. At this stage of assessment it is expected that all charging would occur that the depot and that opportunity charging on the road would not be required.

2.5.3 Timetabling and contract changes

The key steps involved in developing the new timetables are:

- Detailed timetabling (determining exact departure times, journey times, intermediate times)
- Detailed route design and installing bus stops along sections of road which do not currently have a bus service
- Public consultation on the service changes
- Incorporating the timetables and routes for both public and school services into the new contracts

This is business-as-usual for Otago Regional Council. While some consultant resources may be required to assist, there is high confidence in the capacity and capability to deliver timetable and contract changes.

2.5.4 Infrastructure changes

The next step for the proposed bus lanes on SH6 south of Kawarau Falls is a Single Stage Business Case in which further design work would be completed. NZTA has the internal expertise in managing business case processes and there is capacity within the engineering sector to complete the design work and documentation.

Other infrastructure changes will be required to be programmed into the Low-Cost Low-Risk programmes of QLDC and NZTA. The infrastructure changes required to bus stops and to accommodate articulated buses are relatively simple for road controlling authorities.

3 FINANCIAL CASE

3.1 Purpose

The Financial Case demonstrates the project's funding implications and affordability. This includes:

- Project costs;
- Funding options; and
- Financial risk.

Further details on funding models and options are included in Advisory Paper 9 – Sustainable Funding Model.

3.2 Approach and Assumptions

The capex cost estimates have been developed following NZTA SM014 guidance to the IBC level. Costs for future stages have been provided in real terms, Q3 2023 New Zealand dollars.

The scope of the QPTBC does not include design work other than concept designs for Stanley Street and Frankton bus hubs. As such, the cost estimates have been completed based on markups of the infrastructure changes and cost at a high level with large contingencies being applied. Cost estimates for lengthening indented bus stops were completed by costing one site and then multiplying this figure by the number of indented bus stops in Queenstown. The proposed intersection modifications were informed by tracking a 19m long articulated bus along the core bus routes in Autocad to identify locations where turns were not possible. Since the state highway network is designed to accommodate trucks, all intersection modifications are in the local road network in Lake Hayes, Jacks Point and Hanley Farm. The SH6 southern corridor bus lane has had a further assessment, which is contained in the Queenstown Southern Corridor Public Transport Priority Feasibility report for RCL Homestead Bay Ltd.

3.2.1 Quality Assurance

An external peer review of the OPEX and CAPEX estimates was commissioned by ORC and completed in December 2023. Following the external review, the OPEX and CAPEX estimates were updated. The estimates presented in this Financial Case use the reviewed figures. Key changes following the OPEX review include:

- Reduce operating speeds to be 20kmph at peak and 25kmph off-peak, which results in an increase in the peak vehicle requirement and service hours
- Decrease the payback period for fleet to seven years rather than ten years
- Reduce the spares ratio from 20% to 10%

3.2.2 Risks and Contingencies

The cost estimation reflects the current IBC level of detail for the public transport services and supporting infrastructure. For capital expenditure, a 40% base estimate contingency and a further 30% base estimate contingency were used to provide the P95 cost estimate. This approach provides a 70% contingency on delivery phase CAPEX.

For the operating cost estimates, the unit prices (in service kilometres, in service hours and peak vehicle requirement) were calibrated based on the current bus contract value. For the future year, forecasts of the in-service kilometres come from GIS map measurements and in-service hours from typical bus operating speeds. The same unit prices from the 2023 base year were applied to the future year forecasts which is considered to be a conservative approach.

3.2.3 Capital Costs

The largest capital cost within the programme is the new electric bus depot at $58.4M plus land costs. The high capital cost is due to the cost of bus chargers, high voltage power connection, office building and maintenance building. The next highest cost is the northbound bus lane on the southern corridor at $3.1M, which would be NZTA led and could attract developer contributions. The changes to the Frankton Bus Hub to accommodate articulated buses are planned to occur as part of NZUP, with the $1.5M being incremental costs from the NZUP design. QLDC's lead capital projects would be the local bus stop modifications at $1.1M (except for stops on state highways), intersection modifications at $0.5M, and Five Mile and Remarkables Park interchanges at $1.2M. It is envisaged that the QLDC capital projects would be part of the 2024-27 Low-Cost Low-Risk Programme.

Table 3-1: Capital Cost Estimates (P95), QPTBC

PROGRAMME ELEMENT	CAPITAL COST ESTIMATE	LEAD ORGANISATION
Stanley Street Bus Hub	$890,000	NZTA
Frankton Bus Hub	$1,547,000	NZTA / QLDC / ORC
Bus Stop Modifications	$1,134,000	QLDC / NZTA
Four Intersection Changes	$511,000	QLDC
Five Mile and Remarkables Interchange	$1,211,000	QLDC
Bus Depot	$58,400,000	ORC
Northbound Bus Lane	$3,068,000	NZTA

3.2.4 Operating Costs

An increase in service frequencies, span and longer routes means that the operating costs for the preferred public transport network are greater than the do minimum. The use of articulated buses reduces operating costs compared to running the network with standard-sized buses, as fewer buses and drivers are required. The operating costs would fall under the public transport continuous programme NLTP activity class as there is no fixed end date for the activity.

Table 3-2: Economic Evaluation – Operating Cost Estimates, QPTBC

PROGRAMME ELEMENT	OPERATING COST ESTIMATE IN 2053
Do Minimum	$11,130,150
Preferred	$23,618,222

3.2.5 Summary of Interventions

The table on the following page summarises the recommended interventions from the QPTBC, which includes both the public transport programme and public transport improvements. The table includes a lead organisation, the indicative cost and the National Land Transport Programme (NLTP) period for implementation.

Table 3-3: Interventions

ELEMENT	LEAD ORGANISATION	DEPENDENCIES	TRIGGER POINT	ACTIVITY CLASS	INDICATIVE COST[1]	PROGRAMME STATUS	NLTP PERIOD FOR IMPLEMENTATION
Public Transport Services Improvements	ORC	Timing of existing PT contracts	Contract renewals. Demand triggers for PT service improvements	**Public transport continuous programmes** WC 511: Passenger services - bus	$23.6M / per year (2053)	Recommended option – funding approval required	2024-27+ / Ongoing
Stanley Street hub interim changes[2]	NZTA	Interim improvements to Stanley Street hub to accommodate articulated buses, ahead of Queenstown town centre upgrades	Needed for shift to articulated buses before 2028	**Public transport improvements** WC 532: Low-cost, low-risk public transport improvements	$0.9M	Recommended option – funding approval required	2024-27
Frankton hub changes[3]	NZTA / QLDC / ORC	Timing of NZUP improvements. Modify NZUP design to accommodate articulated buses	Needed for shift to articulated buses before 2028	**Public transport improvements** WC 532: Low-cost, low-risk public transport improvements	$1.5M	NZUP	2024-27
Electric bus depot	ORC	Timing of existing PT services contracts. Existing depot not large enough / equipped to service electric buses	Shift to electric buses plus PT services improvements	**Public transport improvements** WC 561: Passenger facilities and infrastructure improvements - bus	$58.4M plus $14M land	Recommended option – funding approval required	2024-27
SH6 bus lane – Kawarau Falls Bridge to William Rees Cottage	NZTA	SH6 active travel project	Demand trigger related to growth on southern corridor	**Public transport improvements** WC 561: Passenger facilities and infrastructure improvements - bus	$3.1M	Recommended option – funding approval required	TBC - 2027-30
Local road intersection[4] improvements (to accommodate articulated buses)	QLDC	Proposed PT service improvements	Needed for shift to articulated buses before 2028	**Local road and state highway improvements** WC341: Low-cost, low-risk improvements	$0.5M	Recommended option – funding approval required	2024-27
Bus stop changes and related infrastructure / signage on local roads	QLDC (local roads) / NZTA (state highway)	Proposed PT service improvements	Needed for shift to articulated buses before 2028	**Public transport improvements** WC 532: Low-cost, low-risk public transport improvements	$1.1M	Recommended option – funding approval required	2024-27

[1] Indicative high level cost (95th percentile). Not based on design. Assumes NZUP is in place
[2] Interim option to be developed ahead of town centre upgrade, inc bay lengthening, shelters, signage
[3] Assumes incremental difference on top of NZUP design
[4] Sylvan/Howards, Sylvan/Hope, Rare/Acheron, Jack's Point/Maori Jack

3.3 Funding Options

3.3.1 Current Funding Model

Public transport services are funded from a combination of fare revenue, regional council rates, and fuel excise duty. The current funding mix for ORC (including Dunedin and Queenstown) is 31 percent rates and charges, 41 percent fuel excise duty and 28 percent from fares. Some parking revenue also supports public transport.

Public transport fares in Queenstown have a flat structure where all trips are charged the same fare regardless of distance. Fares are reduced (by at least half) by using a Bee Card.

Public transport infrastructure such as bus stops and shelters are usually funded through the territorial authority. In Queenstown, $0.5 - $1 million per year is budgeted for bus infrastructure improvements. Transport capital works are normally funded through a 49 percent local share and 51 percent from the NLTP.

3.3.2 Proposed Services Funding Requirements

The operating costs would continue to be ORC's responsibility. By 2039, the operating cost estimate is expected to be $14.3 million, and $23.6 million by 2053. The new network is expected to increase revenue share by 2039 through increasing patronage, increasing the share of operating costs covered by fares. It is assumed that fares will increase with inflation over time.

3.3.3 Capital Costs

A suitably-sized electric bus depot in Queenstown will likely be beyond bus operators' financial means. It is recommended that ORC develops and owns a new electric bus depot to accommodate the increase in fleet size and the transition to electric buses. The depot, like most other infrastructure projects, could be funded through debt with there being a saving on contract values compared to if the debt was privately owned. Another approach is for ORC to partner with a private infrastructure investor (such as a Kiwisaver funds) who would develop the depot and lease it to bus operators.

Capital costs relating to the upgrade of infrastructure on local roads borne lead by QLDC and is eligible for funding assistance through the Low-Cost Low-Risk activity class. The bus lane south of the Kawarau Falls bridge could be funded by NZTA through the NLTP and developer contributions from the southern growth area.

3.3.4 Potential Alternative Funding Models

The business case also considered alternative funding models which are documented in the Sustainable Funding Model Advisory Paper. These options are summarised in Table 3-4 below the alternative funding sources with the most potential are congestion charging and developer contributions. Congestion charging would help to achieve the mode shift target required to maintain a functional strategic road network and provide an additional funding stream. This funding could be used to increase public transport service levels further and provide the capacity needed for the uplift in patronage.

Table 3-4: Potential funding options for Queenstown public transport

Potential Alternative	Discussion
Parking charging	A portion of parking charges is already passed on to ORC to support public transport. Parking charges could be increased to generate additional revenue.
Congestion charging	A change in legislation is required to allow congestion charging. If implemented it could generate a significant amount of ongoing revenue.

Visitor levy	The QLDC 10-year plan includes a visitor levy from 2024 onwards, which is 5% of the accommodation cost. Revenue generated is expected to fund general infrastructure needs and would not be available to fund public transport infrastructure costs.
Tourism Infrastructure Fund	This fund is not available for projects that receive NZTA funding.
Climate Emergency Response Fund (CERF)	In 2023, CERF funding has been used to decarbonise bus fleets and retain and recruit drivers in other parts of the country. Due to uncertainty of the future of CERF funding, it cannot be relied upon for this Business Case.
Developer contributions	It is considered that higher developer contributions from developments along the Southern Growth corridor could be warranted due to the high growth forecast in the area and its limited transport connections.

4 MANAGEMENT CASE

The management case provides an overview of the project arrangements that will be put in place to achieve successful delivery of the outcomes sought from investment. This includes:

- Project management and governance;
- Assurance and acceptance;
- Risk management planning and risk allocation;
- Stakeholder engagement;
- Change control and cost management; and
- Post-implementation monitoring.

The management case considers the project's staging in the medium to long term and sequencing of activities in the short term.

4.1 Assurance and Acceptance

Table 4-1 outlines the assurances and acceptances adopted to progress this Business Case.

Table 4-1: Assurance and acceptance, QPTBC

ITEM	DESCRIPTION
Independent peer review of QPTBC and cost estimates	Feedback from independent experts, with feedback incorporated into final versions.
Feedback from ORC officers	Feedback and comments from ORC officers on the Business Case and Advisory Papers. Feedback considered and incorporated into final versions.
Feedback from QLDC	Feedback and comments from QLDC officers on the Business Case and Advisory Papers. Feedback considered and incorporated into final versions.
Feedback from NZTA	Feedback and comments from NZTA officers on the Business Case and Advisory Papers. Feedback considered and incorporated into final versions.

Way to Go Board	Final versions sent to Way to Go Board for endorsement. Following endorsement, it will go to ORC Councillors for approval and confirmation of ownership model.
QLDC Long-Term Plan	Inclusion of local infrastructure items in QLDC's Long-Term Plan
NZTA	Endorsement of business case and inclusion of items in Public Transport Infrastructure and Public Transport activity classes

4.2 Management Framework

The recommended management strategy for the next phases of the public transport services is based on the following considerations:

- The services and related infrastructure are expected to be delivered as part of a long-term programme, which will be developed and implemented in stages to manage uncertainties, constraints and interdependencies over the life of the programme.
- Governance and management strategies will need to be flexible. The programme is proposed to use existing governance structures (Way to Go Partnership) for the next stages.
- The programme is complex, being in a fast-growing urban area with a number of partners. Examples include:
    - Roles of multiple programme partners, including ORC, NZTA, and QLDC.
    - Interrelationship of local road and state highway networks and infrastructure
    - A mix of public transport service improvements, local road and state highway network improvements and NZUP improvements
    - Procurement and development of a new electric bus depot
    - Multiple funding sources

4.2.1 Dependencies

NZUP

The delivery of bus lanes and signal optimisation on SH6 as part of NZUP is critical to delivering on the objectives of the business case. This is because the bus lanes will enable a fast and reliable public transport network to be delivered that would in turn increase patronage growth. The QPTBC would provide the enhanced bus services to fully utilise the investment in public transport priority measures as part of NZUP.

Queenstown Town Centre Arterial Road

The Queenstown Town Centre Arterials project aims to deliver additional route around the town centre from Frankton Road to Glenorchy – Queenstown Road. Stage 1 of the project Melbourne Street to Henry Street is currently underway. There is currently funding uncertainty around stages 2 and 3 which is the sections between Henry Street and Fernhill roundabout. Delivery of this project is not critical to delivering on the QPTBC objectives but without this project it would make bus services from Sunshine Bay less reliable.

Queenstown Town Centre Street Upgrades

The Queenstown Town Centre Street Upgrades would prioritise pedestrians within the town centre by implementing shared streets and restricting vehicle access. The first stage of the street upgrades has been completed. An upgrade of Stanley Street including the bus hub is planned to align with Project Manawa which is the development of a new cultural and civic centre for the district. The street upgrades are not critical to delivering QPTBC with buses able to use current dead run routes until the street upgrades occur. As part this business case a concept design for an interim bus hub on Stanley Street which can accommodate articulated buses has been completed.

4.3 Roles and Responsibilities

It is proposed that the next stages of the programme will be managed using existing Way to Go partnership arrangements. The table below describes the role of each partner.

Table 4-2. Proposed roles and functions for next stages of QPTBC

Organisation	Role	Functions
Otago Regional Council	Procuring organisation	• Developing a new electric bus depot • Detailed timetabling of new services • Developing new contracts and managing the tendering process • Developing specifications for the new bus and ferry fleet
Queenstown Lakes District Council	Road controlling authority	• Leading the modifications to bus stops on the local road network • Leading the intersection changes needed to accommodate articulated buses
NZTA	Road controlling authority and regulator	• Leading the modifications to bus stops on the state highway network • Managing the changes to the Stanley Street and Frankton Bus Hubs • Developing a business case for the SH6 bus lane south of Kawarau Falls Bridge

4.3.1 Way to Go Partnership

Given the complexities of delivering a new bus network, the existing arrangement between the Way to Go partners should be reconfirmed and reframed. There needs to be a commitment from all partners to deliver the programme as all parties are responsible for essential components of the programme. This includes a commitment to prioritise public transport in the operation of traffic signals and the enforcement of bus lanes.

It is envisaged that, being the partner with the most invested, ORC will appoint a Project Sponsor/ Project Director to oversee the programme.

4.4 Government policies

This business has relied upon local, regional and central government policies for the development and staging of the preferred programme. However, at the time of writing New Zealand was in a transition period between governments therefore central government policies are expected to change however no official information was available. However, government policy will not change the need for a significant improvement in Queenstown public transport network. There is limited ability to expand the strategic road network due to topographic and property constraints and Queenstown is growing rapidly which puts further pressure on existing transport infrastructure. The preferred public transport network will reduce vehicle volumes thereby improving the economic efficiency of the road network for freight, trades people and tourists.

It is expected that the new government will relax the policy on the roll out of zero emission buses with current policy being all new urban buses needing to be zero emission by 2025. If this date was further into the future then it could push back the date at which a new bus depot is required as one of the main benefits of the depot is the ability to charge battery electric buses. However, it is still expected that the government and regional council will want to move towards a fully electric bus fleet at a yet to be determined date.

An alternative implementation pathway for zero emission buses in Queenstown (subject to change based on ORC policy) is as follows:

- Roll the unit 7 contract over and include the school bus services as planned in order to tender a single larger contract that would attract more competition than smaller contracts
- Tender the new bus contract as a diesel service with set dates for the procurement of electric buses as existing diesel buses reach their end of life and as additional capacity is needed for growth
- Implement electric articulated buses by 2032[5] on Jack's Point to Queenstown and Sunshine Bay to Remarkables Park routes as variation to the contract. Articulated buses on the Lake Hayes to Queenstown would be implemented as part of a second tranche at a later date.
- Investigate retaining the bus depot as a responsibility of bus operators subject to a request for information exercise to confirm market ability to deliver a diesel bus depot in Queenstown
- When the contract next comes up for tender in 2037 (assuming a nine-year contract duration) specify a full battery electric fleet with a publicly owned bus depot

4.5 Project Risks

The table below summarises key risks to benefits realisation for the next phase of the project. None of these risks are considered to prevent the project from proceeding to the next phase. However, part of the W2G partnership's role will be to make sure that these (and other identified project risks) are managed.

Table 4-3: Risk Summary, QPTBC

RISK DESCRIPTION	LIKELIHOOD	CONSEQUENCE	RISK TREATMENT / MITIGATION	RISK OWNING ORGANISATION
The electric bus depot is not implemented in time to provide for the intended PT service improvements due to delay in funding, acquiring and/or developing a site.	Possible	Severe	Advance development of the bus depot to pre-implementation in the next NLTP period, ahead of bus contract renewals	ORC
Sufficient power is not available to provide for charging of electric buses due to limited network capacity	Unlikely	Severe	Engagement with power suppliers. Power availability is a key criterion for the selection of a bus depot site.	ORC
The public transport service improvements programme (or parts thereof) is not implemented due to the programme exceeding available funding	Possible	Severe	Staging of the programme. Engagement with NZTA Waka Kotahi.	ORC
NZUP SH6 bus lane delayed or not implemented, resulting in no bus priority	Possible	Moderate	Engagement with NZTA Waka Kotahi. Staging of PT improvements on the southern corridor	NZTA
Full PT service improvements are not able to be realised due to a shortage of bus drivers	Possible	Moderate	Consideration of accommodation support as per System Management advisory paper	ORC
Uncertainty on whether electric buses can operate on Malaghans Route due to weight limitations on Edith Cavell Bridge	Possible	Minor	Staged implementation of the route/vehicles. Engagement with QLDC	ORC / QLDC

[5] Date based on public transport demand model results

Growth happens faster / slower than planned, affecting patronage and operating costs.	Likely	Moderate	Monitor residential and employment growth and reforecast expenditure	ORC
Local road/ intersection improvements (to accommodate articulated buses) are delayed or not progressed (e.g. due to lack of funding	Possible	Minor	Engagement with QLDC. Consider staging of services and smaller vehicle types.	QLDC
Travel demand management measures (such as parking costs) are not strong enough to 'push' for mode shift	Possible	Major	Recommend Way to Go partnership directs partners to develop TDM implementation plans that support this Business Case.	All Way to Go partners (led by ORC)
Decision makers are not aligned or not prepared to commit to significant changes.	Possible	Severe	Maintain contact appropriate levels within partner organisations. Communications and Engagement Plan engaging with public and decision makers.	All Way to Go partners (led by ORC)
Misalignment between Way to Go project partners.	Unlikely	Severe	Robust agreement amongst Way to Go partners through an MoU or similar for this specific project to be incorporated into partnership.	All Way to Go partners (led by ORC)

4.6 Stakeholder Communication and Engagement

Stakeholder and public engagement is documented in the Economic Case.

In summary, drop-in events were scheduled in the Queenstown area for residents and visitors to learn about the Business Case and discuss the Short List options with the project team. An option to provide online feedback was also made available. Feedback received was considered during the short list option assessment. Themes expressed from public engagement indicate that the preferred option is supported.

4.7 Post-Implementation Monitoring

Table 4-4 below shows the Benefits Management Framework for the new public transport network. More information about the Investment Logic Mapping (ILM) and Key Performance Indicators (KPIs) can be found in the Strategic Case.

As the lead organisation, ORC will be responsible for benefits realisation. It is recommended that the Way to Go partnership prioritise public transport, and regularly monitor progress against benefits. If benefits are not on-track to be met, the partnership will consider adjustment of the programme and services as necessary.

Table 4-4: Benefits Management Framework

Measure	KPI	Method	Time of Measurement	Baseline	Ownership
8.1.2 Mode shift from single occupancy vehicles	KPI 1-1 (IO1)	Use ORC boarding data/ Bee Card data and census population data	With census (5-yearly census)	Current census and network data	ORC

5.1.1 Punctuality – public transport	KPI 1-2 (IO1)	Real-time data comparison against timetable	As part of the RPTP reporting cycle	Current travel times / PT network data	ORC
8.1.1 Public transport CO_2 emissions	KPI 2-1 (IO2)	Number of diesel vs electric PT vehicles	With operating contract changes	Current size of operator diesel fleet	ORC
8.1.3 Light vehicle use impacts/ vkt	KPI 2-2 (IO2)	Traffic volumes on key routes	With census (5-yearly census	Current traffic volumes on key routes	ORC
10.3.1 Access to key social destinations	KPI 3-1 and KPI 3-2 (IO3)	Census and District Plan for key residential, employment areas, and social destinations GIS analysis or travel time by PT	With census (5-yearly census)	Current census and network data	ORC

4.8 Next steps

The key initial next steps for the Queenstown Public Transport programme are:

- Endorsement of this Business Case by Way to Go partners
- Reconfirmation and reframing of Way to Go partnership, which will define responsibilities and accountabilities
- Necessary funding applications from NLTP and forward-work planning

7.5. Transport Procurement Strategy

Prepared for:	Public and Active Transport Committee
Report No.	OPS2401
Activity:	Transport: Transport Planning
Author:	Jack Cowie, Transport Planner
Endorsed by:	Richard Saunders, Chief Executive
Date:	15 January 2024

PURPOSE

[1] The purpose of this report is to recommend Council endorsement of the Transport Procurement Strategy 2024-2027

EXECUTIVE SUMMARY

[2] Under the New Zealand Transport Agency (NZTA)'s Procurement Manual, Council must have an up-to-date procurement strategy for transport Activities.

[3] Transport staff seek endorsement of the Transport Procurement Strategy 2024-2027

[4] A major issue in the draft Strategy is around whether Council will take a role in controlling strategic public transport assets in future.

[5] The Strategy indicates that Council will investigate depot ownership, starting in Queenstown, but does not yet have the capacity to make a wholesale shift to this approach right across Otago.

[6] The Strategy also indicates a number of other areas of work related to procurement, most notably:

- Improving the design and management of unit contracts for buses and ferries
- Supporting a competitive market for Total Mobility services
- Improving staff capacity to deliver certain core professional services in-house, within the constraints of limited staffing

[7] The draft Strategy requires endorsement by Council in February so that it can receive endorsement by NZTA by April 2024.

[8] For the most significant questions in the Strategy, there will be further opportunities to set policy in the next Regional Public Transport Plan.

RECOMMENDATION

That the Committee:

1) ***Notes** that:*
   a. *In order to receive Waka Kotahi funding for transport procurement activities, Council must have an up-to-date Transport Procurement Strategy*
   b. *Council is mandated to take a strategic approach to procurement in order to achieve best value for money*
   c. *The current procurement environment has significant uncertainties around the implementation of the Sustainable Public Transport Framework, the change of government, and risks around service growth and electrification*

2) ***Recommends*** *that the draft Transport Procurement Strategy 2024-2027 is amended to implement the following feedback from the Committee, ahead of Council endorsement:*
   a. *[insert any Committee recommendations]*
3) ***Recommends*** *that Council endorse the Transport Procurement Strategy 2024-2027 subject to the any changes set out in Recommendation 2*
4) ***Recommends*** *that Council delegate authority for the Chief Executive to finalise the Transport Procurement Strategy, with minor editorial changes, prior to submission of the document for NZTA endorsement*

BACKGROUND

[9] The Otago Regional Council is an Approved Organisation (AO) under the Land Transport Management Act 2003, undertaking a variety of transport activities funded through the National Land Transport Fund (NLTF).

[10] A key element of delivering these activities is the procurement of suppliers. As an AO to attract co-funding, ORC must take a strategic approach to procurement in order to obtain "best value for money spent", which is defined as "*the most effective combination of cost, quality, benefit and risk to meet a requirement".* To demonstrate a strategic approach to procurement, ORC must have an endorsed Procurement Strategy for transport activities. This strategy needs to meet requirements set out in the Waka Kotahi Procurement Manual and be endorsed both by ORC and NZTA.

[11] The current Strategy expires on 14 April 2024, and Waka Kotahi require 40 working days to subsequently approve the Strategy. Therefore, to prevent a significant gap with no endorsed Procurement Strategy, a new strategy needs to be approved at the next Council meeting.

[12] Transport staff identified in November that there was one particular area of the Strategy which would be of significant interest, which was around options for potential Council control of strategic assets.

[13] In order to ensure councillors were able to give preliminary input into this area of the strategy, a paper was brought to Council on December 13 asking councillors to indicate in-principle support, opposition, or neutrality towards Council making capital investments in public transport assets. Council voted to support capital investment as a possible strategy.

DISCUSSION - ASSET CONTROL

[14] Noting Council's support for investigating future asset ownership, Transport staff have made use of currently available guidance from NZTA in this area, which is a discussion draft in the "*Public transport assets, operating models, and partnering*" workstream for the implementation of the Sustainable Public Transport Framework.

[15] This document includes a toolkit through which factors such as staff capacity and council appetite for asset control are identified, and asset control questions are broken down into a spectrum of options for both the desired end-state, and the pathway to the end-state.

[16] From the toolkit, the most realistic area for ORC to develop asset control would be around purchasing land for bus depots, which would subsequently be included in bus contracts. However, the benefits ORC would generate from such approaches would be dependent on the organisational capacity to manage these new assets.

[17] For this reason, a target of full ORC ownership of depots and their land across Otago is likely unrealistic in the short or medium term and could only be viewed as a long-term outcome. Feedback on similar transitions in Australia is that they take multiple generations of contracts.

[18] Therefore, the draft Procurement Strategy states that work on asset control should focus on where the need is greatest, or where specific challenges or opportunities arise. The place where this is most expected is in Queenstown, where the current business case indicates a significant service increase, and recommends purchase of land for an electric depot.

[19] Outside of Queenstown, there is no current intention to investigate a move towards greater asset control, but the possibility in the long-term is noted. Lessons from Queenstown, and from other parts of the country, will help determine future intent for Dunedin and elsewhere, but at present, staff are satisfied that electrification of depots can occur under the current operating model.

DISCUSSION – OTHER ELEMENTS OF STRATEGY

[20] There are other elements of the Strategy to draw attention to:

- The Strategy expresses goals of improving a number of elements of contract design and management for bus and ferry contracts. This includes improving transparency in pricing and methodology for contract variations. These measures would improve ORC confidence that best value for money is being achieved, and the ability to fairly price service changes within the course of contracts, to reduce the reliance on waiting for contracts to end before making planned changes.
- The Strategy indicates that the current grouping of bus routes into contractual units will change in the future. The current way routes are assigned to contracts is not ideal, and there is an argument to be made that larger contracts could lead to improved competition and better value for money. The Strategy does not determine what the future contractual units will be – this will be decided by the next Regional Public Transport Plan. However, several indicative options are given to show what future contracts might look like, which can form a starting point for future RPTP development.
- The Strategy discusses a reduction in the level of competition Total Mobility services, especially in Dunedin. With high levels of demand for Total Mobility under reduced fares, there is a lot of financial pressure on this activity, and limited ability for customers to “vote with their feet” if they do not receive good service. This is part of nationwide trends, and Council will participate in a national review of the scheme by the Ministry of Transport, but staff will also need to work to make improvements within the existing model.
- Finally, the Strategy considers the question of professional services. Council’s transport work retains a high level of dependence on consulting and contracting services, which at times is excessive. While the use of these services allows Council to tap into experts and bespoke skills that a region of Otago’s size is unlikely to attract on a permanent basis, it will be important to improve the capacity to deliver business-as-usual work and knowledge in-house. For example, this aligns with a desire expressed above for improved contractual approaches, such as around pricing transparency and methodologies for variations. While consultants may have a role in providing the expertise to develop and set up such systems, the day-to-day implementation requires a wider level of internal understanding of data and methods.

ANALYSIS OF RECOMMENDATIONS

[21] The Committee is asked to recommend endorsement of the Strategy to Council. If the Strategy is not endorsed, Council will be unable to undertake Transport procurement activities from April 14 onwards, until a Strategy is endorsed by NZTA and the Council.

[22] The Committee is asked to recommend to Council that final endorsement be delegated to the Chief Executive. This will allow minor editorial changes to be made to finalise the document.

CONSIDERATIONS

Strategic Framework and Policy Considerations

[23] The Procurement Strategy references the current Regional Public Transport Plan as well as organisational documents such as the Procurement Policy and Delegations Manual. It also considers internal Council issues such as around staffing, referencing the Efficiency Review completed last year.

[24] As a Strategy, this document does contain elements of new policy. However, it does not make major commitments, and any new policy is generally indicative in nature. There will be future opportunities to consider transport procurement policies in a wider context and with public input, in the next Regional Public Transport Plan.

Financial Considerations

[25] There is no spending associated with this Strategy, but the implementation of the Strategy will support Council's success in delivering best value for money.

Significance and Engagement

[26] The approval of the Procurement Strategy is an activity of low significance, as the document is only a secondary one in the transport planning workstream. However, as identified previously the Procurement Strategy will guide Council's decision-making processes on issues of significant transport expenditure. There are issues of significance in the document that will require future engagement processes, but in order to avoid fragmented and ineffective engagement, these are best approached as part of a future Regional Public Transport Plan, and/or through the Long -Term Plan.

Legislative and Risk Considerations

[27] The Procurement Strategy meets a regulatory requirement under the NZTA Procurement Manual ensuring that ORC meets its procurement requirements as an Approved Organisation and (in particular) as a Public Transport Authority. Endorsement of the Strategy by Council minimises the risks of ORC being without a Procurement Strategy and being unable to conduct transport procurement activities.

[28] To minimise the risks of Waka Kotahi failing to endorse the Strategy, a checklist is included to demonstrate and reference where the Procurement Manual's requirements are met in this Strategy

Climate Change Considerations

[29] Endorsement of this strategy will support a reduction in greenhouse gas emissions from ORC's transport activities.

- by demonstrating best value for money, ORC's strategic approach to procurement will support the continued development and improvement of public transport services, resulting in reduced emissions from mode-shift away from private cars, and

- through clarification of ORC's strategy around asset control, the switch to a zero-emissions bus fleet will be supported, reducing the greenhouse gas emissions from buses themselves.

Communications Considerations

[30] The issues contained in the document are of public interest and have already appeared in the media. Public engagement on these issues will occur through a future Regional Public Transport Plan.

NEXT STEPS

[31] The Strategy will be endorsed at the next Council meeting on February 21, subject to minor editorial changes to be endorsed by the Chief Executive. It will then be submitted to NZTA for endorsement by April.

[32] The Strategy, especially its routine elements will be implemented through future procurements in the Transport space, and the day-to-day operations in Transport.

[33] Questions of major significance raised by this Strategy will be subject to future processes and decisions. The focus of this will be the next Regional Public Transport Plan, for which Transport staff are considering timelines.

ATTACHMENTS

1. Procurement Strategy V1 0 RS changes [**7.5.1** - 63 pages]

Transport Procurement Strategy 2024-2027

Otago Regional Council

Draft 1.0

Transport Procurement Strategy 2024-2027

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Transport Procurement Strategy 2024-2027

EXECUTIVE SUMMARY

Otago Regional Council (ORC) undertakes a variety of procurement activities in the transport space, with the most financially significant being the procurement of bus contracts. In the next three years, major procurement activities will occur affecting the majority of bus contracts in Otago either through tender processes for new contracts, or the substantial procurement planning for a tender beyond this three-year period. The strategic environment in which these procurements occurs is dynamic, with changing policy in the form of the Sustainable Public Transport Framework (SPTF), which is yet to be fully implemented. There are a variety of questions around the design of future contracts, including the question of how new assets might be delivered and whether ORC looks to take an interest in controlling these assets.

Effective procurement processes and practices are required for ORC to demonstrate an overarching procurement outcome of "*best value for money spent*", which should be considered in terms of whole-of-life costs. Along with demonstrating this, particular consideration is given to the fostering of "*competitive and efficient supply markets*", a range of "*broader outcomes*", and the contribution of procurement to ORC's wider "*decarbonisation*" objectives.

For all considerations there is the potential for ORC to improve its methodologies and capabilities, allowing for the implementation of better contract management and opening up policy options through this Procurement Strategy. This represents a challenge for ORC's approach to professional services; while there will always be a need for significant external support, increased internal delivery of core professional services will give greater ownership of ORC policies and methodologies.

ORC's Queenstown Ferry service will be renewed, and the development of this service and its enabling infrastructure will be a significant challenge. There remain obstacles to a competitive market environment for this services and ORC will work to develop a Ferry Strategy to develop the long-term future of this service beyond the lifetime of this Strategy. There are also new procurement processes for on-demand public transport, and community transport around the region.

Another area of change is Total Mobility, where there are declining levels of market competition and a high level of strain on operators. The Total Mobility scheme is currently undergoing review at a national level which is hoped to address these issues, but it will be important for ORC to develop its approach to Total Mobility under the current model.

While the procurement of day-to-day public transport infrastructure is generally external to ORC under the current operating models with Dunedin City Council and Queenstown Lakes

District Council, ORC does have a significant interest in these activities and a more direct role in some projects. Other parts of the procurement environment that are external to ORC but have an impact, including exempt services, which interact with potential trials, and Ministry of Education services, where changes from time-to-time may create new requirements for bus services, are also encompassed in the Strategy.

Transport Procurement Strategy 2024-2027

INTRODUCTION

Welcome to Otago Regional Council's (ORC)Transport Procurement Strategy 2024-2027. This document sets out ORC's understanding of, and response to, the procurement environment for activities that receive funding from the National Land Transport Fund (NLTF). This forms a targeted part of ORC's wider transport planning activities, whose key documents are the Regional Land Transport Plan (RLTP) and the Regional Public Transport Plan (RPTP).

At a high level, the purpose of a Procurement Strategy is to demonstrate a strategic approach to procurement. For ORC, this is especially important in 2024, because:

- the procurement environment for financially significant public transport activities is in a state of transition from the previous Public Transport Operating Model to the new Sustainable Public Transport Framework (SPTF).
- The transition to zero-carbon public transport networks is moving into gear. The first electric buses in Dunedin are hitting the road as this Strategy is being written, and key procurement activities for all other current bus contracts in Otago will occur within the lifetime of this strategy (either the tender processes themselves, or at least the substantive procurement planning).

For these reasons, this strategy does not represent business-as-usual; there are significant new areas of interest that must be addressed in order to prepare for the challenges and opportunities of the next three years and beyond.

This strategy navigates significant uncertainty with the implementation of the SPTF, which is still ongoing, with further changes expected. ORC will also be reviewing its RPTP. This strategy has to navigate between the current policy environment (the current Procurement Manual and RPTP), and expectations of how this policy environment will change in the next three years with SPTF, and an understanding of areas of interest for the next RPTP process.

This strategy has several key audiences:

- For ORC, the Strategy represents an appraisal of the organisation's needs and key decision areas relating to Procurement. Due to its timing in the policy cycle, development of the Strategy is also a preliminary to the future development of a new RPTP, previews certain areas of interest for that process. The Strategy also meets a regulatory requirement, as procurement activities cannot be funded without an active strategy.

- For the NZ Transport Agency (NZTA), the Strategy gives insights into ORC's current strategic thinking. As a funder of transport, the regulation of procurement activities is fundamental to NZTA's role in the transport system.
- For suppliers, especially large suppliers such as bus operators, the Strategy will help set expectations for the direction of ORC's procurement activities, supporting their readiness to participate in procurement activities and operate in a changing environment.
- For ratepayers and public transport customers, the Strategy indicates ORC thinking on how best value for money will be achieved in ORC's transport activities.

The strategy has the following parts.

- Chapter 1 (Strategic Context) outlines the context of legislation, policy, and plans that define the requirements of this strategy and the environment it operates under. For clarity of subject matter
- Chapters 2 to 6 each combine a summary of current state with future strategic thinking for a variety of areas of work, with Chapter 2 (Bus and Ferry services), Chapter 3 (Total Mobility), Chapter 4 (Professional services), Chapter 5 (Stock truck effluent disposal sites), and Chapter 6 (Externally delivered/procured Transport activities).
- Chapter 7 (Procurement programme) gives a summary of the timeline for procurement over time
- [inert reference] gives information on ORC's plans for implementing this Strategy

Transport Procurement Strategy 2024-2027

1. STRATEGIC CONTEXT

The ORC undertakes a variety of transport activities:

- It leads regional planning functions through a joint Regional Transport Committee (RTC) with Environment Southland. The RTC develops the Regional Land Transport Plan and reviews legislation and policy that affect transport planning, investment funding, and financing.
- It is the Public Transport Authority (PTA) for the Otago region, co-funding and implementing two significant public transport networks (centred on Dunedin and Queenstown respectively). In finan1.cial terms, this is the ORC's most significant function, and can be viewed as overlapping operational and planning functions.
- It provides Transport input into regional land-use planning
- Other minor transportation functions such as stock effluent sites

Procurement is essential to delivering these activities. A large portion of ORC's transport spending goes to suppliers in the form of bus contracts. With a small staff and the need for specialised knowledge, skills, and tools, ORC is reliant on external support for significant parts of its work. To achieve success requires effective procurement processes and practices. This is achieved through reference to the NZTA Procurement Manual, which implements s25 of the Land Transport Management Act 2003 (LTMA) in defining procurement procedures that obtain *best value for money spent*, which the Procurement Manual (s3.2) defines as:

> *the most effective combination of cost, quality, benefit and risk to meet a requirement*

To meet this aspiration, statutory and regulatory requirements, and to meet our values and our vision, ORC must consider the strategic context of its procurement activities within its wider work program. This is outlined below in two parts: firstly, a current-state summary of the key documents (legislation, regulations, plans) that transport procurement activities must align with, and secondly, a future-focused discussion of how ORC views key procurement outcomes.

1.1. DOCUMENTS, POLICIES, AND PLANS

Procurement of transport activities at ORC is subject to the mandates or guidance of a range of requirements, plans, and guidance, both internal to and external to the ORC. External instruments are legislation, the NZTA Procurement Manual, and government procurement rules. Internal documents include planning documents and organisation policies. This section sets out a summary of key documents that guide the development of this strategy.

Transport Procurement Strategy 2024-2027

LAND TRANSPORT MANAGEMENT ACT 2003

The Land Transport Management Act 2003 (LTMA) is the overarching legislation under which ORC operates transport activities. The LTMA's purpose is (s3)

> *to contribute to an effective, efficient, and safe land transport system in the public interest*

Under s5, ORC is an *approved organisation*. s25 mandates NZTA to develop *procurement procedures* for approved organisations. The NZTA Procurement Manual (see below) is the document which fulfils this mandate.

SUSTAINABLE PUBLIC TRANSPORT FRAMEWORK

The Land Transport Management (Regulation of Public Transport) Amendment Act 2023 amends, and is incorporated into, the LTMA. This forms the legislative part of the Sustainable Public Transport Framework (SPTF), a reform of the previous Public Transport Operating Model (PTOM), with the following objectives:

- public transport services support mode-shift from private motor vehicles, by being integrated, reliable, frequent, accessible, affordable, and safe
- employment and engagement of the public transport workforce is fair and equitable, providing for a sustainable labour market and sustainable provision of public transport services
- well-used public transport services reduce the environmental and health impact of land transport, including by reducing reliance on single-occupancy vehicles and by using zero-emission technology
- provision of services supports value for money and efficiency from public transport investment while achieving the first three objectives.

Although the legislative component of the SPTF is now incorporated into law, the development of operational policy is an ongoing process, and will lead to changes in the Procurement Manual. A change of government in the 2023 general election increases the level of uncertainty in this area. ORC will need to balance operating under the current legislative and policy context, while managing the risks of future legislative and policy changes causing disruption. However, excessive caution should be avoided, for two reasons:

- There is a risk of strategic paralysis if ORC waits for clarity that may take a long time to arrive

- ORC also has an inherent political role as an advocate and stakeholder in national policy development, and will be in a stronger position to fulfil this role effectively if it has actively worked to implement policies and can comment on their practical merits.

WAKA KOTAHI PROCUREMENT MANUAL

The NZTA Procurement Manual fulfils the mandate of s25 of the LTMA, along with providing supporting guidance and rules. Four procurement procedures are defined:

- for infrastructure
- planning and advice
- public transport services, and
- the Total Mobility scheme.

The Procurement Manual also defines requirements for this document in Chapter 4 "*Strategic Approach to Procurement*."

The public transport services procedure is the most strategically significant for the delivery of value for money at Otago Regional Council. For public transport services, the Procurement Manual mandates a "Partnering" delivery model for all significant activities, with the exception of low-cost, low risk activities (LCLR). LCLR services, for example special event services or small-scale trials, may be procured through staged or supplier panel approaches.

Under the 2021 Manual, the partnering model aims to encourage collaboration and risk-sharing through a range of processes. These include annual business planning, a financial incentive mechanism that gives operators a share of fare revenue growth within what would otherwise be gross contracts, and Key Performance Indicators (KPIs). These elements are defined by contractual terms. Prices are adjusted by indexation and a cost adjustment six years into each contract. The SPTF is a shift in this partnering model; although the underlying principle is similar, in general there are fewer compulsory elements and more policy options that council can tailor to local needs.

For infrastructure or planning and advice supplier selection can be by direct appointment, lowest price conforming, purchaser-nominated price (excluded for physical works), price-quality, or quality-based. Direct appointment can only be used in certain cases, including low dollar values or when it can be demonstrated that competition will not help obtain best value for money.

For public transport services, selection is currently by direct appointment or price-quality only. An additional justification for direct appointment is available for large bus markets: if enough pricing data is available to give the approved organisation confidence in costs, direct

appointment of strongly performing units will provide a performance incentive during the life of contracts.

The Procurement Manual has not yet been updated to reflect the SPTF, but draft guidance has been produced and indicates that significant changes for the Manual. This draft guidance is referenced in this Strategy.

OTAGO SOUTHLAND REGIONAL LAND TRANSPORT PLAN

A joint Otago and Southland Regional Land Transport Plan (RLTP) is the primary document guiding integrated land transport planning and investment in Otago and Southland. This is required under the LTMA and is developed by the two regions' Regional Transport Committees.

The RLTP outlines the strategic direction, priorities, and objectives for land transport in the Regions. Activities are prioritised in the RLTP for inclusion in the National Land Transport Programme (NLTP). In this way the prioritised programme in the RLTP forms a bid for funding from the National Land Transport Fund (NLTF) in the next three-years, along with indications of spending over a longer 10-year period. The RLTP therefore has a significant impact on the work programmes (and associated procurement activities) of approved organisations (AOs) in the region, including ORC. Activities that do not receive NLTF funding are unlikely to go ahead, as approved organisations are unable to entirely fund the activities themselves or obtain alternative sources of funding.

As part of the 3-yearly funding cycle, a review of RLTP 2021 -2031 is currently underway. The procurement activities in Chapter 7 of this Strategy are consistent with the RLTP's development.

LONG-TERM PLAN

ORC's Long Term Plan outlines the organisation's budget for its activities for the next 10 years, with a focus on the next three. From a transport perspective, it is developed in parallel to the RLTP: while the RLTP is a bid for NLTF funding under the LTMA, the LTP is governed by the Local Government Act 2002 (LGA) and determines local funding (from rates and other sources of ORC revenue). Most transport activities ORC undertakes are funded from a mix of RLTP (national funding) and local funding, meaning the LTP and RLTP need to be aligned.

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REGIONAL PUBLIC TRANSPORT PLAN

Public transport in Otago operates under the Regional Public Transport Plan 2021-2031 (RPTP). This plan is structured around an underlying vision, a set of four priorities for delivering the vision, and a set of five objectives. This is summarised below:

Vision	**Inclusive, accessible, and innovative public transport that connects Otago and contributes positively to our community, environment and economy.**	
Priorities	1	*Improve the customer experience with the goal that more people choose to use public transport more often*
	2	*Improve environmental health by supporting the introduction of zero emission vehicles into the fleet to reduce greenhouse gas and particulate matter emissions*
	3	*Capitalise on new technology and opportunities for innovation*
	4	*Be cost effective such that the improvements to public transport provide value for money and ensure that the right investments are in place at the right time for the greatest number of current and potential users*
Objectives	1	*Contribute to carbon reduction and improved air quality through increased public transport mode share and sustainable fleet options*
	2	*Deliver an integrated Otago public transport network of infrastructure, services, and land use that increases choice, improves network connectivity, and contributes to social and economic prosperity*
	3	*Deliver a public transport system that is adaptable*
	4	*Establish a public transport system that is safe, accessible, provides a high-quality experience that retains existing customers, attracts new customers and achieves high levels of satisfaction*
	5	*Deliver fares that are affordable for both users and communities*

This Strategy contributes to all the priorities and objectives above to varying degrees; in some instances, such as around zero emission vehicles, the contribution is very direct. In other instances, such as around customer experience, the contribution of this strategy is more indirect, with procurement outcomes from the Strategy supporting the effective delivery of public transport services and thus improving customer experiences.

While the RPTP is a key strategic document, this Strategy anticipates and, in places, sets a case for, the development of a new RPTP. It is therefore important to set limits on this strategy, particularly with regards to questions of wider community interest. For these matters which

require consultation and political engagement the RPTP is the guiding document. Any departures suggested by this Strategy from existing RPTP policies are inherently indicative, and subject to further work.

ORC PROCUREMENT POLICY

The ORC's internal procurement policy gives a set of cascading requirements depending on the purchase price. Under $5,000 suppliers can be engaged directly; up to $25,000 they can be engaged directly under contract, or else 3 quotes are required; up to $100,000 both a contract and three quotes are required; and above $100,000 a tender process should be conducted. This $100,000 limit aligns with the Procurement Manual's limit for direct appointment on the grounds of low dollar values.

Exceptions are available in emergencies or where there is only a single supplier or an exception from open advertising applies under MBIE procurement rules (referring to the Government Procurement Rules). This last point is important, because it creates a three-way alignment: the ORC Procurement Policy references Government Procurement Rules, and the NZTA Procurement Manual (s1.3, p.8) claims alignment with Government Procurement Rules. In theory, therefore, any exception to competitive tendering under the Procurement Manual should be acceptable under Government Procurement Rules and therefore can be viewed as consistent with ORC policy.

However, this alignment should not be taken for granted. Procurement plans should certainly still give reference to the ORC Procurement Policy, the Procurement Manual, and the ORC Procurement Policy which ensures internal documentation of procurement decisions and a connection between contracts and spending.

ORC DELEGATIONS MANUAL

The primary purpose of the ORC's Delegations Manual is to set out the delegations given to officers (and elected members in some instances). Delegations can be for certain administrative and financial matters and in relation to the Council's statutory duties, responsibilities and powers.

To assist staff to understand the responsibilities of the Council and its committees, the Delegations Manual includes specified duties, functions, and powers which cannot be delegated from the Council, as well as the Council committees associated delegations.

Procurement activities such as tendering, contracting, and purchase orders must be compliant with the delegations set out in the latest version of the Delegations Manual.

1.2. STRATEGIC PROCUREMENT OUTCOMES

This section sets out an ORC understanding of four key concepts that drive procurement activities:

- Best value for money spent
- Competitive and efficient supply markets
- Broader outcomes
- Decarbonisation

For each, ORC has various mandates to pursue these outcomes, including from the documents above.

BEST VALUE FOR MONEY SPENT

As discussed above, best value for money spent is defined as "*the most effective combination of cost, quality, benefit and risk to meet a requirement*". This concept is subsidiary to a wider concept of "*best value for money*", but in the context of procurement, decisions are not being made from scratch. There is already a desire to invest, and procurement is about implementing this decision. This does not mean that procurement activities are divorced from the wider "*best value for money*" concept: clearly, if procurement activity reveals that the assumptions of underlying investment decisions are invalid, it is proper to reconsider the underlying investment decisions.

ORC's understanding of best value for money spent takes account of the following:

- Whole-of-life costs: procurement needs to be approached in terms of the long-term value of a contract. An assessment of a contract needs to include consideration for how costs will, or might, change over the course of the contract, including secondary costs not included in the upfront figure, and internal costs such as the cost of procurement itself. The value for money question is especially important when evaluating approaches to asset control which may involve capital expenditure (e.g. purchase of land or construction of a depot) or hidden costs to future contracts (such as inadequate maintenance of a depot that is to be transferred at the end of contract).
- Risks and rewards: Due to the financial scale of ORC's transport activities, uncertainties in costs have a direct impact of uncertainty in future rates levels, or service levels. Conversely however, offloading these risks onto suppliers can mean paying significant risk premiums. There is a significant and non-trivial trade-off, and careful consideration needs to be given as to where the appropriate balance lies, particularly in terms of the extent to which risks can be mitigated by ORC, by its suppliers, by both or by neither.

- Organisational capability: particularly for high-value contracts such as bus service contracts, the level of confidence that best value for money spent is being achieved will be significantly enhanced if ORC have confidence that its staff have the technical capability, and capacity, to commit to contract management. This enables more sophisticated methodologies across a range of areas and allows for the principles of collaborative "partnering" approaches to be achieved.

COMPETITIVE AND EFFICIENT SUPPLY MARKETS

In Otago as all around New Zealand, transport services are generally delivered through market mechanisms. For integral public transport services, this is through "off-the-road" competition whereby operators are competing through tender processes for service contracts. This compares with exempt services and Total Mobility, where operators are free to enter and exit the market at their own volition, and compete directly for passengers.

Competitive markets support best value for money spent in a variety of ways. They keep the value of contracts closer to the costs of operating services due to the assessment of quality that emerges from tender processes, and due to the variety of different approaches and perspectives that different suppliers bring. This variety encourages innovation and varied perspectives.

Competitive and efficient supply markets do not imply that every individual procurement needs to be contested by a competitive process. There is a place for direct appointment as a standard procedure under the Procurement Manual, although caution should be taken. Ultimately, however, any activity needs to support long-term competition: direct appointment could be used to procure activities when there is a lack of confidence in the current market conditions, or a desire to align future procurements.

Although other considerations such as fairness and broader outcomes support competitive and efficient markets, the connection with best value for money spent is very important. In some instances, activities to increase the level of market competitiveness may not appear to support best value for money spent; for example, a desire to engage with new suppliers and increase the supplier base for professional services may mean approaching procurements in a way that does not deliver the best value for money spent on an individual project. However, such approaches should ultimately support best value for money spent in the long term, when considering the value of diverse suppliers, the development and growth of suppliers relying on opportunities, and the cost risk of less competitive procurements.

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BROADER OUTCOMES

Broader outcomes represent the secondary benefits of procurement that go beyond the immediate activity being procured. This involves social, environmental, economic, cultural or economic benefits and may go beyond organisational boundaries.

Some examples of broader outcomes of interest to ORC is as follows:

- Environmental enhancement: public transport activities have the potential to enhance local environments through reducing traffic levels, construction of facilities such as bus stops and stations as well as forming a part of street enhancements that will support pedestrian and cycling access; reducing particulate and greenhouse gas emissions.
- Economic development: public transport activities support affordable and efficient access to jobs and businesses, creating economic activity. Public transport supports increased employment and residential density, leading to long-term virtuous cycles of development and public transport enhancement around key corridors.
- Social inclusion: ORC's transport activities support affordable access for many groups of people to public and private facilities and activities. For example, young people who do not have access to a car are able not only to access school, but also to navigate urban areas independently; disabled people are able to get around cities on accessible buses or through Total Mobility services.
- Cultural enhancement: the creation or enhancement of facilities and buses represents opportunities to enhance the ability of culturally important groups, notably mana whenua, to be represented in public places, such as through artwork, informational displays, naming and use of language.

DECARBONISATION

Decarbonisation is a key procurement outcome for ORC transport activities. Transport is an important source of carbon emissions, and therefore public transport is a key area where ORC can support a transition to a zero-carbon economy.

The most significant contribution that public transport can contribute to decarbonisation is in mode-shift: reducing the number of cars on the road and moving more people with less energy. The scale and patronage levels of ORC bus services are such that greater decarbonisation benefits will come from the most heavily patronised routes, meaning decarbonisation supports patronage-focused service design. Broader outcomes around cycling and walking are also significant from a decarbonisation perspective.

Greenhouse gas emission reductions will also come from the transition to zero-emission vehicles in public transport fleets. ORC's first eleven electric urban buses are soon to begin service in Dunedin as a part of Unit 3. Future procurements will specify zero-emission vehicles. Some of the key topics in this Strategy relate to the challenges of bringing zero-emission vehicles into service at scale, which may impact the operating model, and the approach to key strategic assets such as fleet and depot.

2. BUS AND FERRY SERVICES

2.1. CURRENT STATE

ORC currently defines and operates the following public transport Units, each delivered by a single contract.

Unit Contract Name	Routes	Operator Expiry date	Peak vehicles	Annual service hours	Annual service km
Unit 1 **PTC 2017-1a**	Dunedin routes 1, 14, 18, 37, 63	Ritchies 30/06/2026	15		
Unit 2 **PTC 2017-2**	Dunedin routes 8, 33, 50	Go Bus 30/09/2026	14		
Unit 3 **PTC 2022-1**	Dunedin routes 5, 10, 15	Ritchies 30/03/2031	13		
Unit 4 **PTC 2015-3**	Dunedin routes 3, 19, 44, 55, 61	Go Bus 30/06/2028	14		
Unit 5 **PTC 2015-1**	Dunedin routes 70, 77, 78, 80, 81	Go Bus 30/06/2025	11		
Unit 6 **PTC 2017-6**	Queenstown routes 1, 4	Ritchies 19/11/2028	9		

Unit 7 **PTC 2017-7**	Queenstown routes 2, 3, 5	Ritchies 19/11/2026	10		
Unit 8 **Trial Ferry Services contract**	Queenstown Ferry	Real Journeys 30/06/2024 New contract anticipated as until 30/06/2029	1		

MARKET ANALYSIS - BUS

The supplier market for bus services is constrained, with only two market participants (Go Bus and Ritchies or their predecessors) in all recent tenders, both for Dunedin and Queenstown.

Previous tender processes have occurred with relatively short timeframes before implementation. This was potentially acceptable for simple diesel-bus contracts, but with supplier feedback, the complexity of electrification, and the lack of third tenders, ORC will be seeking to tender earlier to give lead time before contract activation. The Unit 5 tender, which is being developed at the same time as this Strategy, will be the first tender taking this approach. While earlier tender processes are a necessary improvement to make the market more attractive to new participants, this is likely not sufficient to achieve this aim. Wider changes to procurement strategy will be needed to attract new suppliers. The number of suppliers is not the only consideration when it comes to assessing market competitiveness, the quality and price-competitiveness of the tenders is also important. It is therefore important that the existing two suppliers are confident in their ability to expand operations and hence compete closely to take for contracts.

Decarbonisation creates new pressures. Electric bus services can, depending on operational details, require more buses and more depot space per bus, and electrification can be associated with centralisation of depot facilities. With electrification there is a risk that capital

investment in depot facilities by an operator could give such an advantage to an operator that market competition would not exist.

Potential strategies to mitigate these risks and deliver value for money for consideration include:

- ORC taking a more direct role in the ownership or control of enabling assets (fleet or depot assets). This could take a number of forms, including full ownership of assets, leasing them, or transfer provisions. For example, the Queenstown Public Transport Business Case (QPTBC) is recommending that ORC purchases land for an electric depot in Queenstown. This would allow bus contracts to be significantly tightened, giving greater clarity in price and opportunities for new suppliers. While there might be significant benefits, it could also generate new risks, and would rely on ORC possessing staff capability and expertise beyond what currently exists, or under currently envisioned staffing structures. In other cases, end-of-contract transfer provisions could ensure competitors have confidence in their ability to access assets in a financially viable manner.
- There is a need to develop the staffing expertise and a base of knowledge so that ORC can have confidence in contract costs. This would allow implementation of improved information-sharing with operators and improved contractual management approaches, including around scheduling of buses and drivers, more detailed break-downs of costs, as well as clearer and more effective performance management.

These matters are considered below, utilising NZTA discussion document.

MARKET ANALYSIS – FERRY

There is significant uncertainty in the market for operators for the Queenstown Ferry service. A 2021 registration of interest received three responses including the incumbent, and a fourth operator indicated interest informally but did not respond within the timeline. This indicated that there is a potentially competitive market, however, there are also two potential barriers to a competitive market:

- The requirement for a resource consent to operate on the surface of Lake Whakatipu;
- The lack of agreed access arrangements for the use of wharf facilities, with the wharf in Queenstown Town Basin owned by the incumbent operator.

For these reasons, ORC staff determined in 2023 that there was a significant risk that a tender process would not generate effective competition. As such, ORC is currently working to directly negotiate a new, five-year contract with the incumbent operator. As well as the

certainty of a longer-term ferry contract, it will allow time to take measures to overcome barriers to market competitiveness.

Once this contract is in place, there will be no further ferry procurement in the lifetime of this Strategy, but ORC will work to prepare for the contract expiry. Staff will develop a Ferry Strategy. Considerations for this strategy will include:

- Resource consents
- Wharf access arrangements
- Wharf maintenance, access, health and safety considerations
- Control of enabling assets, including wharves, boats, and maintenance facilities
- Integration with the bus network
- Decarbonisation

From a procurement perspective, this will build towards the goal of a competitive tender in time for a 2029 contract expiry.

2.2. FUTURE STATE

Although SPTF policy is still a work in progress, a discussion document on public transport assets, operating models, and partnering, published in November 2023[1], allows for a general understanding of the strategic policy environment that ORC will be working in within the lifetime of this document. Despite the status as a discussion document, it provides an effective preliminary framework for understanding and discussing the range of strategic options that are of interest within and beyond the lifetime of this Strategy. In particular, the toolkit appended to the document has formed the basis for much of the policy outlined in this section.

UNITS AND CONTRACT DESIGN

Legislative change around the SPTF has affected the relationship between public transport contracts and Units. Until the LTMA was amended in 2023, a Unit was a "*public transport service or group of public transport services […] identified as integral to the region's public transport network*". A Unit was required to be contracted on an exclusive basis. As such, a Unit and a bus contract were, in practice, interchangeable terms (although contracts would take some time to come into alignment with changing Units).

[1] https://www.nzta.govt.nz/assets/Walking-Cycling-and-Public-Transport/docs/Discussion-document-partnering-and-delivery-models.pdf

However, under the amended Act, a Unit is no longer a set of services, but "*a geographic area (of any size) […] for which the regional council for the region has specified (in any way) how public transport services must be operated*". This does not merely remove the exclusivity provisions that were previously in place but can be argued to break the conceptual connections between Units and routes, and between Units and contracts. Units could potentially be defined as strategically important geographies, with services running from one such Unit to another, and bundled into contracts that are not "unit contracts" at all. For example, South Dunedin could be taken as a distinct and strategically important geographic area, and hence could be regarded as a non-contractual unit in an RPTP.

Whether such an interpretation is taken, and whether it is legitimate, is a question for the RPTP, not for this strategy. For the purposes of procurement and hence for this strategy, future contracts are referred to as **contractual units**.

The existing seven bus Units in Otago represent groupings of bus routes within the Dunedin and Queenstown networks. While there can be some network logic as to why a set of routes are grouped into the same Unit, this is limited by path-dependencies arising from the way routes were contracted in the past. Hence the current unit structure does not divide the networks in ideal ways either from a contracting/procurement perspective, or from a strategic perspective. As such, ORC will, in the next RPTP, determine a new set of contractual units.

Following the NZTA discussion document, the new contractual units will be designed to effectively meet network outcomes, be operationally and financially efficient, and support long-term competitive and efficient markets. However, the following should be noted:

- If contractual units remain small, maintaining the operational efficiency and network logic of individual units will be prioritised (for example, fleet considerations and common termini of routes), while financial efficiency is best considered on a network scale rather than unit-by-unit. (This would allow for structures, for example, where one contract consists of less frequent routes with smaller buses, and another contract consists of more frequent routes with larger buses).
- There is potential conflict between the mandate to enable a regular program of procurement that avoids extended periods of minimal procurement activity, and the efficiency/value for money benefits that may occur from larger contracts, or from integrating multiple procurements into a single process. ORC would choose "best value for money" over "a regular program of procurement" if the two principles were determined to be in conflict. The downsides of less regular procurement are mitigated by considering the market at a national level, ORC already engages outside support for

bus procurement tapping into national experience in this area. Less regular procurement would support this approach being continued.

School services

Under current contracts, certain services that are focused on accessing schools will only operate until 2025. This is consistent with the RPTP, which indicates that ORC will not operate direct school services.

It likely that this policy will be reviewed. New school services, or route variations for the benefit of school students, have been added in recent years and it is considered possible that policy will be changed to support school-focused services, at least in some cases. This could be a mix of school-only services, like the existing routes 39 and 40, and school variations on regular routes, such as occur on routes 18 and 70.

Other public transport authorities have created "school units", and ORC will consider this approach. These can typically use older buses although electrification will mean that a reasonable fleet quality of older diesel buses should be relatively accessible.

INDICATIVE OPTIONS FOR FUTURE CONTRACTUAL UNIT STRUCTURE

The following section summarises three indicative options for how a future structure of contractual units could operate, assuming no changes to the route structure. The first option maintains the existing number of contracts, but re-factors them into more logical groupings. The second option reduces the number of bus contracts to two in Dunedin and one in Queenstown, and the third option reduces to a single contract in Dunedin.

Option 1: The contractual units have a similar structure to present, but the two Queenstown bus units are divided according to bus type, and routes are re-arranged in the five Dunedin units so that services with operational similarities are placed in the same units as each other:

Contractual Unit	Definition	Implementation
A	Routes through Green Island and Mosgiel: 70, 77, 78, 80, 81.	New contract starts 1 July 2025 as Unit 5. Tendering process currently proceeding and may have significantly progressed ahead of this Strategy.

B	Routes terminating at University: 15, 37, 63	Expiry of Unit 1 on 1 July 2026. Route 15 remains in place so would need to be implemented in this contract by agreement, or staged to 2031.
C	Frequent through-routes in South Dunedin: 8, 44, 55	Route 8 is available upon expiry of Unit 2 on 1 June 2026; other routes upon expiry of Unit 4 on 1 June 2026. To be implemented by staging or negotiation
D	Other through-routes operating in South Dunedin: 3, 5, 10, 19, 33, 50	Routes 33 and 55 are available upon expiry of Unit 2 on 1 June 2026; other routes upon expiry of Unit 4 on 1 June 2026. To be implemented by staging or negotiation.
E	Other Dunedin urban routes terminating at Bus Hub: 1, 14, 18, 61	Routes 1, 14, 18 available to contract on 1 July 2026. Route 61 can be staged 1 July 2028
F	Queenstown Ferry	New contract to begin 1 July 2024 and expire 30 June 2029.
G	Major Queenstown bus routes to be operated by high-capacity buses under the QPTSBC	Current Queenstown contracts to expire in September 2026 and September 2028. New contracts likely to be structured differently; to be implemented by staging or negotiating a common expiry date.
H	Minor Queenstown bus routes to be operated by normal-capacity buses under the QPTSBC	Current Queenstown contracts to expire in September 2026 and September 2028. New contracts likely to be structured differently; to be implemented by staging or negotiating a common expiry date.

Option 2: Enlarged units: Dunedin will operate two units, combining all South Dunedin through-routes into a single contract, with all other routes in the other contracts. Queenstown will operate a single unit.

Contractual Unit	Definition	Implementation
A	All routes that terminate at University, Bus Hub, or which connect to Mosgiel service.	Will largely be implemented in major 2026-2028 tender round, but Unit 3 and Unit 5 routes will need to be added at contract expiry or by negotiation.
B	All through-routes that serve South Dunedin	Will largely be implemented in major 2026-2028 tender round, but Unit 3 routes will need to be added at contract expiry or by negotiation.
C	All Queenstown bus services	Will be implemented between 2026-28
F	Queenstown Ferry	New contract to begin 1 July 2024 and expire 30 June 2029.

Option 3: Single contract per city

Contractual Unit	Definition	Implementation
A	All Dunedin bus services	Would be implemented in 2026 tender, with services from other contracts staged according to contract expiry (or negotiated)
B	All Queenstown bus services	Will be implemented between 2026-28
F	Queenstown Ferry	New contract to begin 1 July 2024 and expire 30 June 2029.

In all options the operations of new trial services would need to be considered. These could form their own units, or where appropriate be add-ons to existing contracts.

In options 1 and 2, there is an additional question of whether contracts should be procured together or individually. Procuring contracts apart – e.g. with five Dunedin units, a new contract every 1-2 years – would spread risk and ensure ORC could run a continuous procurement program, maintaining expertise. On the other hand, procuring contracts together would enable economies of scale in procurement, and could be an effective compromise on contract size., By procuring multiple contracts in the same process, operators could include cost reductions conditional on winning multiple contracts, allowing economies of scale to be effectively priced.

Further options could include:

- The addition of a separate contractual unit for school-focused services
- Separating Dunedin route 1 (City-Palmerston) into a separate Dunedin Regional contractual unit, that could also include a trial Balclutha service, allowing for a different fleet to operate the longer-distance services
- Whether any on-demand service in Dunedin or Queenstown (e.g. replacing Mosgiel routes 80/81) would be included as a part of a bus contract, or as their own contracts.

The transition to a new contract structure could be quite complex. A changed structure of contractual units would cut across current contracts, including current units 3 and 5, which will not expire until 2031 or later.

If a contractual unit structure emerges from the RPTP, ORC may have to take certain actions ahead of tendering to implement such a structure. For example:

- Negotiating major variations to the current Unit 3 or 5 (or new like-for-like contracts to replace them, or ending the contracts and adding the routes into other contracts), for example to switch Unit 3 services to a different grouping of routes.
- Negotiating to change contract expiry dates: the misalignments of expiry dates between Units 2 and 4, and between Units 6 and 7, could be dealt with by negotiating a new common expiry date for both. In principle ORC would regard half-way between as the obvious new date, but consideration would need to be given to the relationship with other contracts and tender processes, e.g. there may be a desire to tender all Dunedin routes outside of Units 3 and 5 together, and there will also be a desire to tender the Queenstown contracts at a separate time to the Dunedin contracts in order to spread out the procurement and implementation workload.

- Defining staged items in new contracts: staged items could involve contracts having one set of routes for an interim period, then another, distinct set of routes for the remainder of the contract. This could be an effective strategy for implementing changes that affect routes in the current Unit 4, and also could be used to implement a new route structure if one were determined. However, given the longer time periods for Units 3 and 5, it would be less desirable to have staged items that do not apply until late in a contractual term (e.g. waiting for these contracts to expire before putting their routes into a new contract).
- For Queenstown, staging of contractual changes may be useful in mirroring the gradual roll-out of QPTSBC services, but with contracts less likely to be split between multiple operators, such staging could equally occur under a single contract.

PUBLIC TRANSPORT ASSETS

There is a strong case that having some level of control over some strategic assets could support a competitive market and value for money spent. However, moves in this direction which requires significant resourcing, and hence at present will need to be targeted and strategic. Experiences in Australia that informed the Deloitte / NZTA framework indicate that changes to asset control tend to occur in the long-term, perhaps over several contractual cycles.

Therefore, the focus for ORC will be on where the need is greatest, or where major opportunities or challenges arise.

Acknowledging that more work will be required, an indication of a possible approach to public transport assets would be:

- Collaborate with operators in Dunedin to support the development of long-term electrified depots
- Subject to Council approval, purchase land for an electric bus depot in Queenstown to support QPTSBC service improvements, as recommended by the business case. A depot would be constructed as part of a tender, and leased by ORC to operators as part of the Queenstown unit contract(s).
- Develop capacity to ensure effective contract management of the Queenstown depot.
- Utilise this capacity to enable ORC to have a strong understanding of operator-owned depots in Dunedin and is in a strong position to take up future opportunities for greater asset control if appropriate
- Be in a position to support enabling assets for smaller public transport operations (e.g. in smaller towns, or the Queenstown Ferry) if required.

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SERVICE DELIVERY MODELS

The draft NZTA guidance gives an expansion of the existing service delivery models. Unlike the current Procurement Manual which essentially mandates a "partnering" model except for small-scale or short-term services (e.g. trials), the new guidance gives a spectrum of options:

- A continued short-term option
- An updated partnering model
- A "supplier pool" model conceived of as an extension of partnering, where operators may have a greater overlap of service areas. This might be logical if ORC has, in the future, a level of asset/depot control.
- "Alliance" type approaches where operators collaborate with each other as well as with ORC in a more structured manner,
- In-house service delivery, as an advanced delivery model

The additional spectrum of options is a matter of long-term interest to ORC, but unless specific opportunities emerge, a sudden change in approach would represent significant risks. Therefore, the ORC's approach will continue to be grounded in the principles of partnering approach, while being aware of developments in the industry and the potential to transition to alternative approaches over time.

Major public transport contracts will continue to tendered on a gross-cost basis. This is regarded as an industry standard and supports ORC's strategic position undertaking planning of services. Exceptions are possible: for example net-cost or even concessionary approaches may be of interest to services with very different characteristics to core urban routes. However, there are no current expectations that these approaches will be taken.

In general, it is expected that contracts will continue to be of the approximate same length as at present. However, the exact length of nine (9) years that has been used in all recent contracts does not need to be used. ORC should take opportunities to vary contract lengths up or down from here based on factors such as alignments with other contracts.

PROCUREMENT METHODS

ORC will retain the current approach of open tenders evaluated under the Price Quality method as the standard approach to bus contracts. This is regarded as a well-established best practice and there is no need to change the standard approach.

Direct award of contracts remains an option and could particularly be used for shorter-term extensions or alternative circumstances. Partnering and "supplier pool" service delivery models indicate the possibility of direct appointments for rewarding performance, where

strong benchmarking data supports price certainty. ORC will develop its approach to price certainty and operator performance to open up such options.

Alternative tender methods (quality-only, lowest-price-conforming, or sophisticated value for money assessments) may be of interest in select cases. The exploration of such alternatives will be considered as and when further evidence emerges of their potential benefit.

CONTRACTUAL PRICING

There are several areas where ORC can look to make improvements to contractual pricing methodologies.

Firstly, the most recent ORC bus contracts have a level of transparency at payment component levels, which means that tender pricing requires a level of justification. ORC will continue to evolve and develop the level of payment transparency in tenders, according to industry best-practice.

The current pricing structure of ORC contracts is to have a fixed "annual gross price" defined from the tender, which is modified by variations over time. Although simple in principle, the build-up of variation costs makes for very complex payment structures. An improved approach would be for prices to be divided into a "fixed" price (paid regardless of service level variations) and a "variable price" which represents the level of actual service at variable rates. Every month, the variable element would be paid according to the services scheduled in the month (less any deductions for missed services). This would remove any uncertainty in the pricing of most variations: they would simply be incorporated into a change in the number of hours and kilometres invoiced in a given month.

As a part of implementing this approach, there would need to be a shift to variable rates that include dead running. This would mean ORC would need to develop an understanding of driver and bus schedules. This is considered desirable and supports a closer ORC understanding of bus operations.

Indexation has been a matter of concern for bus operators. ORC is comfortable with the current approach to indexation, which involves adjusting prices according to a single composite index, but operators are concerned that this does not fully represent the granular detail of how their costs have changed, meaning that inflation risks are not fully mitigated. As a logical outcome of ORC gaining a greater level of understanding of cost components, a more granular indexation calculation for new contracts is acceptable to ORC, who will follow emerging NZTA-led best practices.

PERFORMANCE INCENTIVES

ORC's performance incentives are currently focused on the Financial Incentive Mechanism (FIM), which shares a portion of revenue growth with operators, and KPIs around service delivery, quality, and customer feedback.

Developing the latter will be ORC's focus. By having a closer, more detailed understanding of operator performance, ORC will be able to make improvements and open up alternative options that are currently difficult to implement, such as re-appointment of strongly performing operators.

The FIM in its current form will be removed from new contracts, but future financial incentives will be explored and can be implemented by contract variations.

3. TOTAL MOBILITY

The Total Mobility scheme provides a relatively affordable transport option for people whose disabilities restrict their ability to use conventional public transport. Eligible clients receive a 75% subsidy on the first $50 of fares, with approved operators. Services currently operate in five geographic areas – Dunedin, Oamaru, Wānaka, Queenstown, and Balclutha. Services can either be hoist trips (where a wheelchair hoist is used to safely lift a client in their wheelchair into a specifically fitted vehicle) or non-hoist trips (where the client is able to board their vehicle with a lower level of assistance).

3.1. CURRENT STATE

Total Mobility operates in a market environment. ORC does not contract a fixed value as per bus contracts; rather, a concession is provided for each trip delivered and for each hoist conducted. Some Total Mobility operators are general taxi operators, while others are more targeted to a mobility function.

The following table summarises the current suppliers in the Total Mobility market, with market shares in the period of July to December 2023:

Market	Supplier	Share of non-hoist market	Share of hoist market
Dunedin	Dunedin Taxis	75.83%	15.60%
	Big John's Mobility Express	6.16%	29.70%
	Driving Miss Daisy (Dunedin North)	5.27%	3.82%
	Urban Link	4.43%	

	Driving Miss Daisy (Dunedin South)	3.19%	
	Freedom Drivers	3.07%	
	Mobility Vehicles Dunedin	1.90%	50.88%
	Airport Shuttles	0.11%	
	Corporate Cabs	0.03%	
Oamaru	Whitestone Taxis	57.78%	
	Driving Miss Daisy	22.72%	22.62%
	Door2Door	19.49%	77.38%
Wānaka	Yello Taxis	83.46%	
	Wana Taxi	16.54%	
Queenstown	Queenstown Taxis	100%	
Balclutha	Nathan's Taxis	100%	

LEVEL OF SERVICE

With the Total Mobility concession now permanently at 75% (having previously been 50%), Total Mobility patronage is now at its highest levels since the current Ridewise datasets began in 2017, although only marginally above pre-Covid usage levels. However, patronage figures only show part of the story: average trip distances, and hence average fares, are trending significantly upwards. Two possible explanations are:

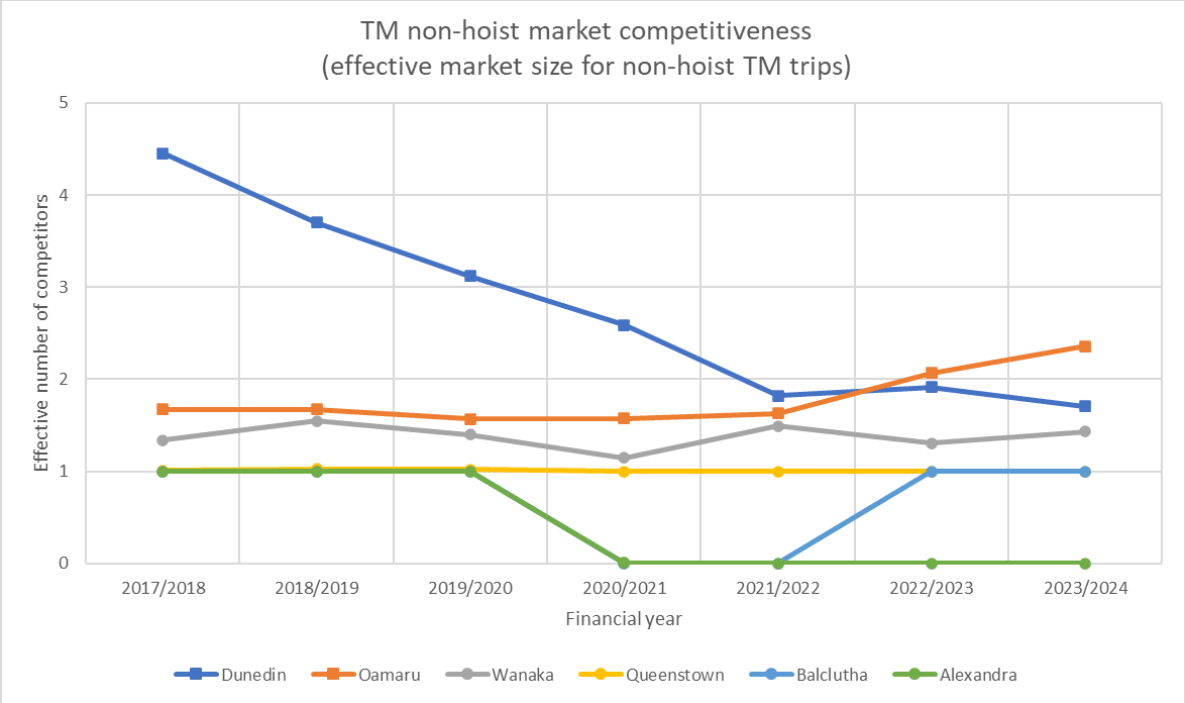
- With reduced fares, price-sensitive customers are more willing to take longer trips
- With increased levels of demand, operators are prioritising longer-distance trips

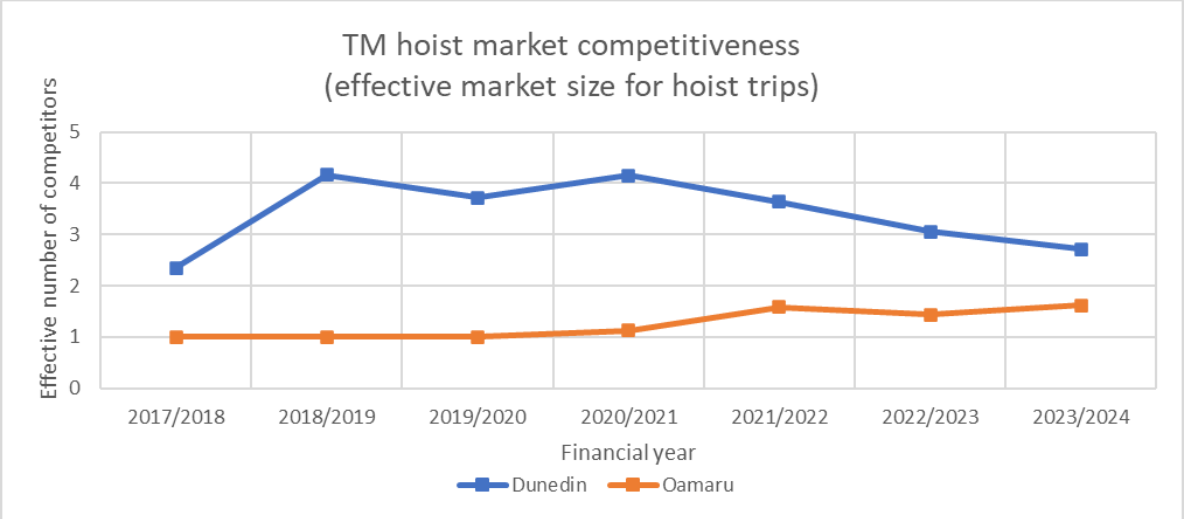
More study would be required to understand the balance between these or other factors. However, feedback from customers and advocacy groups has indicated that Total Mobility services (especially hoists) can be hard to access, and operators report that many drivers are working long hours.

LEVEL OF COMPETITION FOR TRIPS

As the above table shows, the market for Total Mobility services is more competitive in larger centres, and less competitive in smaller centres, which often have only one operator. However, a simple count of the number of firms providing the service does not provide a full

story of how competitive a market is, because firms can vary strongly in size. For example, if there are two competitors but one has 95% of the market, this is effectively a 1-supplier monopoly. From Ridewise data, a diversity index of "effective market size" can be computed over time based on market share; this is equal to the number of suppliers if all suppliers have equal market share, but is less if the market share is uneven.





As can be seen, the effective number of suppliers has declined significantly in Dunedin. One operator has developed a dominant market position which risks taking away customers' ability to "vote with their feet" if they receive poor service. The decline in the hoist market is less severe thanks to several operators who focus on this market.

Oamaru now has, by this measure, a more competitive market for non-hoist trips than Dunedin due to a greater balance between its three firms, and an upward trend in competitiveness for both hoist and non-hoist trips. Other markets have limited competition: Wānaka has two suppliers, one much smaller than the other; Queenstown has not seen a second competitor with any significant level of service, and the smallest centres (Balclutha, Alexandra, Cromwell, and smaller towns) are unlikely to see more than a single firm operate.

HOIST INSTALLATION

Special funding is available to fund the fit-out of hoists into new vehicles, in order to maintain an adequate level of service for hoist users. This funding is provided under a three-year contract; if the operator leaves the market within this period, they are to return a proportion of the funding.

At present, two hoist installations remain under contract.

The scale of hoist installation funding depends on the nature of the vehicle and the complexity of the installation, with smaller installations being of the order of $10,000, and larger ones $20,000-30,000. There is usually an underspend of this funding.

Mobility-focused suppliers in Dunedin are often extremely busy, and despite the efforts of suppliers, wheelchair users can struggle to access services, especially outside of daytime hours. Outside of Dunedin, Oamaru also has two hoist-capable vehicles operating; these are not as highly used, so the availability of hoists in Oamaru is considered adequate. There are no hoists in Total Mobility operation in Queenstown or Wānaka, although Queenstown Taxis did have a hoist vehicle in the past. The provision of hoist vehicles in these areas would have a positive impact on the accessibility of the Queenstown-Lakes area, although given Total Mobility usage is low in these areas, it may not be commercially attractive to operators. In other areas of Otago (e.g. Balclutha, Alexandra/Clyde, Cromwell) any level of Total Mobility service is likely to be too low for hoist vehicles to be considered viable on a commercial basis; however ORC would be willing to consider opportunities if they arose.

Given the above, ORC's position towards hoist installation can be summarised in the following table. "Maintenance of existing fleet size" refers to installations required to maintain the current level of availability, (e.g. to replace a vehicle leaving Total Mobility service due to age,

or damage); "Additions to hoist fleet" refers to installations that will increase the number of hoist vehicles on the road (e.g. due to an operator wishing to enter the hoist market or increase their level of service):

City/town	Maintenance of existing hoist fleet size	Growth of hoist fleet
Dunedin	Vital	Strongly desired
Oamaru	Strongly desired	Not expected
Wānaka	n/a	Desired
Queenstown	n/a	Desired
Other	n/a	Not expected

ASSESSMENT AGENCIES

Eligibility is assessed through a range of specialised and general agencies. Although ORC has a contract with these agencies, the value of the contracts is a nominal $1, as agencies fund this activity themselves through various means. It is possible that an agency could receive funding to provide assessments, which would be done on a per-assessment basis. If this were done, it would be to ensure the availability of a general, free option in a town where none could otherwise be provided. The following agencies currently operate:

Area	Agency
Dunedin	Age Concern Otago
	CCS Dunedin
	Livingwell Disability Resource Centre
	Epilepsy NZ
	Idea Services Dunedin
	Multiple Sclerosis Society
	MDA South Island
	PACT

	Parkinsonism Society of NZ
	Presbyterian Support Otago
	Royal NZ Foundation of the Blind
	Stroke Foundation
	The Dunedin RSA Trust
North Otago	CCS Disability Action
	Stroke Foundation
	Age Concern
Wānaka	Community Networks Wānaka
Queenstown	Age Concern Southland
	DRC Southland
	Enliven Southland

OTHER SUPPLIERS

Other notable suppliers supporting the Total Mobility system are Eyede (who supply the national Ridewise system which ORC participates in) and Placard (who print Total Mobility cards and mail them to clients).

3.2. FUTURE STATE

The Total Mobility scheme is currently undergoing a national review. Among factors such as eligibility and affordability, the review will consider the supply of Total Mobility services, including how to improve availability of wheelchair-accessible vehicles and alternative delivery models.

Many of the challenges ORC faces in the Total Mobility space have the potential to be addressed in this review. However as with SPTF changes affecting bus/ferry services, it will be important that ORC continues to administer the system in the current environment. Key actions from a procurement perspective will include:

- Preparing for the next round of contract expiries in 2027
- Seeking opportunities for new operators across the region
- Seeking opportunities for new assessment agencies across the region

- Administering and promoting hoist funding to maintain/expand the current wheelchair-accessible fleet
- Improvement of performance monitoring processes and implementation
- Continued participation in the Ridewise scheme for the administration of Total Mobility

4. PROFESSIONAL SERVICES

Professional services for Transport at ORC are delivered through a mix of internal staff and external contractors. Transport staffing has been limited in recent years, which has meant there has been a significant need for external support to deliver key pieces of work. The recruitment of skilled staff will remain a significant challenge, but the number of transport staff is projected to grow, and this will allow for an increased level of internal delivery.

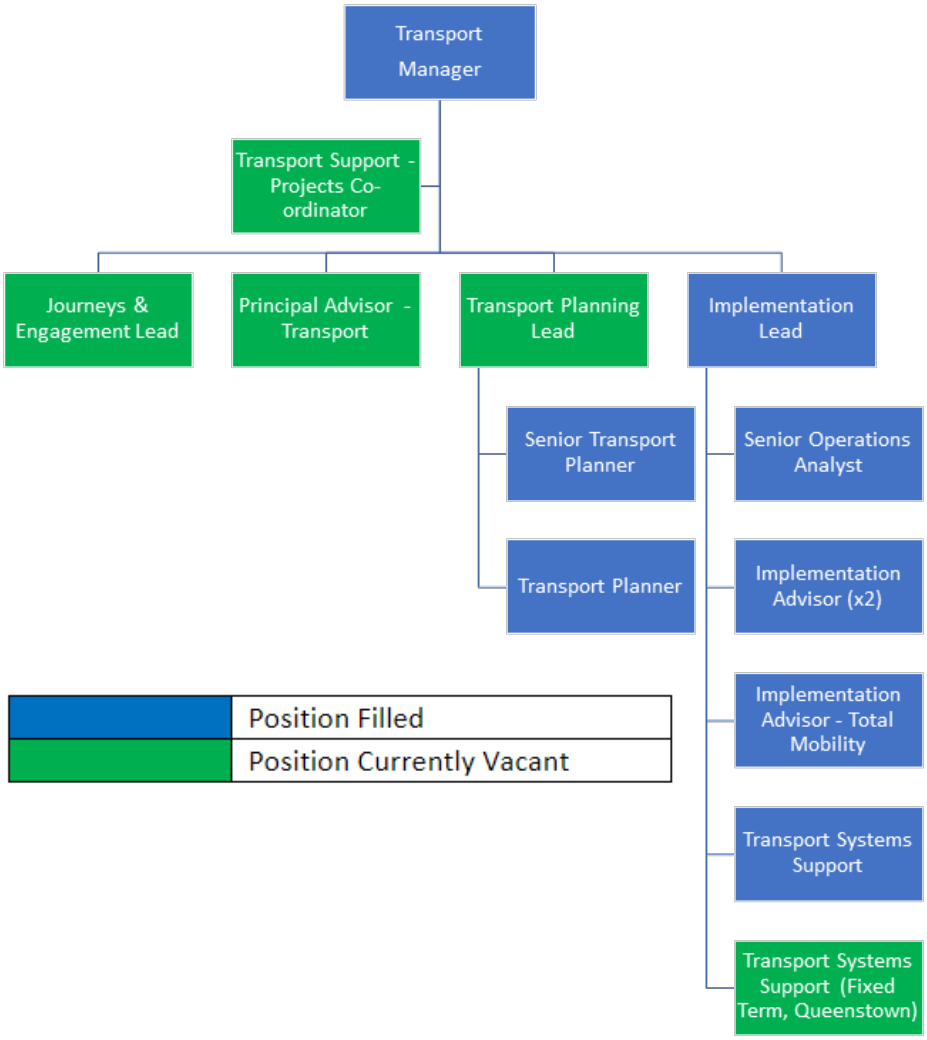
The anticipated level of growth in staffing does not reach the same level as comparable councils around the country. There will remain a significant need to utilise external professional services to deliver major projects and specialised experience, skill, and tools. Growth in internal staffing will only deliver improved balance between internal staff delivery and external support, not a wholesale shift to an internal delivery model.

4.1. CURRENT INTERNAL STAFFING

ORC's core transport team currently consists of 9 staff led by the Manager Transport, who reports to the Chief Executive. The team is divided into two main functions, Planning and Implementation, with three roles (currently unfilled) sitting between these teams.

Additionally, two positions in Marketing and Communications, and one position in Finance, are transport-focused. Further support for Transport work comes from across the organisation: examples include Customer Experience, IT, Legal, Finance, Governance, etc.

Figure 1: Current structure of Transport staff



4.2. EXTERNAL PROFESSIONAL SERVICES

ORC procures a wide range of external professional services. These involve the engagement of specialists in a variety of areas. This could be consultancy services, technology, or a wide range of other services. The following table indicates the areas of professional services we expect to procure, who the existing supplier(s) are, and what future strategy is expected.

Transport Procurement Strategy 2024-2027

Professional service	Current state	Future strategy
Public transport ticketing	INIT supply and support this system, supported by the ORC-based RITS team.	RITS system to be replaced by NTS system, expected in 2026 although timelines could change.
Real-time information	ORC uses the INIT/Mattersoft system.	Continue to use current system until NTS implementation. Ahead of NTS, a procurement process will be run for a system to operate in the NTS environment
Legal services	Legal support that cannot be delivered in-house is generally supported by Ross Dowling Marquet Griffin	Review.
Public transport cost assessor	Previous cost assessments have been undertaken by Ian Wallis Associates	Review
Transport planning consultants	A range of planning consultancies are regularly engaged for a variety of projects	Maintain and grow relationships with multiple suppliers to foster a strong local market. Ensure that new suppliers have opportunities to prove their capability through smaller pieces of work. Consider opportunities for internal delivery where staff skillsets / capacity can be developed.
Total Mobility administration system	Eyede system (Ridewise) is used. This is national system.	Continue to support the Ridewise program. Changes to be determined nationally, ORC to be a participant providing feedback to or participating in the Steering Group.
Total Mobility assessors	A range of assessment agencies operate. Some serve specialised communities (e.g. particular disabilities)	Continue to work with agencies and identify opportunities for new agencies. Work to ensure availability in smaller towns.

Professional service	Current state	Future strategy
	while others give more open availability	
Procurement support / tender evaluation	Rachel Pinn is engaged for most major procurements.	Undertake a procurement process to appoint a specialist to support major procurements in ~2026-28
Marketing consultants		
Graphic screen printers		
Printers		
Advertising		
Photographers		

4.3. BALANCE BETWEEN INTERNAL AND EXTERNAL DELIVERY

An efficiency review finalised in October 2023 indicates that, organisation-wide, ORC has a higher reliance than other regional councils on contractors and consultants. In transport, ORC has the lowest proportion of employee costs for transport activities across all regional councils. The report suggests that this may represent under-resourcing of transport planning activities.

Although the number of staff has increased recently and is forecast to increase again, the number of staff will still be low for the scale of ORC's transport services. As such, ORC will still be reliant on external support for a range of functions, some of which may be delivered internally elsewhere. This raises the question as to where to prioritise internal delivery. The focus for increasing internal delivery should be for where ORC needs to take greater "ownership" of an area. As examples, this could include:

- A larger portion of business case work and/or service planning to be delivered internally
- Greater internal engagement with bus and driver scheduling, allowing for improved financial and contract management, such as variable rates that include out-of-service running and contract payments based on hours and kilometres delivered plus fixed costs.

An example of an area where greater internal delivery might be desirable, but will be less prioritised, would be in procurement, especially if ORC switches to less contractual units, or simultaneous procurement of most contracts. In this case, the spike in workload and importance of these activities supports the engagement of a national expert for the key activities.

Overall, ORC will continue to be constrained in transport staffing levels, and will need to be strategic in where to increase the level of internal delivery of professional services.

5. STOCK TRUCK EFFLUENT DISPOSAL SITES

As part of ORC's wider environmental remit, ORC has installed nine stock truck effluent sites around the region. Six are on State Highway 1, and three are on inland highways. The design, construction, and maintenance of these sites is a Transport activity funded under the NLTF, and is overseen by Council engineers with competitively tendered contracts.

No further sites are planned at present.

6. EXTERNALLY DELIVERED/PROCURED TRANSPORT ACTIVITIES

This section provides a brief summary of Transport activities in areas which are entirely or primarily procured outside of the ORC, but are of interest to ORC's procurement environment. A strategic approach to procurement requires an understanding of these activities and markets.

6.1. INFRASTRUCTURE

Public transport infrastructure in Otago is delivered by territorial authorities (and Waka Kotahi on state highways).

For Dunedin's bus stops, the ORC typically funds the local share to the Dunedin City Council (DCC), while for Whakatipu, Queenstown Lakes District Council (QLDC) provides the local share (which in cases of new development areas is often gathered from developer contributions). ORC has no direct involvement with these procurement processes, but some consulting / professional service procurement occurs from time to time to support planning activities.

The future share of responsibilities around bus stop infrastructure in both centres is to be determined, as the arrangements are quite bespoke in both cases. In Dunedin, an Memorandum of Understanding (MoU) outlined responsibilities, but this is regarded as outdated. ORC will work with DCC to develop a new MoU.

From time to time, opportunities arise where local share may come from different sources. This could be special fundingsources, activities such as developer contributions in new residential or commercial areas, or the like-for-like replacement of bus infrastructure when a street or adjacent site is developed.

In Queenstown, the four ferry wharves have varied ownership arrangements, with the Hilton Hotel owning their own wharf, Real NZ owning the Queenstown Town Basin wharf, and QLDC owning the Marina and Bay View wharves. ORC's role in contributing to the costs of wharf maintenance and development will be determined in a future Ferry Strategy, as outlined in the market analysis above.

There is also future ork on central bus facilities in both Whakatipu and Dunedin. The NZUP development, funded by Waka Kotahi, will result in a new Frankton Bus Hub with greater capacity, passenger waiting areas, and driver break facilities. Further in the future, a new bus interchange in central Queenstown will support improved QPTSBC services; the way this is funded and procured is yet to be determined. In Dunedin, the long-term future of the Bus Hub has yet to be determined; with a small extension it may be able to support service increases,

but the quality of the facility for passengers may be insufficient. To study this, a business case will study the future form of central city bus operations. This could lead to greater enhancement of the existing on-street facility, the design of a new off-street facility, or an alternative operational approach such as focusing on enhancing a wider central city corridor. The funding and procurement of any new facilities is yet to be determined.

One other area of work is around customer information and wayfinding. ORC currently has a supplier and plans to roll out e-stops across the Otago networks; however in the longer term, further procurement activities may occur. Additionally, the current level of wayfinding on Otago's bus networks is limited. If opportunities arise, ORC will look to partner with Territorial Authorities (TA)s and/or NZTA to ensure any urban wayfinding projects around integrate effectively with connected public transport.

6.2. MINISTRY OF EDUCATION SCHOOL SERVICES

The Ministry of Education (MoE) procures bus services across Otago for school students to access schools. In general, these are provided where public transport services are not available, such as in rural areas, subject to minimum usage requirements. In some cases, these services interface with the Dunedin and Queenstown bus networks: they move students from outside the PT network area to the nearest schools in the area. These services may sometimes make use of the same buses, or spare buses, from the urban network. In this way they have a notable impact on the market for buses by providing a longer life for buses, which are not subject to such stringent requirements for age and accessibility (as they serve a pre-defined set of students whose needs are known).

School services are subject to regular review. Due to their targeted nature, they can change as students move through and out of the school system. In Queenstown, major changes to school routes are expected in the future, as the growth of ORC's services and of the town means that the current school routes will need to be changed. Some of these changes are expected to add demand to ORC's services and may require changes to service such as running additional trips. This would be done through contract variations.

6.3. EXEMPT SERVICES

In Otago, exempt services are bus or ferry services that operate without subsidy which were not, when they started operating, defined by the RPTP as integral to the public transport network. For inter-regional services (e.g. Christchurch to Dunedin or Dunedin to Invercargill) this applies to any of the relevant regional RPTPs.

Certain exempt services are required to be registered with ORC, and ORC maintains a register of these exempt services.

Some exempt services may be defined as integral services in a region's public transport network, and be allocated into an exempt unit. This would indicate that ORC had interest in the service and could potentially operate the service in future (under contract) if the service were removed. In Otago, particular services where this could potentially apply in future could include Intercity services to Dunedin and Queenstown, as well as services between Queenstown, Cromwell, Cardrona, and Wānaka.

Alternatively, ORC may identify certain planned services of its own as part of new contractual units. It would be important when doing this to understand the impact of creating new contracted services could have on existing exempt services. For example, if ORC were to extend its Dunedin-Palmerston service to Oamaru, this would compete InterCity services for Oamaru to Dunedin passengers, which could have a negative impact on the financial viability of the InterCity service. A reduction in service quality for passengers travelling beyond Oamaru could then result. It is therefore important that ORC is careful in the design of any new services, especially trial services. A trial that undermines the viability of an exempt service may become impractical to end, creating pressure to make the trial permanent regardless of the trial's actual success.

To avoid these pitfalls, ORC should ensure it identifies the potential for competing with exempt services, and works proactively with existing exempt operators to design trials and new services in a way that complement rather than compete the underlying service. For this reason, there will be a stronger case for direct appointment to new services and trial services that compete with exempt services; this way there can be a smooth transition from exempt to contracted service, and an off-ramp if the outcome of the trial is negative. This may also involve non-standard contracts: shorter terms, net contracts, or even concessionary contracts, depending on the nature of the service and the trial.

7. PROCUREMENT PROGRAMME

Based on the above analysis, this section summarises ORC's most significant procurement activities that will occur between 2024 and 2027. Several large procurements are likely to fall at the end of, or just beyond, this time period; these processes are included. This can be broken into several general workstreams: procurement of contractual bus units in Dunedin, Queenstown, and trial units elsewhere; procurement of the Queenstown Ferry contractual unit; procurement of Total Mobility, and procurement of professional services and products.

7.1. PROCUREMENT OF CONTRACTUAL UNITS – DUNEDIN URBAN

The Unit 5 procurement process is currently progressing, and this contract will be until 2034, joining Unit 3 (2031) as a small, long-term contract. The future alignment of these contracts with the rest of the network will require collaboration and creativity.

Units 1 and 2 are expiring in June 2026 and September 2026 respectively, while Unit 4 expires in 2028. Given procurement timelines and the desire for early procurement, a June 2026 contract expiry, a 12-month lead time for new contracts, and 3-6 months for the procurement process, the structure of future contractual units would need to be defined, or at least understood, by the end of 2024.

To reduce the scale of this constraint and bring Unit 4 into the same procurement process, ORC will evaluate the possibility of negotiating extensions of Units 1 and 2 to around the same time.

In the procurement planning process, ORC will evaluate end-of-contract asset transfer mechanisms to support a competitive market for tenders in the future.

7.2. PROCUREMENT OF POTENTIAL DUNEDIN SCHOOL UNIT

If the next RPTP, or a policy change under the existing RPTP, determines that ORC will continue to support school services in certain cases, it is possible that school services will be delivered as its own unit. This would likely be procured in 2025. It would not require as significant a lead time as other contracts as it would likely use second-hand diesel buses at least at first, and would be very small in size.

7.3. PROCUREMENT OF CONTRACTUAL UNITS – QUEENSTOWN BUSES

Whether on Council-purchased or leased land or not, the development of a new electrified depot to support service improvements will be essential to the next contractual procurement process in in Queenstown. The current two contracts expire in September 2026 and September 2028 respectively; ORC will seek to negotiate a common expiry date as a variation.

If ORC decides to seek to purchase land for a depot (the preferred option under the QPTSBC) or to lease it, it is possible that a wider procurement process will seek to develop the depot and to award the unit contract. These two tenders would be planned, and potentially evaluated, together.

If ORC does not invest in capital assets, the development of depot facilities will proceed on the basis of operator investment, although ORC may still look to take a role in more minor asset control approaches, such as transfer provisions to secure handover of facilities at end-of-contract. This approach will be determined by procurement planning processes.

7.4. PROCUREMENT OF CONTRACTUAL UNITS – QUEENSTOWN FERRY

Negotiations are currently ongoing for a new Queenstown Ferry contract. This would be for five years.

During this time, the development of the Ferry service will continue. This could include new vessels and changes in service levels or patterns.

ORC will procure expert support for a Ferry Strategy in 2025. This strategy will support the development of the Ferry service beyond the contractual term, aiming for a competitive procurement process in time for a 2029 contract start. In particular, it will determine an approach to fleet, wharf access, and resource consents.

7.5. PROCUREMENT OF TOTAL MOBILITY SERVICES

Current Total Mobility contracts will expire in June 2026.

At present, with Total Mobility being a concession-based scheme, ORC determine the suitability of interested operators on a case-by-case basis; there is no Procurement Manual mandate to undertake a competitive process as there is already “on-the-road” competition. However, Environment Canterbury have undertaken tendering processes for Total Mobility services, and ORC will investigate the merits of such an approach. This could also be undertaken for hoist installations.

These decisions will be taken through procurement planning and will be influenced by the progress and recommendations of the current review of Total Mobility services. This review could see a significant change in the operating model of Total Mobility.

7.6. PROCUREMENT OF PROFESSIONAL SERVICES

There will likely be several notable procurement processes for professional services in 2024-2027, including but not limited to:

- A business case in 2025 for central city bus infrastructure
- Support developing a Ferry Strategy
- A procurement advisor, with tendering to be timed for major unit bus contracts
- An RTI system to be implemented along with the NTS.

7.7. SUMMARY

APPENDIX 1: CHECKLIST OF PROCUREMENT STRATEGY REQUIREMENTS

In order to support NZTA endorsement of this Strategy, this Appendix provides evidence, referencing the body of the Strategy, that the Procurement Strategy meets the guidelines of the Procurement Manual. This is based on Appendix A of the Procurement Manual, which has two checklists: Checklist 1 for general procurement, and Checklist 2 for bus public transport units. For the purposes of this document, "bus public transport units" is considered to additionally include the Ferry unit in Queenstown, to the extent that this is relevant.

CHECKLIST 1 (EXCLUDING UNIT CONTRACT PROCUREMENT)

Heading	Checklist element	Evidence of fulfilment
1.Executive summary	1.1 Summary statements of key issues and opportunities to obtain best value for money	
	1.2 Recommendations where relevant thatNZTA : a) endorses the procurement strategy b) approves the use of advanced components c) approves a customised procurement procedure d) approves a variation or an exemption to a procurement rule e) approves the use of in-house professional services	
	1.3 Evidence of corporate ownership or internal indorsement of the procurement strategy	
2. Policy context of the approved organisation	2.1 Strategic objectives and outcomes	
	2.2 Objectives and outcomes for the procurement strategy	

	2.3 NZTA procurement requirements and what they mean for the approved organisation: a) best value for money b) competitive and efficient markets c) fair competition among suppliers	
	2.4 Other relevant factors, such as organisational policies, wider organisational procurement plans, or the regulatory environment	
3. Procurement program	3.1 Procurement programme, segmented by: a) size, type, or duration b) complexity, scale, timing, innovation potential, risk, and an assessment of the supplier market c) need for specialised skills	
	3.2 Identification (where relevant) of any pending high-risk or unusual procurement activities	
4. Procurement environment	4.1 Analysis of supplier market	
	4.2 Analysis of the approved organisation's current procurement spend and profile	
	4.3 Analysis of the impact of the procurement programmes of other approved organisations and entities	
5. Approach to delivering work program	5.1 Confirmation of specific strategic objectives	
	5.2 The procurement approach. For each segment of the work program, the	

	procurement strategy should identify the optimal procurement options as they relate to the strategic objectives. Consider: a) key attributes and best value for money strategy b) the nature of the activities for each segment of work (e.g. complexity, scale, timing, innovation potential, risk, and an assessment of the supplier market) c) aggregation, bundling, and the term of term service contracts d) proposed delivery model(s) and supplier selection method(s) impact of the preferred approach on best value for money, fair competition, and competitive and efficient markets e) risk identification and management f) approach to contract management	
	5.3 Analysis of whether advanced components, customised procurement procedures or variations to procurement rules are required and why	
6. Implementation	6.1 Capability and capacity: a) description of the current and desired state, including current structure, and roles and responsibilities within the wider organisational structure b) identification of any capability or capacity gaps c) plan to fill the gaps	

	6.2 Internal procurement processes	
	6.3 Performance measurement and monitoring: a) NZTA KPIs b) additional KPIs c) internal reporting, review, and feedback process	
	6.4 Communication plan: a) internal stakeholders b) other approved organisations and entities c) supplier market d) NZTA	
	6.5 Implementation Plan	
	6.6 Corporate ownership and internal endorsement	

CHECKLIST 2 (UNIT CONTRACT PROCUREMENT)

Heading	Checklist element	Evidence of fulfilment
1.Executive summary	1.1 Summary statements of key issues and opportunities to obtain best value for money	
	1.2 Recommendations where relevant that NZTA: a) endorses the procurement strategy b) approves the use of advanced components c) approves a customised procurement procedure d) approves a variation or an exemption to a procurement rule e) approves the use of in-house professional services	
	1.3 Evidence of corporate ownership or internal indorsement of the procurement strategy	
2. Policy context of the approved organisation	2.1 Summary of strategic objectives and outcomes from the RPTP	
	2.2 Objectives and outcomes for the procurement strategy	
	2.3 Any transitional considerations resulting from changes in government policy	
	2.4 NZTA procurement requirements and what they mean for the approved organisation: a) best value for money b) competitive and efficient markets	

	c) fair competition among suppliers	
	2.5 Other relevant factors, such as organisational policies, wider organisational procurement plans, or the regulatory environment	
3. Procurement program	3.1 Unit procurement programme, considering: a) whether the network identified in the RPTP is still fit for purpose b) whether the allocation in the RPTP of all services, including school services into units, impacts on the procurement programme c) (obsolete PTMA-PTOM transition) d) the number of units, the size of units, and the need to align or phase the procurement of units e) complexity, scale, timing, innovation potential, risk, and an assessment of the supplier market	
	3.2 Identification (where relevant) of any pending high-risk or unusual procurement activities a) whether there will be any directly appointed units and the implications for tendering activity for any other units to ensure the use of price benchmarks for directly appointed units are robust	

	b) consideration of what process will be used to appoint an arbitrator or adjudicator should negotiations for direct appointment fail	
4. Procurement environment	4.1 Analysis of supplier market	
	4.2 Analysis of the approved organisation's current procurement spend and profile	
	4.3 Analysis of the impact of the procurement programmes of other approved organisations and entities	
5. Approach to delivering work program	5.1 Confirmation of specific strategic objectives	
	5.2 The procurement approach. For each segment of the work program, the procurement strategy should identify the optimal procurement options as they relate to the strategic objectives. Consider: a) key attributes and best value for money strategy b) the nature of the activities for each segment of work (e.g. complexity, scale, timing, innovation potential, risk, and an assessment of the supplier market) c) aggregation, bundling, and the term of term service contracts d) proposed delivery model(s) and supplier selection method(s) impact of the preferred approach on best value for money, fair competition, and competitive and efficient markets e) risk identification and management	

	f) approach to contract management	
	5.3 Analysis of whether advanced components, customised procurement procedures or variations to procurement rules are required and why	
6. Implementation	6.1 Capability and capacity: a) description of the current and desired state, including current structure, and roles and responsibilities within the wider organisational structure b) identification of any capability or capacity gaps c) plan to fill the gaps	
	6.2 Internal procurement processes	
	6.3 Performance measurement and monitoring: a) NZTA KPIs b) additional KPIs c) internal reporting, review, and feedback process	
	6.4 Communication plan: a) internal stakeholders b) other approved organisations and entities c) supplier market d) NZTA	
	6.5 Implementation Plan	

	6.6 Corporate ownership and internal endorsement	

APPENDIX 2: SPTF TOOLKIT ANALYSIS

DUNEDIN NETWORK

Key Feature	Associated High-level Considerations			Assessment for Dunedin
Demand for Public Transport **Assessing the projected expansion and demand for public transportation services in the PTA's operating area.**	*In areas with declining demand, contracts can be structured to allow for demand-responsive services, ensuring cost- efficiency.*	Declining — Steady — Increasing	*An increasing demand for services indicates a need for scalability and flexibility. Contracts should allow for easy adjustments to service frequency and routes.*	*Although Dunedin is only a medium growth city, Dunedin's Orbus network is performing well and seeing sustained patronage growth, and there exists significant community support for improved service levels*
Market Depth **Evaluating the degree of market concentration now and potential for future market entry and competition.**	*In a shallow market where traditional open tenders may not attract strong competition alternative contractual arrangements may need to be considered to support value for money and improve competition.*	Shallow — Deep	*In a deep market with multiple operators, competitive procurement methods can be effectively used to drive value for money.*	*All recent tenders have had two participants, the two current operators. Therefore, competition exists but it is not deep.*
PTA's Capability and Resources **Considering the PTA's expertise and capabilities in managing complex transportation operations and transition to full decarbonisation of public transport.**	*For PTA's with constrained capabilities and resources, simpler contract types that are easier to implement and manage across the contract lifecycle may be more suitable.*	Limited — Advanced	*PTA's with greater capabilities and resources can explore more complex contracting models, including approaches to payments, variations, and performance incentive regimes that require enhanced contract management capabilities.*	*ORC has a relatively small transport team compared to similar-sized areas, and lacks sophisticated contract management and data resources that can support sophisticated approaches. There will be a need to be selective about changes that require more investment of staff capacity.*
Degree of Funding Constraints **The financial limitations or restrictions faced by the PTA in delivering and sustaining public transport services.**	*In financially constrained environments, contracts should emphasise value for money, budget certainty, cost transparency, and clear pricing mechanisms.*	Significant — Limited	*PTA's with limited funding constraints may be better placed to increase asset control and more easily meet additional demand and service objectives.*	*ORC has indicated a willingness to invest in local share in principle through the ambitious Fares and Frequencies business case, and NZTA has been a supportive participant. However, funding is not yet confirmed and there are many competing demands on the NLTF, so there should not be an assumption that increased funding is easily accessed.*
Control of Assets by PTA **The cost-benefit and willingness of PTAs to have direct ownership or control of assets.**	*A lower appetite for asset control may require PTAs to consider alternative ways to lower barriers to entry in a shallow market. Lower levels of asset control may also support the transfer of dead running risk to operators and the use of in-service variation rates.*	Low — High	*PTA's with appetite to control assets will need to consider the most appropriate pathway to achieving this given funding constraints and their capability and resourcing. Control of assets could impact pricing and variation approaches (e.g. PTA control of depots may better support the use variation rates based on total units - in-service and dead running).*	*Council has indicated in-principle interest in asset ownership or control, but it is a new topic that requires significant work, and Dunedin is likely to be a lower priority than Queenstown if this approach is pursued.*
Anticipated Significant Change to Service Requirements **Expected modifications to service demands resulting from the integration of new or upcoming public transport projects.**	*The level of service required is largely steady and predictable. The contract reflects a more 'business as usual' approach with traditional levers used to deliver outcomes. Variations are less of a focus given that minimal change to service levels is expected.*	No — Yes	*Where there is an anticipated significant change to service requirements contracts should include appropriate variation mechanisms. Known changes could be pre-priced as options, and unknown changes will require Net Financial Impact approaches.*	*Fares and Frequencies business case indicates significant increases in service levels. Although funding is not yet confirmed, there will be a need to be ready for service increases.*

WHAKATIPU NETWORK

Key Feature	Associated High-level Considerations			Assessment for Whakatipu
Demand for Public Transport **Assessing the projected expansion and demand for public transportation services in the PTA's operating area.**	*In areas with declining demand, contracts can be structured to allow for demand-responsive services, ensuring cost- efficiency.*	Declining — Steady — Increasing	*An increasing demand for services indicates a need for scalability and flexibility. Contracts should allow for easy adjustments to service frequency and routes.*	*Queenstown is one of the highest-growth parts of the country and high-quality public transport remains new, so significant further growth can be expected. The QPTSBC indicates significant service improvements.*
Market Depth **Evaluating the degree of market concentration now and potential for future market entry and competition.**	*In a shallow market where traditional open tenders may not attract strong competition alternative contractual arrangements may need to be considered to support value for money and improve competition.*	Shallow — Deep	*In a deep market with multiple operators, competitive procurement methods can be effectively used to drive value for money.*	*It can be expected that there will be only one operator at time, however a level of competition at tender should be expected. The viability of operators other than the current one are yet to be determined but there may be an additional base of alternative market participants in the form of bus/coach operations currently focused on tourism.*
PTA's Capability and Resources **Considering the PTA's expertise and capabilities in managing complex transportation operations and transition to full decarbonisation of public transport.**	*For PTA's with constrained capabilities and resources, simpler contract types that are easier to implement and manage across the contract lifecycle may be more suitable.*	Limited — Advanced	*PTA's with greater capabilities and resources can explore more complex contracting models, including approaches to payments, variations, and performance incentive regimes that require enhanced contract management capabilities.*	*ORC has a relatively small transport team compared to similar-sized areas, and lacks sophisticated contract management and data resources that can support sophisticated approaches. There will be a need to be selective about changes that require more investment of staff capacity.*
Degree of Funding Constraints **The financial limitations or restrictions faced by the PTA in delivering and sustaining public transport services.**	*In financially constrained environments, contracts should emphasise value for money, budget certainty, cost transparency, and clear pricing mechanisms.*	Significant — Limited	*PTA's with limited funding constraints may be better placed to increase asset control and more easily meet additional demand and service objectives.*	*ORC has indicated a willingness to invest in local share in principle through the ambitious QPTSBC case, but the base of ratepayers is very small compared to most New Zealand cities so the per-head cost of local share is a potential pain point.* *Business case funding is not yet confirmed, but the case for Waka Kotahi share is very strong given the extremely high demands on the trans*
Control of Assets by PTA **The cost-benefit and willingness of PTAs to have direct ownership or control of assets.**	*A lower appetite for asset control may require PTAs to consider alternative ways to lower barriers to entry in a shallow market. Lower levels of asset control may also support the transfer of dead running risk to operators and the use of in-service variation rates.*	Low — High	*PTA's with appetite to control assets will need to consider the most appropriate pathway to achieving this given funding constraints and their capability and resourcing. Control of assets could impact pricing and variation approaches (e.g. PTA control of depots may better support the use variation rates based on total units - in-service and dead running).*	*Council has indicated in-principle interest in asset ownership or control, but it is a new topic that requires significant work. The QPTSBC includes the purchase of land for an electric depot so this approach is considered likely for Queenstown.*
Anticipated Significant Change to Service Requirements **Expected modifications to service demands resulting from the integration of new or upcoming public transport projects.**	*The level of service required is largely steady and predictable. The contract reflects a more 'business as usual' approach with traditional levers used to deliver outcomes. Variations are less of a focus given that minimal change to service levels is expected.*	No — Yes	*Where there is an anticipated significant change to service requirements contracts should include appropriate variation mechanisms. Known changes could be pre-priced as options, and unknown changes will require Net Financial Impact approaches.*	*QPTSBC will represent significant service level increases. Funding is not yet confirmed but the need is very evident.*

NEW SERVICE AREAS (OAMARU, WĀNAKA, REGIONAL ETC)

Key Feature	Associated High-level Considerations			Assessment for new service areas
Demand for Public Transport **Assessing the projected expansion and demand for public transportation services in the PTA's operating area.**	*In areas with declining demand, contracts can be structured to allow for demand-responsive services, ensuring cost- efficiency.*	Declining — Steady — Increasing	*An increasing demand for services indicates a need for scalability and flexibility. Contracts should allow for easy adjustments to service frequency and routes.*	*There is significant community support for new service areas, and in some places especially in Wānaka / Central Otago, significant residential growth*
Market Depth **Evaluating the degree of market concentration now and potential for future market entry and competition.**	*In a shallow market where traditional open tenders may not attract strong competition alternative contractual arrangements may need to be considered to support value for money and improve competition.*	Shallow — Deep	*In a deep market with multiple operators, competitive procurement methods can be effectively used to drive value for money.*	*Market is relatively untested, but there are significant exempt or charter operations across the region.*
PTA's Capability and Resources **Considering the PTA's expertise and capabilities in managing complex transportation operations and transition to full decarbonisation of public transport.**	*For PTA's with constrained capabilities and resources, simpler contract types that are easier to implement and manage across the contract lifecycle may be more suitable.*	Limited — Advanced	*PTA's with greater capabilities and resources can explore more complex contracting models, including approaches to payments, variations, and performance incentive regimes that require enhanced contract management capabilities.*	*ORC has a relatively small transport team compared to similar-sized areas, and lacks sophisticated contract management and data resources that can support sophisticated approaches. New services in new areas would increase the burden on a small team*
Degree of Funding Constraints **The financial limitations or restrictions faced by the PTA in delivering and sustaining public transport services.**	*In financially constrained environments, contracts should emphasise value for money, budget certainty, cost transparency, and clear pricing mechanisms.*	Significant — Limited	*PTA's with limited funding constraints may be better placed to increase asset control and more easily meet additional demand and service objectives.*	*ORC has indicated a willingness to invest in local share in principle. Previous Waka Kotahi bids for trial service funding have not been successful, and if approved in 2024, trial services will be operating under low-cost, low-risk funding, which is limited.*
Control of Assets by PTA **The cost-benefit and willingness of PTAs to have direct ownership or control of assets.**	*A lower appetite for asset control may require PTAs to consider alternative ways to lower barriers to entry in a shallow market. Lower levels of asset control may also support the transfer of dead running risk to operators and the use of in-service variation rates.*	Low — High	*PTA's with appetite to control assets will need to consider the most appropriate pathway to achieving this given funding constraints and their capability and resourcing. Control of assets could impact pricing and variation approaches (e.g. PTA control of depots may better support the use variation rates based on total units - in-service and dead running).*	*ORC has indicated in-principle interest in asset ownership or control, but it is a new topic that requires significant work. For new service areas, ORC may have opportunities for asset control approaches especially around fleet, if this is considered desirable.*
Anticipated Significant Change to Service Requirements **Expected modifications to service demands resulting from the integration of new or upcoming public transport projects.**	*The level of service required is largely steady and predictable. The contract reflects a more 'business as usual' approach with traditional levers used to deliver outcomes. Variations are less of a focus given that minimal change to service levels is expected.*	No — Yes	*Where there is an anticipated significant change to service requirements contracts should include appropriate variation mechanisms. Known changes could be pre-priced as options, and unknown changes will require Net Financial Impact approaches.*	*This is a new service area and could be subject to significant change over time.*

OPTIONS MAPPING

Issue	Options					Rationale
Asset control – end state	Full operator control (current state)		Mixed PTA-operator control (strategic target)		Full PTA control (ideal state)	(strategic target): there is a strong case that having some level of control over some strategic assets will support a competitive market and value for money spent. This is expressed in the QPTSBC. (ideal state): ideally, ORC would have close control over depot and fleet assets and would be able to use them to tender narrow management contracts. However, ORC are not currently in a position to commit to such a target
Asset control – pathway	N/A (current state) (strategic target)	Transfer obligation – fleet (alternative for select cases)	Transfer obligation – infrastructure (strategic target)	PTA leases or purchases assets – Fleet (alternative for select cases) (ideal state)	PTA leases or purchases assets – Infrastructure (strategic target) (Ideal state)	(strategic target): QPTSBC analysis supports purchase of land for a depot in Queenstown. There is no equivalent need in Dunedin and operator-led investment is already occurring, but for major 2026-28 procurements, ORC will investigate if end-of-contract transfer obligations (to a new operator, or alternatively to ORC) in order to support competitive tenders (alternative for select cases): In response to particular needs, ORC may need to take a more direct role in fleets. This could include around the Ferry, small-scale trials that need specific forms of support, or mid-contract fleet changes. (ideal state): As above, the ideal state is regarded as full ownership, but there is not currently capacity to achieve this.
Contract type	Concession (alternative for select cases)	Quality partnership (alternative approach to explore)	Net cost contract (alternative for select cases)	Gross cost contract (current state) (strategic target)	Collaborative contract (alliance style) (alternative approach to explore)	(strategic target): Gross cost contracts are regarded as the industry standard and support ORC's ability to conduct service planning and allocate risks in a manner that avoids ambiguity. (alternative for select cases): For very minor trial scenarios, concessions or net cost contracts can be considered if the nature of a service is such that ORC's control of the service is minor. (alternative approach to explore): There is not yet a clear understanding of what alternative approaches would look like or what can be regarded as an ideal state, but there may be a number of elements of interest in quality partnership or alliance style approaches that could be applicable as improvements to a gross-cost approach.
Contract term	Short (1-5 years) (alternative for select cases) (ideal state)	Moderate (6-9 years) (current state) (strategic target) (ideal state)	Long (10-15 years) (strategic target)	Very long (15+ years) (alternative for select cases)		(strategic target): the current contract lengths are not considered a major issue, but ORC should be flexible in contract length for a variety of reasons: e.g. to reward performance, or to align contract expiries (ideal state): The ideal state for asset control above would imply narrower contracts, which could (but would not have to) be tendered more often, making bus contract procurement a more regular, continuous activity. (alternative for select cases): Very short contracts and very long contracts may be useful in select cases: for example long contracts to align with likely long lifetimes of ferry vessels, or very short contracts to support trials or to give time for future competitive processes
Procurement – evaluation	Quality based method (alternative for select cases)	Value for money assessment combining price and quality (alternative for select cases)	Price Quality Method (current state) (strategic target)	Price assessment only (alternative for select cases)		(strategic target) (ideal state): The Price Quality method is regarded as satisfactory at present with no major issues evident in recent tenders,.

			(ideal state)		(alternative for select cases): other methodologies may have occasional merit in specific situations where they apply but no specific cases are noted
Procurement – method	Direct award / negotiation (alternative for select cases)	Closed contest tender (reject)	Open competition tender (current state) (strategic target) (ideal state)	[in-house] (reject)	(strategic target) (ideal state): Open competition is regarded as best-practice. (alternative for select cases): Direct award/negotiation is an acceptable alternative, and could be used to reward good performance, or as a bridge towards future contracts. (reject): Closed contest tenders are rejected as unnecessary. In-house delivery is rejected as not being currently viable; such an approach would require wider organisational amendment beyond the scope of this Strategy.
Pricing – transparency	Total fixed price (no transparency) (reject)	Transparency at payment component level (current state)	Detailed breakdown of elemental costs (strategic target) (ideal state)		(reject): No price transparency is regarded as unacceptable. (strategic target): A degree of payment-level transparency already exists in tenders but significantly increasing the level of detail will give greater confidence over time
Pricing – payment approach	Annual budgeting (reject)	Combined fixed and variable pricing elements (strategic target) (ideal state)	Fully fixed annual pricing (current state)		(strategic target) (ideal state): Structuring payments as fixed plus variable elements (where the main variable element is for time and distance including dead running) would require some upfront work, but in the long term would simply the understanding of payments and the costing of variations. (reject): An annual budgeting approach is an interesting alternative, but may reduce the ability to maintain a stable service without micro-managing frequencies and service hours. It is not therefore a target.
Variations	Marginal rates (in-service) (current state)	Marginal rates incl. dead running (strategic target)	Pre priced options (current state) (alternative for select cases)	Net financial impact (ideal state)	(strategic target): A shift to dead-running-inclusive marginal rates fits with the need to improve ORC's oversight of bus and driver schedules, and resolves a lot of the difficulties we already see in agreeing on reasonable pricing variations. It is a very viable improvement as long as there is capability to have confidence that the dead running levels are reasonable. (ideal state): Net financial impact would ultimately be the fairest approach, but ORC's capacity to fully evaluate an impact may be limited, so the target may not be realistic. None the less, it makes sense to flag the option for cases where the level of variation is high. (alternative for select cases): Pre-priced options to be used where there is a reasonably level of confidence in the exact form of a future service change, but avoid making tender pricing excessively complex or putting in excessively speculative options.
Indexation	No indexation (reject)	Composite index (current state)	Cost element index (strategic target) (ideal state)		(strategic target) (ideal state): If there is a desire on the part of operators to take a more granular approach ORC should be capable of implementing cost-element approaches to indexation in new contracts, especially in combination with other improvements to financial approach. (reject): a regime without indexation will see a significant risk premium and is not regarded as viable.
Performance incentive regime	No performance regime (reject)	Service delivery, quality, and customer regime (current state) (strategic target)	Patronage regime (current state)	Behavioural regime (ideal state)	(strategic target): ORC will move away from financial incentives for patronage (FIM) as patronage outcomes are regarded as largely within ORC's control. There will be a focus on more effective implementation of service delivery / quality / customer responsiveness.

					(ideal state): A sophisticated behavioural regime would be the best approach, but would be too much of a burden on staff capacity to focus on at present. (reject): Some form of performance regime is regarded as essential.

APPENDIX 3: DOCUMENT DEVELOPMENT AND ENDORSEMENT

Action	Date	Description
Early drafts (v0.1 and v0.2)	12 December 2023	Early drafting and structure of document
Preliminary feedback from Council	13 December 2023	Council resolution as follows: *That the Council:* *1) **Notes** this report, and* *2) **Supports** capital investment in depot/vehicle assets as a possible strategy for ensuring best value for money and competitive markets for public transport contracts*
Substantive draft v0.3	12 January 2024	Substantive draft, taking into consideration Council resolution and NZTA discussion paper
Peer review	19 January 2024	Peer review of v0.3 draft by Taith Consulting
Working draft v0.4	25 January 2024	Draft to Manager Transport / Chief Executive (CE)for feedback ahead of agenda close
Working Draft v0.5	31 January 2024	Draft for Committee consideration. Some finalisation work still to do, without changing substance of document.
Public and Active Transport Committee recommendation for endorsement	*7 February 2024*	*Committee to recommend endorsement to Council*
Final Draft v1	*14 February 2024*	*Final draft implementing any Committee feedback and further improvements*
Council, delegation of endorsement to Chief Executive	*21 February 2024*	*Final approval of Council, subject to any editorial changes*
Final v1.01	*23 February 2024*	*Final draft of document for CE approval*
Final ORC endorsement by Chief Executive	*23 February 2024*	*Formal Council endorsement as delegated, and document to be submitted to NZTA*
Final NZTA endorsement	*22 April 2024*	*40 working-days deadline for final endorsement*
Final v1.02	*23 April 2024*	*Final version of document, including NZTA endorsement*