Mosgiel Park and Ride

Single Stage Business Case

Dunedin City Council

04 August 2023

→ The Power of Commitment

Scope and Limitations

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GHD Limited 626860

Level 1, Bing Harris Building, 286 Princess Street

Dunedin, Otago 9016, New Zealand

T +64 3 378 0991 | **E** Chcmail@ghd.com | **ghd.com**

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Glossary

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Overview

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This SSBC outlines the case and seeks Waka Kotahi endorsement for funding assistance for investing in Operational improvement / Best use of existing system interventions[1] in Mosgiel, Dunedin. A preferred option has been developed and assessed that will support the existing public transport service and make this mode of travel more accessible to more people.

Figure 1 Connecting Dunedin[2]

[1] As per the Waka Kotahi NZ Transport Agency Intervention Hierarchy
[2] **Home - Connecting Dunedin**

Context

Mosgiel is a suburban catchment of Dunedin, New Zealand with a population of approximately 11,000 people at the 2018 Census.[3] Mosgiel has been growing in recent years with some infill development as well as greenfield suburban developments. Located approximately 14 km from central Dunedin via State Highway 1, the town is identified as a key growth area for Dunedin with many people commuting into the central city for work and education. Mosgiel is also a key service town for the surrounding rural plains community.

Mosgiel residents, like most suburban areas of New Zealand, are car centric and rely heavily on their private vehicles for regular trips due to limited alternative options available. The use of these private vehicles for key regular journeys is reflected in mode share statistics with just 4% of Mosgiel residents stating they used the bus as their main means of travel to work or education at the 2018 Census.[4]

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The project Investment Logic Map is provided as Figure 2.

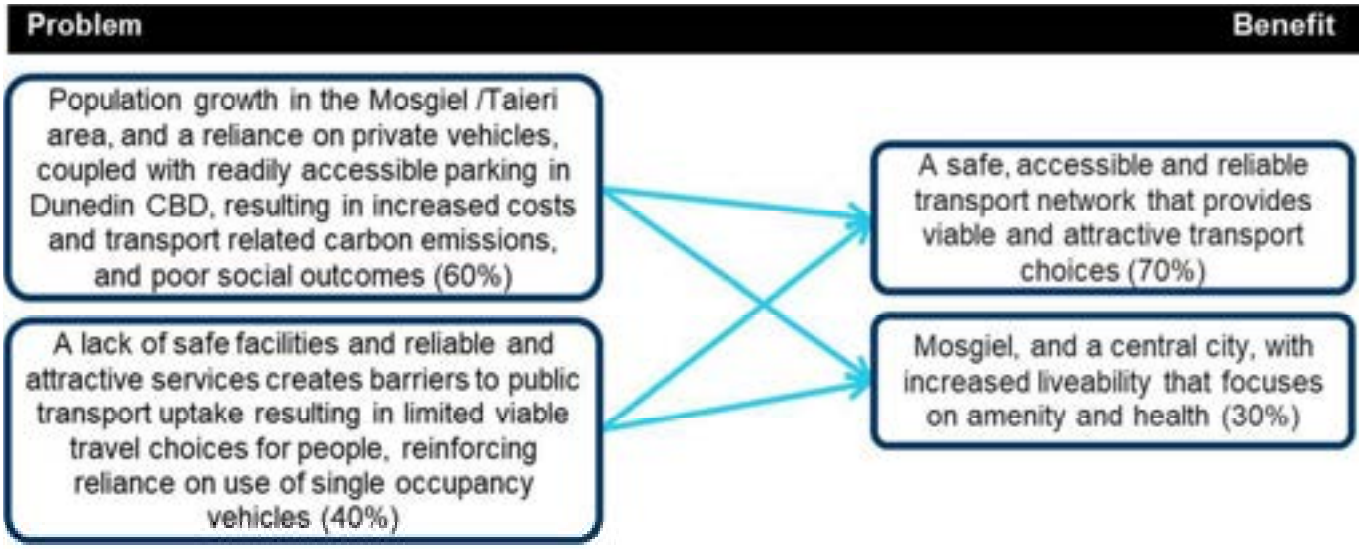

Figure 2 Investment Logic Map, Mosgiel Park and Ride SSBC

The following Investment Objectives were defined for the project:

Increase public transport patronage through reducing the barriers to uptake and improving the attractiveness of travelling by bus.

Decrease the number of single occupancy vehicles travelling from Mosgiel to Dunedin in the morning peak to reduce parking demand and traffic in the central city and improve safety.

Reduce the environmental and social impact of land transport whilst maintaining efficient movement of people and products.

There are four benefit categories this SSBC aims to realise from investment, as shown mapped in Figure 3 with alignment against the Government Policy Statement (GPS) on land transport and the Ministry of Transport's Transport Outcome Framework.

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Figure 3 *Investment benefits alignment with GPS and Outcomes Framework (GHD 2022)*

Option development

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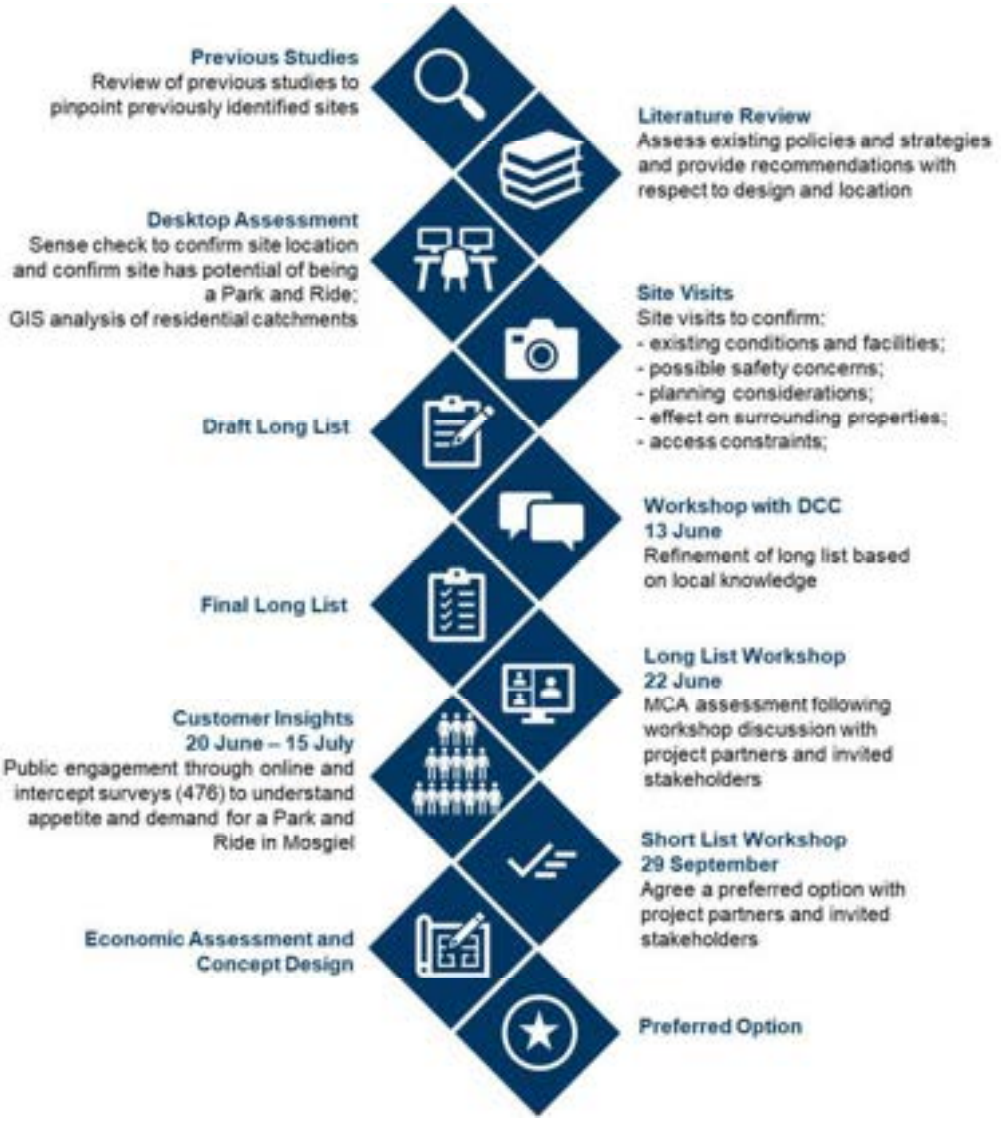

Figure 4 *Mosgiel Park and Ride option development methodology (GHD 2022)*

Preferred option

Six locations were assessed, as well as the Do Minimum, with a consensus at the short list workshop to progress Option 5 + 3 as the preferred option. This consists of developing a Park and Ride at the rail yard at Mosgiel Station, accessed off Burns Street (Option 5), supported by minor improvements at Glasgow Street pocket park in Mosgiel town centre (Option 3).

Option 5 + 3 was agreed as the preferred option for the following characteristics:

– Highest residential catchment of the options regarding the number of people living with walking and cycling distance
– No existing users (other than site being used to stockpile ballast) who may be negatively impacted
– Located to intercept commuters early in their overall trip by being 'on the way' to Dunedin for most trips from Mosgiel
– Easily accessible from SH1 for people in the hinterland (e.g. Allanton and Clutha)
– Existing public transport users have the least travel time disadvantage compared to the other non do-minimum options regarding the required rerouting of the existing bus service
– Ability to scale up the site if successful as there is a large area of undeveloped land at the site, and
– The location would complement the potential re-introduction of passenger rail services using Mosgiel Station (i.e. a Park and Ride site for train passengers).

In this way, Option 5 + 3 is seen to provide the best medium to longer term ability to increase public transport patronage between Mosgiel and Dunedin. In doing so, the preferred option is anticipated to:

– Increase public transport patronage through reducing the barriers to uptake by extending the 'reach' of the existing public transport service
– Reduce the number of single occupancy vehicles commuting to Dunedin from Mosgiel, and
– Reduce the environmental and social impact of land transport through a reduction in VKT[5].

The preferred option location is shown in Figure 5.

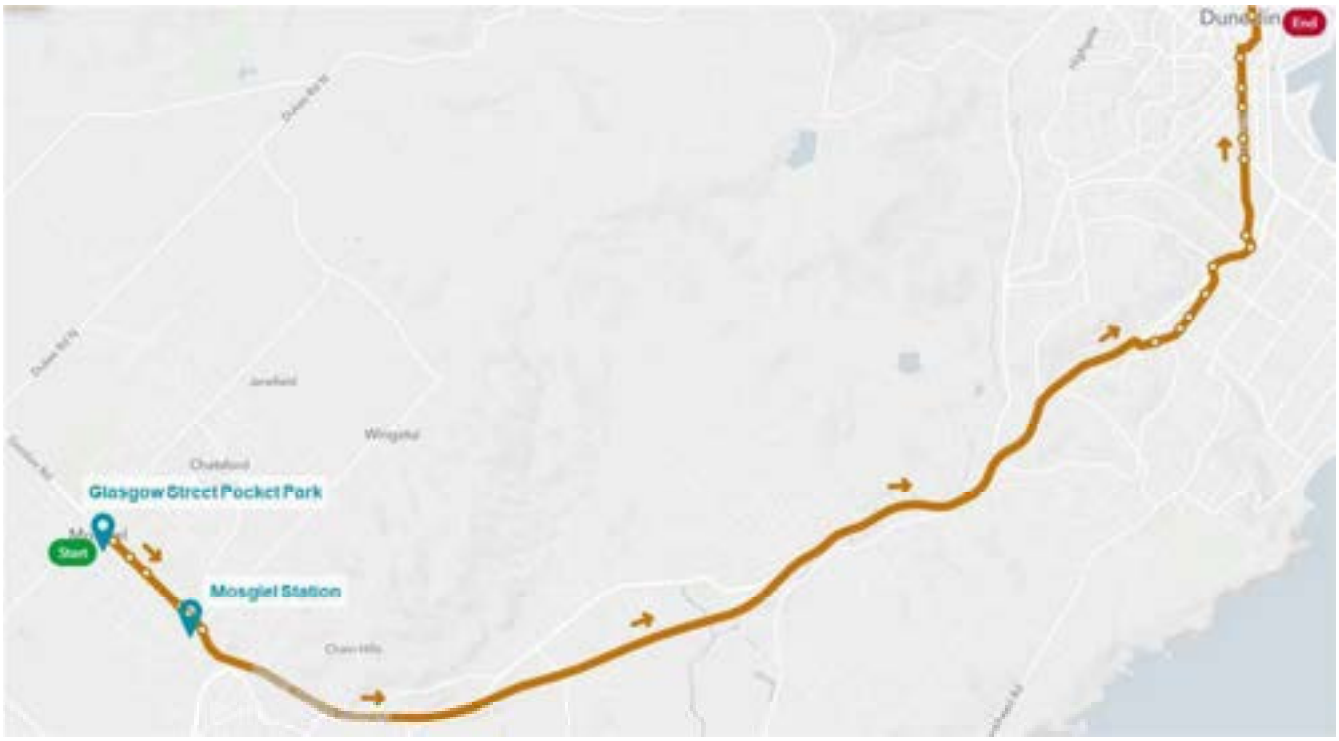

Figure 5 Mosgiel Park and Ride – preferred option locations and express service route[6]

[5] Vehicle kilometres travelled
[6] Base map provided by Otago Regional Council, February 2023

Key features of the preferred option for Mosgiel Station include:

– Access to the site via inclusion of a fourth leg onto the Burns Street / Kings Street intersection formed over Owhiro Stream
– New raised table with pedestrian mid-block islands at the intersection of Burns Street / Kings Street
– Parking bays for vehicles, electric vehicles, mobility parking, 'kiss and ride', motorcycles and buses
– Safe pedestrian access provided from Burns Street and SH87
– Landscaping areas and a hardstand area to accommodate bicycle parking, bus shelter and toilet facilities, and
– A fence offset 5 m from the rail line to prevent public access into the rail corridor.

Key features of the preferred option minor improvements for Glasgow Street pocket park include:

– Installation of bus shelter
– An increased number of cycle stands, and
– Additional signage / marketing to promote use of public transport.

In addition to the capital works, supplementary travel demand measures are included in the preferred option that align the Waka Kotahi mode shift lever- Influencing travel demand and transport choices. Initiatives will be targeted toward promoting awareness and use of the Park and Ride facility, potentially including:

– Working with local schools and businesses to instil sustainable travel behaviours
– Targeted promotion and education of 'interested but concerned' users through a 'give it a go' campaign
– Delivery of a wayfinding programme and install signage along core routes to the Park and Ride facility, and
– Explore opportunities to use technology to promote carpooling / car sharing to the Park and Ride to reduce single occupancy vehicle travel to the site.

The additional investment of the Park and Ride facility also presents the opportunity to increase the service offerings of the planned Express Service. The recommended additional services will be focused around meeting the travel needs of people commuting to main activity centres in Dunedin, such as the University of Otago and the Hospital (in particular, services to accommodate shift patterns which was raised as a key barrier to using public transport for many in the Customer Insights survey). This will enhance and further support a public transport system that offers convenient and competitive travel choice for Mosgiel and the wider Taieri.

*Note: The associated cost of increasing the number of bus services has been included in the economic analysis. However, the service requirements of these additional services (e.g. timetabling) have not been determined and are outside of the scope of this SSBC.

Preferred option assessment

Strategic alignment

The project falls within the wider Connecting Dunedin programme and there is a strong motivation and support to deliver the project. Key considerations include:

✓ Clear alignment with the GPS[7] and ability to deliver strategy both with respect to travel choices and emission reduction
✓ Non-delivery of the Park and Ride in the 2021-24 NLTP[8] period will have a significant impact on realising the estimated benefits of the implementation of the Express Service and therefore the overarching Connecting Dunedin programme

> *"If implementation of public transport and Harbour Arterial improvements cannot be commenced by early 2022, disruption and loss of access caused by hospital construction will be more significant than currently anticipated" – Shaping Future Dunedin Transport PBC (2021)*

[7] Government Policy Statement on land transport
[8] National Land Transport Programme

- ✓ High residential growth in Mosgiel. It is important to provide high quality transport choices from 'day one' to encourage the formation of sustainable travel habits before single occupant private vehicle use becomes the norm
- ✓ Dunedin City Zero Carbon 2030 Target

The preferred option is strongly aligned with GPS strategic priorities of better travel options and climate change, obtaining a "Very High" rating under the Investment Assessment Framework.

Value for money

The preferred option has been economically evaluated using Simplified Procedures for Public Transport (SP-10) and the guidance provided in the 2021 edition of the Waka Kotahi Monetised Benefits and Cost Manual (MBCM).

The estimated present value net project cost of the preferred option is $23.3M consisting of $14.4M capital cost and $8.9M operating and maintenance cost over 40 years. The economic benefits of the project have been estimated to be $38.4M (excluding WEBs[9]). As such, the project is projected to have an economic benefit to cost ratio (BCR) of 1.7.

The sensitivity of the evaluation was assessed to show how the preferred options performs if economic parameters vary. The results produced a BCR range between 1.3 and 1.9 demonstrating the preferred option represents a value for money investment through achieving a BCR above 1, even under scenarios where discount rates increase, or patronage estimates are decreased.

To achieve value for money, the preferred option can be delivered in stages to align with funding availability and initial demand estimates for opening. Through the design development process Dunedin City Council will investigate options to deliver a staged park and ride facility that meets demand (and car parking requirements) for the early years which is estimated to be approximately 100 car bays at the park and ride. This could be achieved through a mix of formal (higher level of service) car parking and informal car parking within the site (approximate 200 car park) capacity.

Dunedin City Council will also be using this approach to value engineer the works and will over time deliver a Park and Ride to the specifications outlined in the preferred options. It is anticipated that critical functional elements for a Park and Ride will be delivered in the short term (e.g. shelter, seating, access), with further amenity items (e.g. toilets) to be constructed later. This approach will achieve a balance between providing a high quality facility to entice mode shift, and remaining within funding constraints.

Investment Profile

The preferred option assessment profile is **HHL** in accordance with the Investment Prioritisation Method for the 2021-24 NLTP, and therefore has been assigned an overall investment priority score of **5.**

Appraisal Summary Table evaluation

The monetised, quantitative and qualitative benefits and costs of the preferred option include:

- ✓ 1.1 Impact on social cost and incidents of crashes
- ✓ 8.1 Impact on greenhouse gas emissions
- ✓ 10.1 Impact on user experience of the transport system
- ✓ 10.2 Impact on mode choice
- ✓ 10.3 Impact on access to opportunities
- ✓ 12.1 Impact on Te Ao Māori

[9] Wider economic benefits

Implementing the preferred option

Implementation strategy

The preferred delivery model is to adopt a staged / traditional method approach consisting of a pre-implementation stage followed by an implementation stage. This is considered appropriate as the project is relatively small in scale and the complexity, uncertainty, innovation and risks are standard. This approach will enable the project to come to the market in a timely manner.

The indicative implementation timeframes are shown in Figure 6 for a single implementation stage. There is consideration of staging the implementation, this would likely involve a 2023/24 construction period as per the figure and then a second construction period in 2025/26 or later. These stages are to be workshopped further during the detailed design stage.

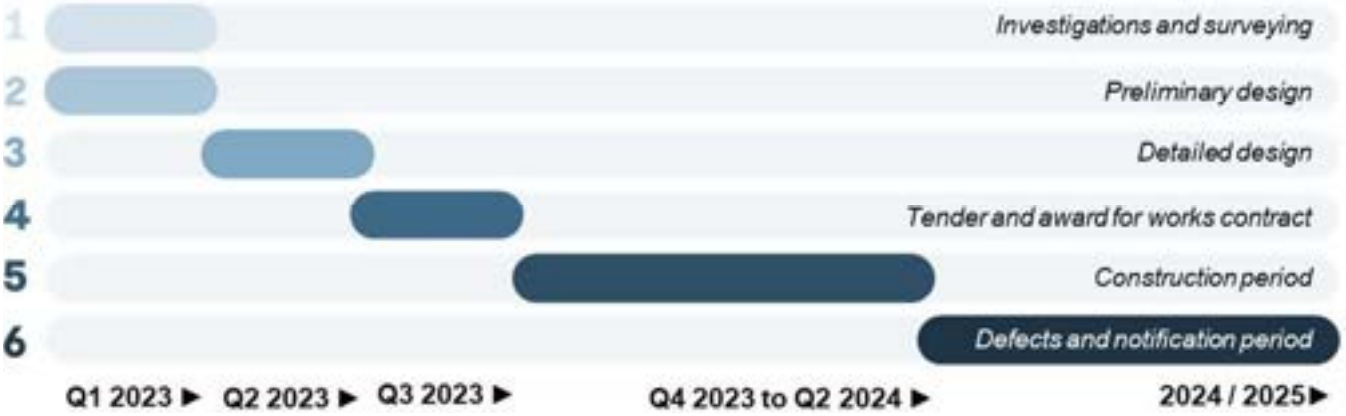

Figure 6 Mosgiel indicative implementation timeframes (GHD 2022)

Procurement strategy

The delivery of a low risk civil infrastructure project of this magnitude is not unique to the local or regional infrastructure and construction industry. Therefore, the largely routine and simple characteristics of this project are not expected to present any significant new or bespoke commercial risks to the partners involved.

There are some structures included in the preferred option project design, but nothing considered overly complex that would require resource from outside of the region to deliver. It is therefore anticipated that multiple contractors will be interested in contracts of this nature.

Consenting strategy

An initial constraints analysis has been undertaken to identify any significant risks associated with consenting. As such, it is expected that a conventional consenting process will be appropriate. Further technical assessments will need to be undertaken during early stages of detailed design to further refine the consenting risks, which are most notably: disturbance to a HAIL[10] site, undertaking instream works and resulting disturbance, and earthworks outside of the road reserve.

The preferred option includes a site that is within the Wāhi Tupuna Mapped Area - Kokika o Te Matamata[11]. Ongoing detailed design discussions with Aukaha will continue to create opportunities to integrate mana whenua values into design aspects of the park and ride facility. Note, Aukaha have confirmed via an initial desktop study that there are no concerns with the proposed location.

Further public engagement and public participation in the consenting process will assist Dunedin City Council in determining how any adverse environmental effects could be mitigated or managed.

[10] Hazardous Activities and Industries List
[11] Area surrounding Mosgiel

Property strategy

All works that impact property are anticipated to be within the KiwiRail land parcel. Council have commenced discussions with KiwiRail to enter into a lease agreement for the use of the land, with existing dis-used structures on the KiwiRail site likely to be relocated or removed. The initial discussion has revealed that a nine year lease is preferred with a right to renew. These discussions are ongoing.

No physical impact is anticipated to adjacent properties during construction of the project. An engagement plan for potentially affected landowners will be completed in the detailed design stage of the project.

Funding

Funding of the preferred option is expected to be shared between Dunedin City Council and Waka Kotahi with a FAR[12] of 51 percent.

Local share funding has been allocated to the programme in Dunedin City Council's 10 year plan 2021-2031 *Tō tātou eke whakamuri | the future of us*; $9.95M has been allocated for the programme, with $4.95M assigned to the first two years. The 2022/23 Annual Plan Update increased the funding allocation for the first three years to $5.45M.

The project is included in the Waka Kotahi NLTP 2021-24. The funding priority is 'Probable'. It is envisaged that Waka Kotahi funding share for the pre-implementation stage will be made available to Dunedin City Council upon endorsement of this SSBC. Funding for the implementation stage is also envisaged to be endorsed via this SSBC and anticipated to be made available in 2023/24 financial year.

Governance

Governance is in place with the overarching Connecting Dunedin Governance Group. As per the partnership agreement, Dunedin City Council are the project sponsor for this project within the wider programme. Therefore, Council will hold the primary responsibility and leadership, governance, planning, and design, consenting, land acquisition, pre-implementation, implementation, maintenance, and operations for the project.

This project has interfaces with networks that do not fall under the remit of Council. Otago Regional Council will retain responsibility for the public transport network, KiwiRail for the rail corridor, and Waka Kotahi for the state highway network.

Recommendations

It is recommended that:

- ✓ The preferred option is taken forward to the detailed design stage.
- ✓ Refinements are made through the design development process in order to achieve a balance between providing a high quality facility to entice mode shift, and remaining within funding constraints. This will likely include staging the implementation of the Park and Ride site, rather than a single investment and implementation approach.
- ✓ Dunedin City Council continue working in partnership with Otago Regional Council regarding improvements to public transport services for Mosgiel and the wider Taieri.
- ✓ The complementary projects identified that support mode shift for people travelling into Dunedin City are progressed, particularly those that act to remove barriers for vulnerable road users once in the central city.

[12] Funding assistance rate

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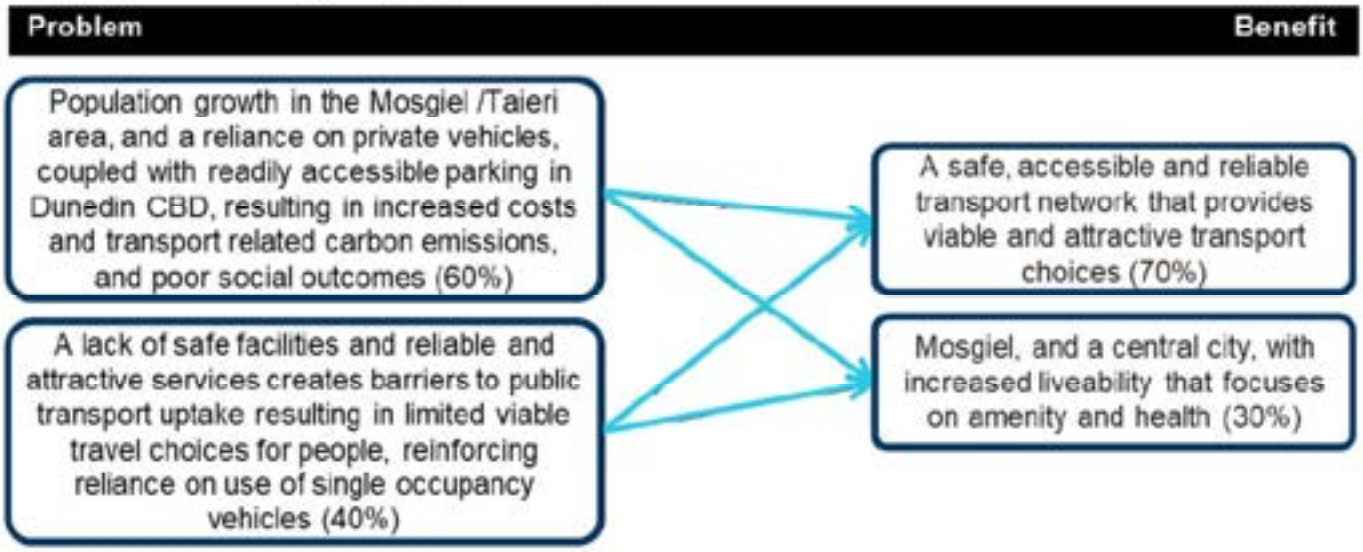

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Figure 3 Investment benefits alignment with GPS and Outcomes Framework (GHD 2022)

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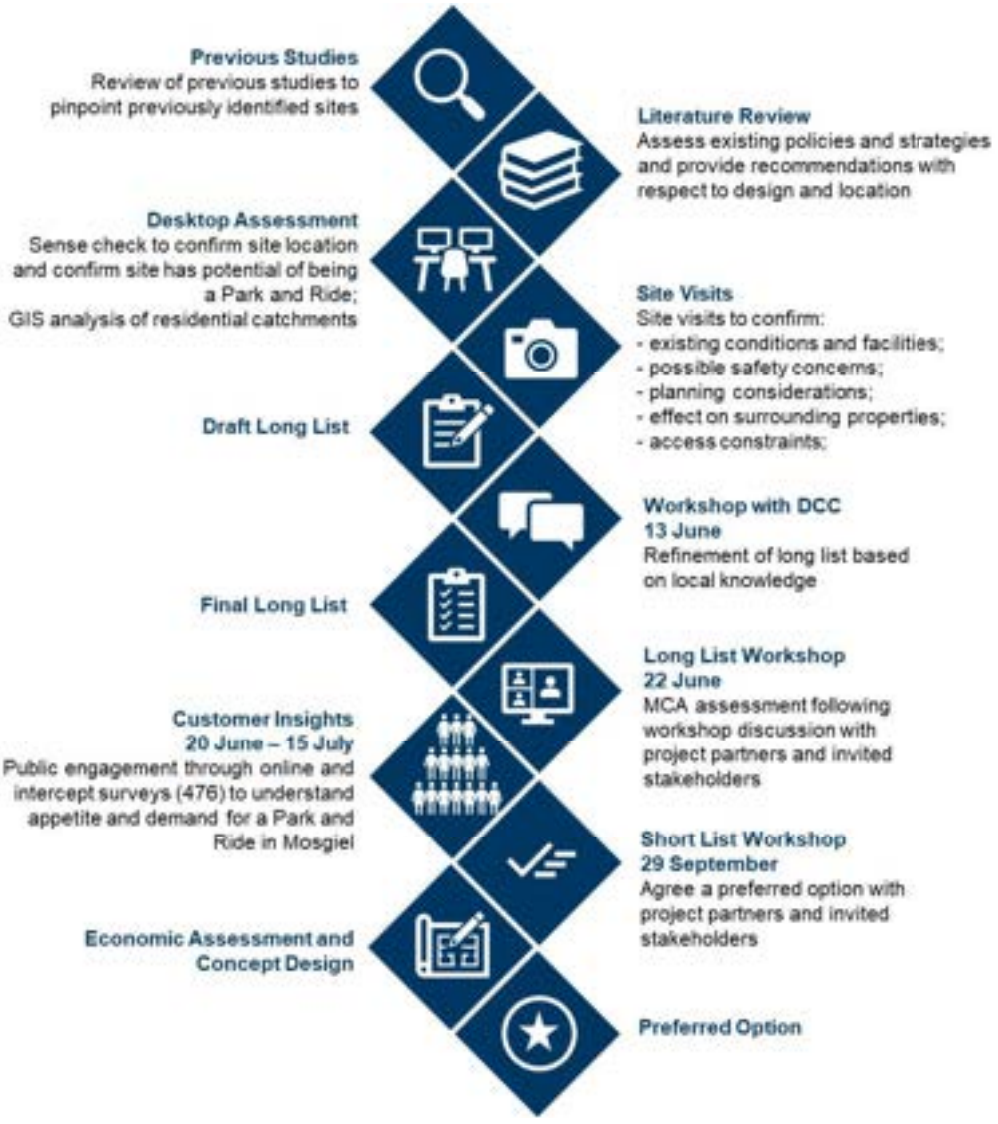

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– Existing public transport users have the least travel time disadvantage compared to the other non do-minimum options regarding the required rerouting of the existing bus service
– Ability to scale up the site if successful as there is a large area of undeveloped land at the site, and
– The location would complement the potential re-introduction of passenger rail services using Mosgiel Station (i.e. a Park and Ride site for train passengers).

In this way, Option 5 + 3 is seen to provide the best medium to longer term ability to increase public transport patronage between Mosgiel and Dunedin. In doing so, the preferred option is anticipated to:

– Increase public transport patronage through reducing the barriers to uptake by extending the 'reach' of the existing public transport service
– Reduce the number of single occupancy vehicles commuting to Dunedin from Mosgiel, and
– Reduce the environmental and social impact of land transport through a reduction in VKT[5].

The preferred option location is shown in Figure 5.

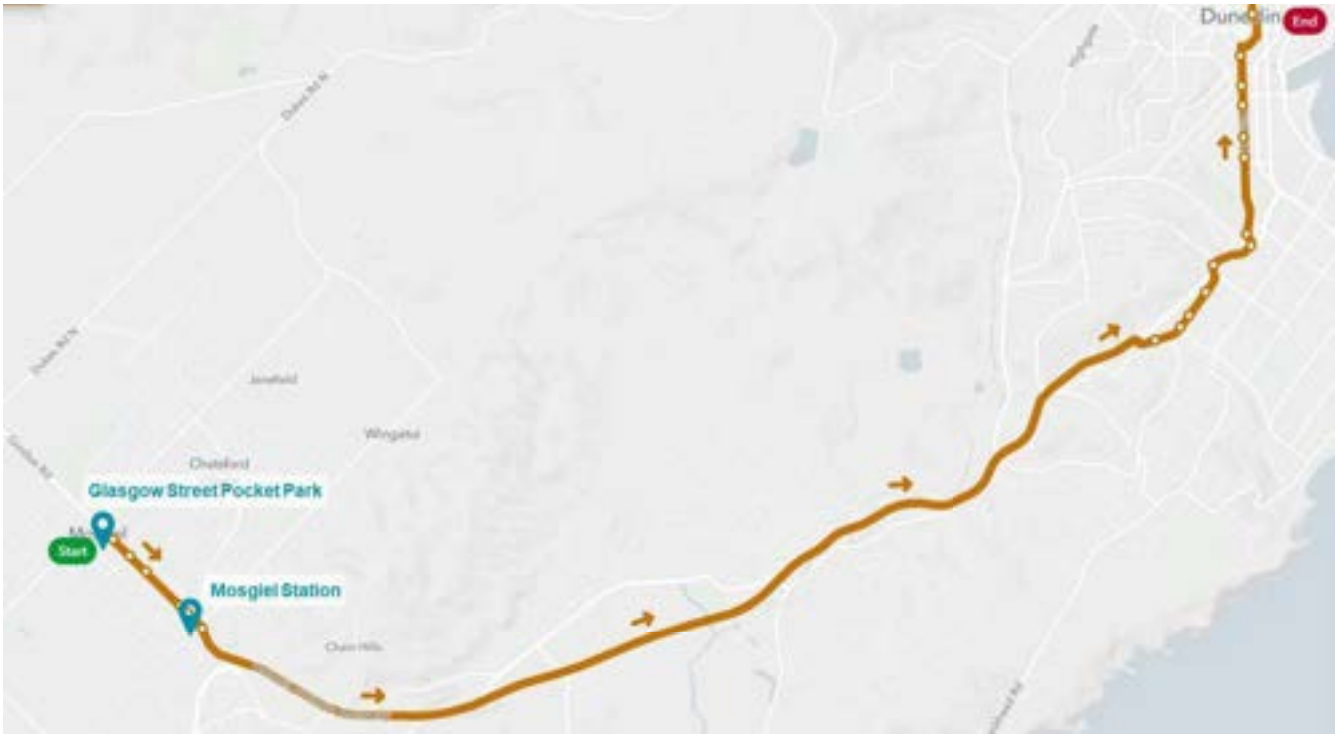

Figure 5 Mosgiel Park and Ride – preferred option locations and express service route[6]

[5] Vehicle kilometres travelled
[6] Base map provided by Otago Regional Council, February 2023

Key features of the preferred option for Mosgiel Station include:

– Access to the site via inclusion of a fourth leg onto the Burns Street / Kings Street intersection formed over Owhiro Stream
– New raised table with pedestrian mid-block islands at the intersection of Burns Street / Kings Street
– Parking bays for vehicles, electric vehicles, mobility parking, 'kiss and ride', motorcycles and buses
– Safe pedestrian access provided from Burns Street and SH87
– Landscaping areas and a hardstand area to accommodate bicycle parking, bus shelter and toilet facilities, and
– A fence offset 5 m from the rail line to prevent public access into the rail corridor.

Key features of the preferred option minor improvements for Glasgow Street pocket park include:

– Installation of bus shelter
– An increased number of cycle stands, and
– Additional signage / marketing to promote use of public transport.

In addition to the capital works, supplementary travel demand measures are included in the preferred option that align the Waka Kotahi mode shift lever- Influencing travel demand and transport choices. Initiatives will be targeted toward promoting awareness and use of the Park and Ride facility, potentially including:

– Working with local schools and businesses to instil sustainable travel behaviours
– Targeted promotion and education of 'interested but concerned' users through a 'give it a go' campaign
– Delivery of a wayfinding programme and install signage along core routes to the Park and Ride facility, and
– Explore opportunities to use technology to promote carpooling / car sharing to the Park and Ride to reduce single occupancy vehicle travel to the site.

The additional investment of the Park and Ride facility also presents the opportunity to increase the service offerings of the planned Express Service. The recommended additional services will be focused around meeting the travel needs of people commuting to main activity centres in Dunedin, such as the University of Otago and the Hospital (in particular, services to accommodate shift patterns which was raised as a key barrier to using public transport for many in the Customer Insights survey). This will enhance and further support a public transport system that offers convenient and competitive travel choice for Mosgiel and the wider Taieri.

*Note: The associated cost of increasing the number of bus services has been included in the economic analysis. However, the service requirements of these additional services (e.g. timetabling) have not been determined and are outside of the scope of this SSBC.

Preferred option assessment

Strategic alignment

The project falls within the wider Connecting Dunedin programme and there is a strong motivation and support to deliver the project. Key considerations include:

✓ Clear alignment with the GPS[7] and ability to deliver strategy both with respect to travel choices and emission reduction
✓ Non-delivery of the Park and Ride in the 2021-24 NLTP[8] period will have a significant impact on realising the estimated benefits of the implementation of the Express Service and therefore the overarching Connecting Dunedin programme

> *"If implementation of public transport and Harbour Arterial improvements cannot be commenced by early 2022, disruption and loss of access caused by hospital construction will be more significant than currently anticipated" – Shaping Future Dunedin Transport PBC (2021)*

[7] Government Policy Statement on land transport
[8] National Land Transport Programme

- ✓ High residential growth in Mosgiel. It is important to provide high quality transport choices from 'day one' to encourage the formation of sustainable travel habits before single occupant private vehicle use becomes the norm
- ✓ Dunedin City Zero Carbon 2030 Target

The preferred option is strongly aligned with GPS strategic priorities of better travel options and climate change, obtaining a "Very High" rating under the Investment Assessment Framework.

Value for money

The preferred option has been economically evaluated using Simplified Procedures for Public Transport (SP-10) and the guidance provided in the 2021 edition of the Waka Kotahi Monetised Benefits and Cost Manual (MBCM).

The estimated present value net project cost of the preferred option is $23.3M consisting of $14.4M capital cost and $8.9M operating and maintenance cost over 40 years. The economic benefits of the project have been estimated to be $38.4M (excluding WEBs[9]). As such, the project is projected to have an economic benefit to cost ratio (BCR) of 1.7.

The sensitivity of the evaluation was assessed to show how the preferred options performs if economic parameters vary. The results produced a BCR range between 1.3 and 1.9 demonstrating the preferred option represents a value for money investment through achieving a BCR above 1, even under scenarios where discount rates increase, or patronage estimates are decreased.

To achieve value for money, the preferred option can be delivered in stages to align with funding availability and initial demand estimates for opening. Through the design development process Dunedin City Council will investigate options to deliver a staged park and ride facility that meets demand (and car parking requirements) for the early years which is estimated to be approximately 100 car bays at the park and ride. This could be achieved through a mix of formal (higher level of service) car parking and informal car parking within the site (approximate 200 car park) capacity.

Dunedin City Council will also be using this approach to value engineer the works and will over time deliver a Park and Ride to the specifications outlined in the preferred options. It is anticipated that critical functional elements for a Park and Ride will be delivered in the short term (e.g. shelter, seating, access), with further amenity items (e.g. toilets) to be constructed later. This approach will achieve a balance between providing a high quality facility to entice mode shift, and remaining within funding constraints.

Investment Profile

The preferred option assessment profile is **HHL** in accordance with the Investment Prioritisation Method for the 2021-24 NLTP, and therefore has been assigned an overall investment priority score of **5.**

Appraisal Summary Table evaluation

The monetised, quantitative and qualitative benefits and costs of the preferred option include:

- ✓ 1.1 Impact on social cost and incidents of crashes
- ✓ 8.1 Impact on greenhouse gas emissions
- ✓ 10.1 Impact on user experience of the transport system
- ✓ 10.2 Impact on mode choice
- ✓ 10.3 Impact on access to opportunities
- ✓ 12.1 Impact on Te Ao Māori

[9] Wider economic benefits

Implementing the preferred option

Implementation strategy

The preferred delivery model is to adopt a staged / traditional method approach consisting of a pre-implementation stage followed by an implementation stage. This is considered appropriate as the project is relatively small in scale and the complexity, uncertainty, innovation and risks are standard. This approach will enable the project to come to the market in a timely manner.

The indicative implementation timeframes are shown in Figure 6 for a single implementation stage. There is consideration of staging the implementation, this would likely involve a 2023/24 construction period as per the figure and then a second construction period in 2025/26 or later. These stages are to be workshopped further during the detailed design stage.

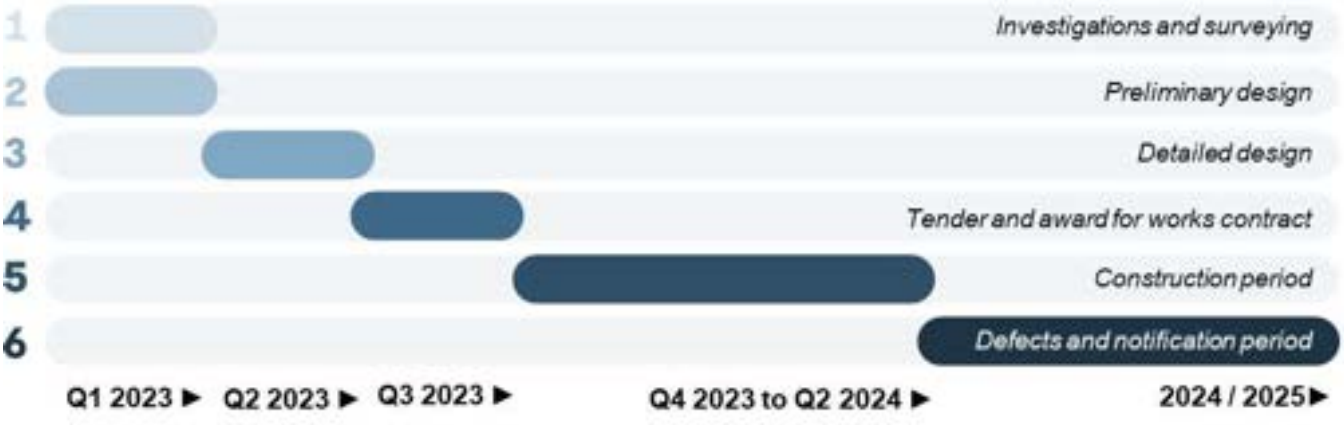

Figure 6 Mosgiel indicative implementation timeframes (GHD 2022)

Procurement strategy

The delivery of a low risk civil infrastructure project of this magnitude is not unique to the local or regional infrastructure and construction industry. Therefore, the largely routine and simple characteristics of this project are not expected to present any significant new or bespoke commercial risks to the partners involved.

There are some structures included in the preferred option project design, but nothing considered overly complex that would require resource from outside of the region to deliver. It is therefore anticipated that multiple contractors will be interested in contracts of this nature.

Consenting strategy

An initial constraints analysis has been undertaken to identify any significant risks associated with consenting. As such, it is expected that a conventional consenting process will be appropriate. Further technical assessments will need to be undertaken during early stages of detailed design to further refine the consenting risks, which are most notably: disturbance to a HAIL[10] site, undertaking instream works and resulting disturbance, and earthworks outside of the road reserve.

The preferred option includes a site that is within the Wāhi Tupuna Mapped Area - Kokika o Te Matamata[11]. Ongoing detailed design discussions with Aukaha will continue to create opportunities to integrate mana whenua values into design aspects of the park and ride facility. Note, Aukaha have confirmed via an initial desktop study that there are no concerns with the proposed location.

Further public engagement and public participation in the consenting process will assist Dunedin City Council in determining how any adverse environmental effects could be mitigated or managed.

[10] Hazardous Activities and Industries List
[11] Area surrounding Mosgiel

Property strategy

All works that impact property are anticipated to be within the KiwiRail land parcel. Council have commenced discussions with KiwiRail to enter into a lease agreement for the use of the land, with existing dis-used structures on the KiwiRail site likely to be relocated or removed. The initial discussion has revealed that a nine year lease is preferred with a right to renew. These discussions are ongoing.

No physical impact is anticipated to adjacent properties during construction of the project. An engagement plan for potentially affected landowners will be completed in the detailed design stage of the project.

Funding

Funding of the preferred option is expected to be shared between Dunedin City Council and Waka Kotahi with a FAR[12] of 51 percent.

Local share funding has been allocated to the programme in Dunedin City Council's 10 year plan 2021-2031 *Tō tātou eke whakamuri* **|** *the future of us*; $9.95M has been allocated for the programme, with $4.95M assigned to the first two years. The 2022/23 Annual Plan Update increased the funding allocation for the first three years to $5.45M.

The project is included in the Waka Kotahi NLTP 2021-24. The funding priority is 'Probable'. It is envisaged that Waka Kotahi funding share for the pre-implementation stage will be made available to Dunedin City Council upon endorsement of this SSBC. Funding for the implementation stage is also envisaged to be endorsed via this SSBC and anticipated to be made available in 2023/24 financial year.

Governance

Governance is in place with the overarching Connecting Dunedin Governance Group. As per the partnership agreement, Dunedin City Council are the project sponsor for this project within the wider programme. Therefore, Council will hold the primary responsibility and leadership, governance, planning, and design, consenting, land acquisition, pre-implementation, implementation, maintenance, and operations for the project.

This project has interfaces with networks that do not fall under the remit of Council. Otago Regional Council will retain responsibility for the public transport network, KiwiRail for the rail corridor, and Waka Kotahi for the state highway network.

Recommendations

It is recommended that:

- ✓ The preferred option is taken forward to the detailed design stage.
- ✓ Refinements are made through the design development process in order to achieve a balance between providing a high quality facility to entice mode shift, and remaining within funding constraints. This will likely include staging the implementation of the Park and Ride site, rather than a single investment and implementation approach.
- ✓ Dunedin City Council continue working in partnership with Otago Regional Council regarding improvements to public transport services for Mosgiel and the wider Taieri.
- ✓ The complementary projects identified that support mode shift for people travelling into Dunedin City are progressed, particularly those that act to remove barriers for vulnerable road users once in the central city.

[12] Funding assistance rate

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Project background

Chapter One

1. Project background

Dunedin City Council (DCC) has engaged GHD to investigate options and develop a Single Stage Business Case (SSBC) for the provision of Park and Ride facilities in Mosgiel, Dunedin. This SSBC has been prepared in accordance with Waka Kotahi NZ Transport Agency (Waka Kotahi) guidelines and presents the case for investment.

Key messages

The key catalyst for this project was the Government announcing the location of the New Dunedin Hospital ($1.4 B investment) in the central city in 2018. Waka Kotahi and DCC were requested by the Ministry of Health design team to review the central city transport network to improve access and integration of the new hospital.

This led to the Shaping Future Dunedin Transport (SFDT) Programme Business Case (PBC) which sought to "…*change the transport network to support the new hospital, whilst also providing a future focussed, accessible transport system enabling placemaking and liveability outcomes for the city.*"[13]

The SFDT programme is being delivered by Connecting Dunedin, a collaborative transport partnership between Waka Kotahi, Dunedin City Council and Otago Regional Council (ORC).

Connecting Dunedin is considered a 'game changer' for Dunedin and, alongside the development of the new hospital, the city recognises an opportunity to transform the transport network and the way people travel both now and into the future.

Supporting mode shift for people travelling into Dunedin City is considered a critical piece of the Connecting Dunedin 'puzzle' to retain a functioning transport system during the construction period of the new Dunedin hospital.

As part of the Shaping Future Dunedin Transport programme, the central city seeks to operate with reduced car travel and increased travel by sustainable modes to support the goals of:

- Net zero carbon by 2030, and
- 40% trips made by an alternative mode to single occupancy vehicles by 2024.

The SFDT PBC identified Park and Ride facilities in Mosgiel as one of seven key projects for DCC to progress.

Each of the projects are interdependent and together seek to deliver integrated interventions that unlock holistic change to the Dunedin transport network.

[13] Dunedin City Council, 2021. *Park and Ride facilities at Mosgiel Point of Entry*. Pp 2

1.1 Shaping Future Dunedin Transport PBC

In late 2021, Waka Kotahi endorsed the Shaping Future Dunedin Transport Programme Business Case (PBC) jointly developed with the Dunedin City Council (DCC) and Otago Regional Council (ORC). The Partner Preferred Programme seeks to:[14]

– Enable integration of the new hospital with the city
– Stimulate economic growth and regeneration
– Provide for safe and accessible people friendly streets, and
– Improve city liveability.

A summary of the transport projects within the preferred programme is shown in Figure 7. Specifically, this SSBC investigates the Mosgiel Park and Ride.

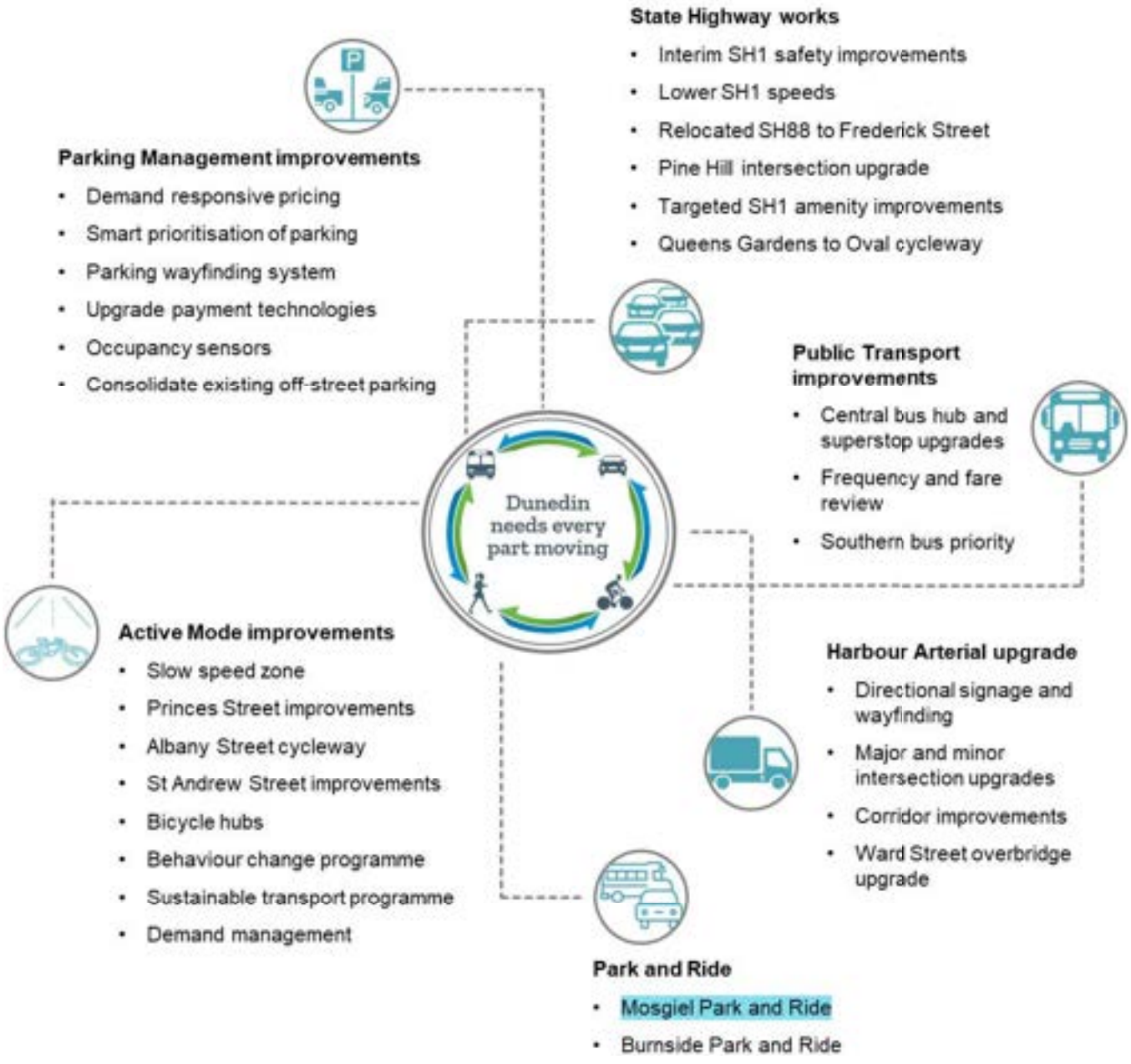

Figure 7 *Shaping Future Dunedin Transport summary of transport projects*

[14] Stantec, 2021. *Shaping Future Dunedin Transport – Programme Business Case.* Page iii. Retrieved 9 May 2023 from **https://nzta.govt.nz/assets/projects/shaping-future-dunedin-transport/SFDT-programme-business-case.pdf**

1.2 Project scope

The endorsed SFDT PBC preferred programme included new Park and Ride facilities in Mosgiel and Burnside (Dunedin). The intervention was given a short (1-3 year) to medium (3-10 year) timeframe: [15]

> *Seek low-cost sites where existing parking or land could be purchased and used for park and ride. Locate where commuters can take advantage of frequent services. For example, church parking areas are only heavily used on Sunday mornings, making them ideal weekday park and rides.*

The location of Mosgiel and the rural outer hinterland, including Outram, is shown in Figure 8.

Note, as stated in the Point of Entry for this SSBC, the Burnside facility is not considered within the scope of this SSBC and is planned to be investigated at a future date closer to proposed implementation in 2027-29.

Figure 8 Mosgiel, Dunedin [16]

This SSBC is focused on fostering safe travel choices for people who live south of Dunedin.[17] Whilst the parking loss resultant from the construction of the new Dunedin Hospital is undoubtedly a disruption to current private vehicle users who park near the hospital, this change also provides opportunities for improvement across the transport network.

Globally, nationally and locally, there is a recognised concern around the impacts of climate change and a need to make changes to reduce our collective contribution to carbon emissions. Further, it is acknowledged that the impacts of modern transportation trends, particularly around private vehicle use, is exacerbating climate change. It is also evident that current transport planning strategies are facing challenges around the increase in the population and related travel habits.

A shift to more sustainable, resilient, and accessible modes of transport is identified in numerous strategies nationally. These modes provide a range of health and wellbeing benefits, particularly around incidental physical active, reduced stress and improved air quality. Additionally, the shift is also a recognised strategy as a form of accessibility improvement.

The disruption and loss of car parking provides the catalyst for DCC to encourage a change in current travel behaviours and more closely align with strategies and policies. Specifically, providing alternative transport options for the public would help promote accessibility around the city and align with the city's vision. The loss of car parking is also a reallocation of public space to increase social outcomes and recognises that our cities are better serviced through more outdoor public space which is currently occupied by private vehicles.

[15] Stantec, 2021. *Shaping Future Dunedin Transport – Programme Business Case.* Appendix D, section 3.1. Retrieved 30 May 2022 from **https://nzta.govt.nz/assets/projects/shaping-future-dunedin-transport/SFDT-programme-business-case.pdf**.
[16] Source **https://snazzymaps.com/editor/customize/8381**
[17] Geographically, Mosgiel is west of Dunedin however colloquially it is referred to as south of Dunedin.

1.3 Project context

Mosgiel is a suburban catchment of Dunedin in Otago, New Zealand, separated from the city by hills. Mosgiel is historically known for the Mosgiel Woollen Company and mill that was established in 1871 by Arthur John Burn.[18] The mill was the second in New Zealand to produce machine-woven cloth and the first steam-driven mill. The mill created jobs which then bought settlement of workers in cottages.[19] The fertility of the soil, and the proximity to Dunedin, meant the town grew through the twentieth century.[20]

The mill ultimately shut in 2000, however population growth continued with people moving to Mosgiel for lifestyle blocks and retirement.[21] Today, Mosgiel is identified as a key growth area for Dunedin to help relieve housing stresses, and is a key service town for the surrounding rural plains community. Key information about Mosgiel is shown in Figure 9.

Figure 9 Mosgiel infographic (GHD 2022)

[18] Victoria University of Wellington, 2016. *The Cyclopedia of New Zealand [Otago & Southland Provincial Districts]: Mosgiel Woollen Company, Ltd.* Retrieved 30 May 2022 from **Mosgiel Woollen Company, Ltd | NZETC (victoria.ac.nz)**

[19] Heritage New Zealand, 2022. *Mosgiel Woollen Factory*. Retrieved 30 May 2022 from **Search the List | Mosgiel Woollen Factory | Heritage New Zealand**

[20] DunedinNZ, 2022. *Mosgiel & Outram.* Retrieved 30 May 2022 from **Mosgiel & Outram - Ōtepoti | Dunedin New Zealand official website (dunedinnz.com)**

[21] Mckinnon, M., 2015. *Otago Places – Taieri*. Te Ara – The Encyclopedia of New Zealand. Retrieved 30 May 2022 from **Taieri – Te Ara Encyclopedia of New Zealand**

[22] Statistics NZ, 2022. *2018 Census Place Summaries*. Retrieved 30 May 2022 from **https://www.stats.govt.nz/tools/2018-census-place-summaries**

[23] Statistics NZ, n.d. *2018 Census Commuter Waka Departures from Statistical areas: Bush Road, East Taieri, Mosgiel Central, Mosgiel East, Seddon Park and Wingatui*. Retrieved 17 May 2022 from, **Bush Road & 5 other areas - Commuter - Waka**

[24] Dunedin City Council, 2019. *Mosgiel stormwater project.* Retrieved 30 May 2022 from **Mosgiel stormwater project - Dunedin City Council**

[25] GNS Science, 2016. *Volcano Fact Sheet: Dunedin Volcano.* Retrieved 30 May 2022 from **(quarantineisland.org.nz)**

1.3.1 Public Transport

Mosgiel is currently serviced by three public transport routes (shown in Figure 10) operated by Otago Regional Council:

Route 77: Mosgiel, Fairfield, Green Island - City

This service connects Mosgiel to the central city bus hub. A bus departs the Mosgiel terminus every half hour between 6:30 am and 4:30 pm on weekdays, with additional trips at 5:30 pm, 6:30 pm, 7:30 pm, 9:30 pm and 10:30 pm.[26] The bus is scheduled to arrive at the Dunedin bus hub approximately 40 minutes after departure from the terminus.

For the reverse direction (central city to Mosgiel), the bus also operates at a half hour frequency.

Route 80: Mosgiel East Circuit

This loop service provides access to key amenities in Mosgiel on the eastern side of SH87 and has a frequency of every 40 minutes from 8 am to 6 pm.

Route 81: Mosgiel West Circuit

This loop service provides access to key amenities in Mosgiel on the western side of SH87 and has a frequency of every 40 minutes from 8:20 am to 5:40 pm.

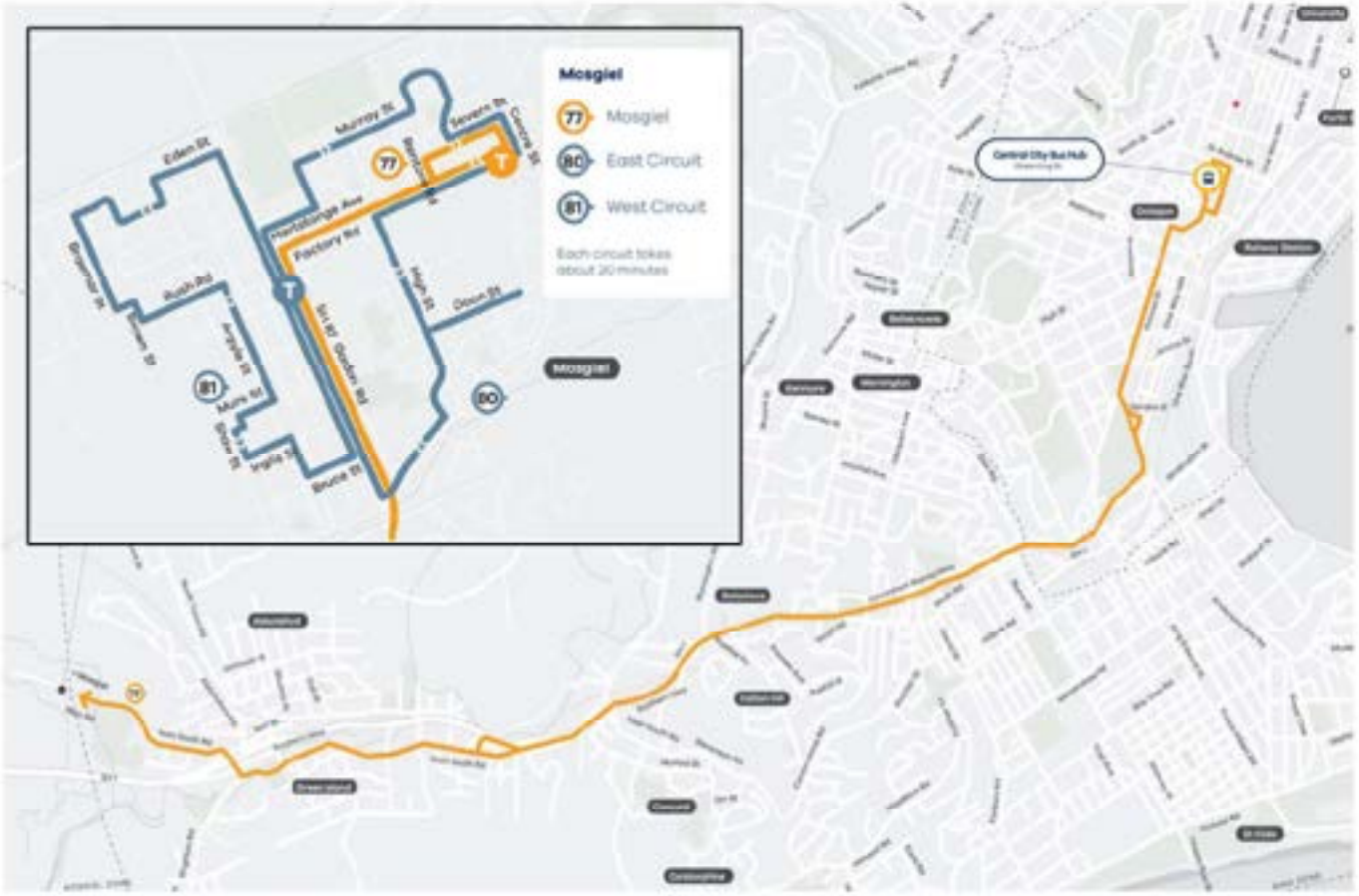

Figure 10 Public transport services, Mosgiel[27]

[26] Otago Regional Council, 2022. *77 – Mosgiel, Fairfield, Green Island – City*. Retrieved 1 December 2022 from 77 - Mosgiel, Fairfield, Green Island - City (orc.govt.nz)

[27] Otago Regional Council, 2021. *Dunedin Bus Timetable*. Retrieved 30 May 2022 from Orbus_DN Map_A2 forPrint_210310 (orc.govt.nz)

1.4 Work completed to date

The provision of Park and Ride facilities in Mosgiel forms part of the Shaping Future Dunedin Transport programme to realise the Connecting Dunedin partnership vision of:

"…the best long-term transport and urban mobility system for Dunedin"[28]

Key stages of work completed to date for the Mosgiel Park and Ride facilities are highlighted in Figure 11.

Figure 11 Work completed to date (GHD 2022)

[28] Stantec, 2021. *Shaping Future Dunedin Transport – Programme Business Case*. Page iii. Retrieved 23 May 2022 from **https://nzta.govt.nz/assets/projects/shaping-future-dunedin-transport/SFDT-programme-business-case.pdf**

1.5 Partners and key stakeholders

This SSBC involved many conversations with stakeholders, local community representatives and the project partners so that the issues, opportunities and challenges were understood in depth. The project partners are shown in Figure 12.

Figure 12 Project Partners (GHD 2022)

1.5.1 Mana whenua engagement

Te Rūnanga o Ōtākou are represented by Aukaha. At the project outset, Aukaha and DCC agreed the approach to mana whenua engagement for this project. It was agreed that Aukaha would be informed through regular project updates during the SSBC. The agreed key focus area for mana whenua is during the design phase with regard to ***identifying opportunities for cultural expression through the design of the urban realm***.[29]

[29] Ward, C., email to [redacted] April 07, 2022.

Stakeholders from a range of organisations that have an interest in the SSBC have been identified through discussions with DCC and are shown in Figure 13.

Figure 13 Key stakeholders and advocates (GHD 2022)

1.5.2 Workshops and stakeholder meetings

The following workshops and stakeholder meetings were held to help shape this SSBC:

- **Project kick-off meeting:** The purpose of this meeting (4 April 2022) was to confirm the project context and scope, agree the delivery programme and discuss the key inputs and outputs.
- **Investment Logic Mapping (ILM) workshop:** This structured workshop (19 May 2022) included representatives from DCC, ORC and Waka Kotahi. The purpose was to facilitate early engagement on outcomes, benefits and any issues before any decision is made. In recognition that the project is quite progressed in thinking from the client partner perspective, a draft ILM and evidence base was presented at the workshop to be agreed with partners.
- **Long list assessment workshop:** The purpose of this workshop (22 June 2022) was to present the long list options to representatives from DCC, ORC, Waka Kotahi, Te Whatu Ora Health NZ Southern, University of Otago, and the Mosgiel-Taieri Community Board. The workshop focused on the existing issues, problems and opportunities for Mosgiel and the wider Taieri then consideration was given to each long list option in turn, discussing site characteristics, positives, negatives, risks and uncertainties.
- **Mosgiel-Taieri Community Board meeting:** The project team met with the Community Board and Councillor Carmen Houlahan (29 June 2022) to share the project objectives and programme. The Community Board provided local context insight and the community's ambitions for travel options, both for Mosgiel residents and those residing in the wider Taieri.
- **KiwiRail meeting:** The project team met with KiwiRail (6 July 2022) as the landowners of a site that was identified as a possible opportunity for the Park and Ride in Mosgiel. The purpose of this meeting was to discuss the known risks and constraints of the site, as well as to understand the likely conditions that would be associated with any lease agreements should this site be preferred.
- **Otago Regional Council pre-application meeting:** The purpose of this meeting (16 August 2022) was to discuss consenting requirements associated with the short listed sites to assist preparing the consenting strategy, and to confirm if any sites are considered fatally flawed with regard to consent requirements.
- **Short list assessment workshop:** The purpose of this workshop (29 September 2022) was to present the short list options to representatives from DCC, ORC, Waka Kotahi, Te Whatu Ora Health NZ Southern, University of Otago, and the Mosgiel-Taieri Community Board. The workshop focused on agreeing a preferred option that would best address the issues and opportunities, achieve the vision and objectives, and reflect community aspirations and stakeholder feedback.
- **Aukaha meeting:** The project team met with Aukaha (3 November 2022) to discuss opportunities, as well as timeframes and constraints, to integrate mana whenua values into design aspects of the park and ride facility.

1.5.3 Public engagement

This SSBC builds on the public engagement undertaken as part of the Shaping Future Dunedin Transport PBC. From mid-June to mid-July 2020, the Connecting Dunedin partnership asked people to share their views about the proposed programme of changes to the Dunedin transport system. The engagement used online tools due to COVID-19 restrictions.

Figure 14 shows key response themes relating to proposed park and ride facilities at Mosgiel and Burnside.

Figure 14 Shaping Future Dunedin Transport PBC public engagement summary themes for Park and Ride (GHD 2022)

In order to inform this SSBC, a community Customer Insights survey was undertaken to understand the level of demand for a Park and Ride facility in Mosgiel. The survey was developed to understand how people currently travel, how often they travel, and whether a Park and Ride with suitable facilities would encourage them to travel by bus more. The intent is that the results will provide greater confidence in the investment, as well as inform the specific requirements for the facilities and services.

The survey was undertaken between 20 June 2022 and 18 July 2022 through an online survey available through the Council website. The survey was promoted through Council press releases, social media, posters in Mosgiel businesses and community facilities (refer to Figure 15), intercept surveys and via key employers in Dunedin (Te Whatu Ora – Health New Zealand Southern, The University of Otago, and Accident Compensation Corporation).

In total, 476 responses were received to the online survey, as well as five email submissions and ten social media posts. Overall, 64% of respondents indicated that they would use the Park and Ride with 35% of respondents stating that they would **very likely** use the Park and Ride.

A summary of the key findings of the Customer Insights is shown in Figure 16. A full report on the Customer Insights results is provided in Appendix A.

Figure 15 *Park and Ride survey poster (DCC 2022)*

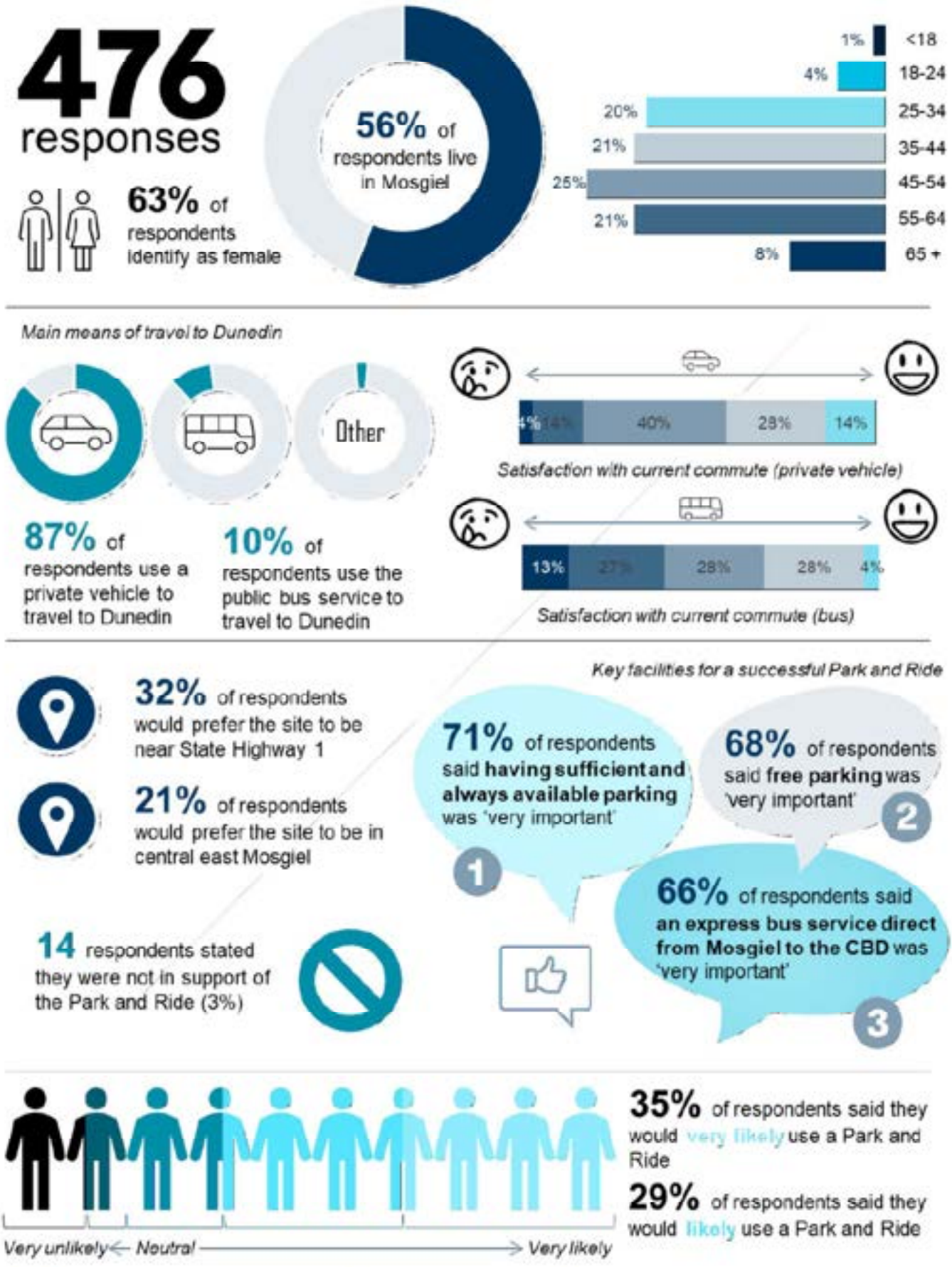

Figure 16 *Mosgiel Park and Ride Customer Insights findings summary (GHD 2022)*

Strategic Case

Chapter Two

2. Strategic Case

This chapter provides an overview of the assessment of the case for change and investment rationale, framed around the Investment Logic Map (ILM) and how this was developed in partnership with the stakeholder group.

2.1 Investment Logic Map

The ILM workshop was held on 19th May 2022 to examine and a provide a holistic view of the issues experienced by users of the transport network in its current state, and to document the rationale for addressing them. A summary of key themes from the workshop is provided as Figure 17. The workshop summary is provided as Appendix B.

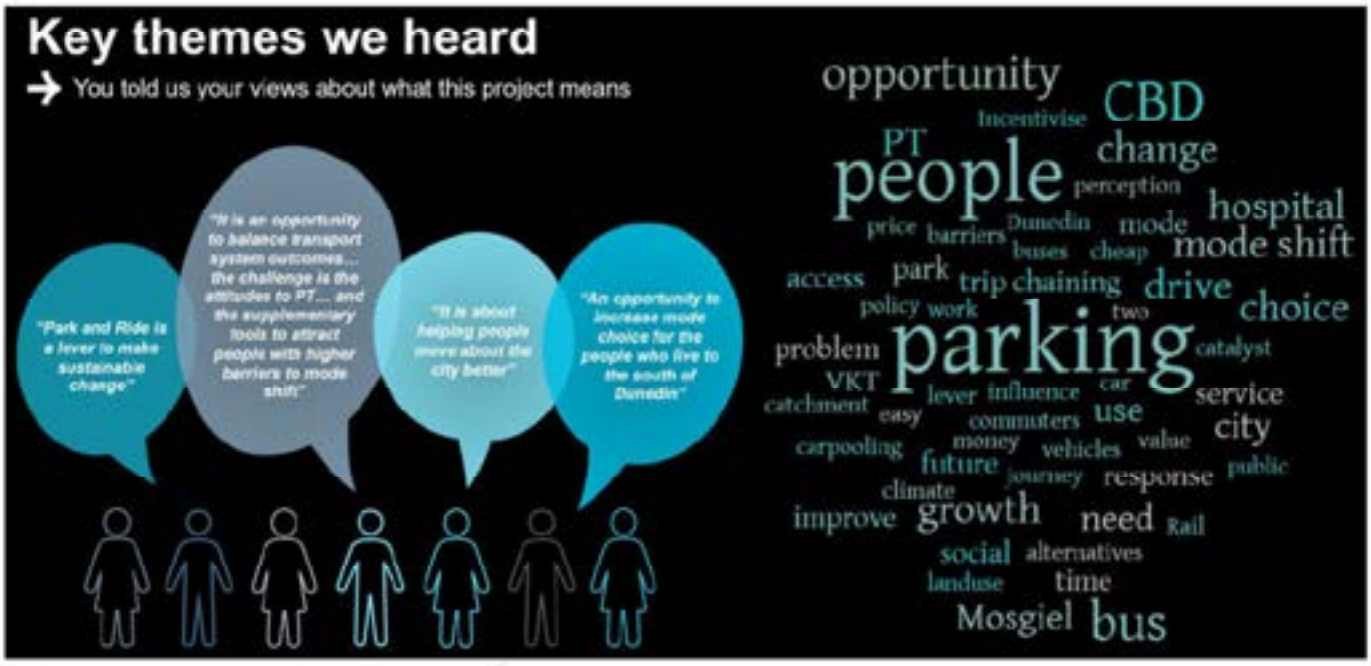

Figure 17 Key themes from ILM workshop[30]

Following the workshop, an ILM was developed based on discussions and comments received from the key stakeholders. The project ILM is provided as Figure 18.

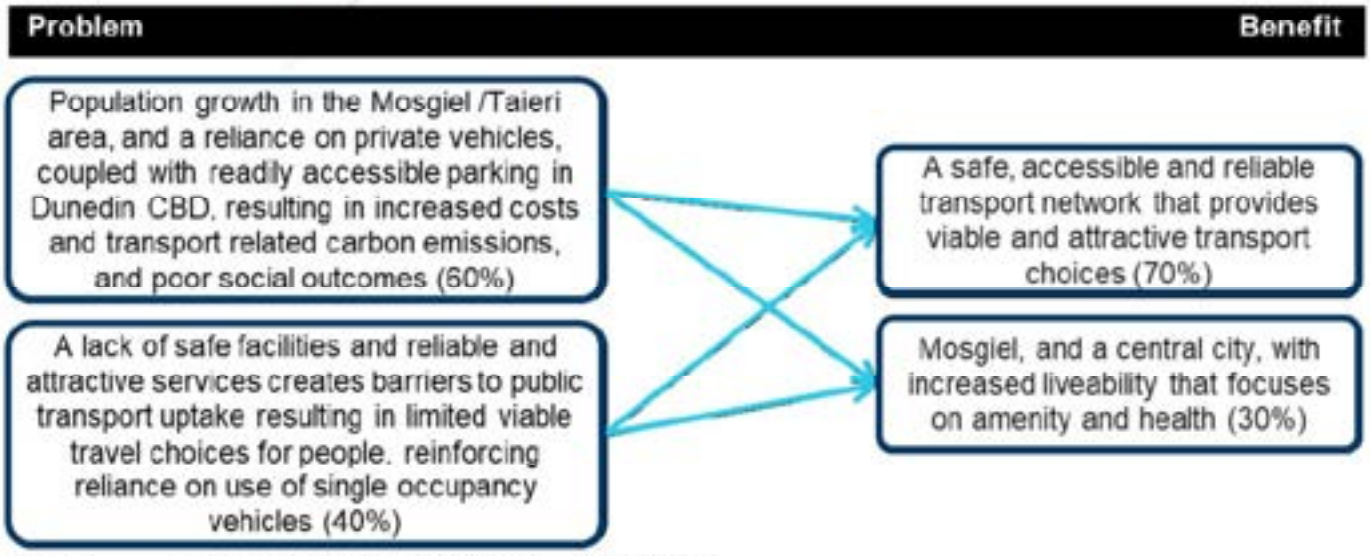

Figure 18 Investment Logic Map, Mosgiel Park and Ride SSBC

[30] Create word clouds – WordItOut

2.2 Problem Statement One

Problem Statement One relates to the existing car-centric behaviours and parking facilities available to commuters from Mosgiel. Attendees at the ILM workshop confirmed Problem Statement One as:

Population growth in the Mosgiel / Taieri area, and a reliance on private vehicles, coupled with readily accessible parking in Dunedin CBD, is resulting in increased costs and transport related carbon emissions, and poor social outcomes

2.2.1 Contributing factors

There were a wide range of pre-existing factors identified at the ILM workshop that are considered to contribute to Problem Statement One. These factors were themed around:

- Factors that influence where housing growth occurs such as flat topography in Mosgiel / Taieri Plains compared to hilly topography in central Dunedin
- Factors that impact ability to change status quo behaviours including pressure to retain parking in central city, and
- Factors that have resulted in entrenched car centric behaviours such as historical funding decisions.

Figure 19 summarises the key contributing factors that were identified for Problem Statement One.

Figure 19 Problem Statement One contributing factors (GHD 2022)

2.2.2 Causes evidence

Population growth in the Mosgiel / Taieri area ...

Mosgiel is currently experiencing significant population growth. At the 2018 Census, Mosgiel had a population of 10,563 residents, increased from 9,588 residents at the 2013 Census as shown in Table 1. This represents an increase of 1,005 residents or 11% between the 2013 and 2018 Census'.

This growth has mostly occurred in Mosgiel East which experienced 38% population growth between 2013 and 2018. In comparison, the population of Dunedin City increased by only 5% over this same time period.[31]

Table 1 Mosgiel Census populations by Statistical Area, 2006 to 2018[32]

Statistical Area	2006	2013	2018
Bush Road	2,277	2,343	2,358
Mosgiel Central	2,568	2,601	2,607
Seddon Park	2,640	2,631	2,868
Mosgiel East	1,803	1,983	2,730
Total Mosgiel	**9,288**	**9,558**	**10,563**

Similar growth trends were seen in the wider hinterland area. Figure 20 provides the percentage change by statistical area between the 2013 and 2018 Census populations for the wider hinterland.

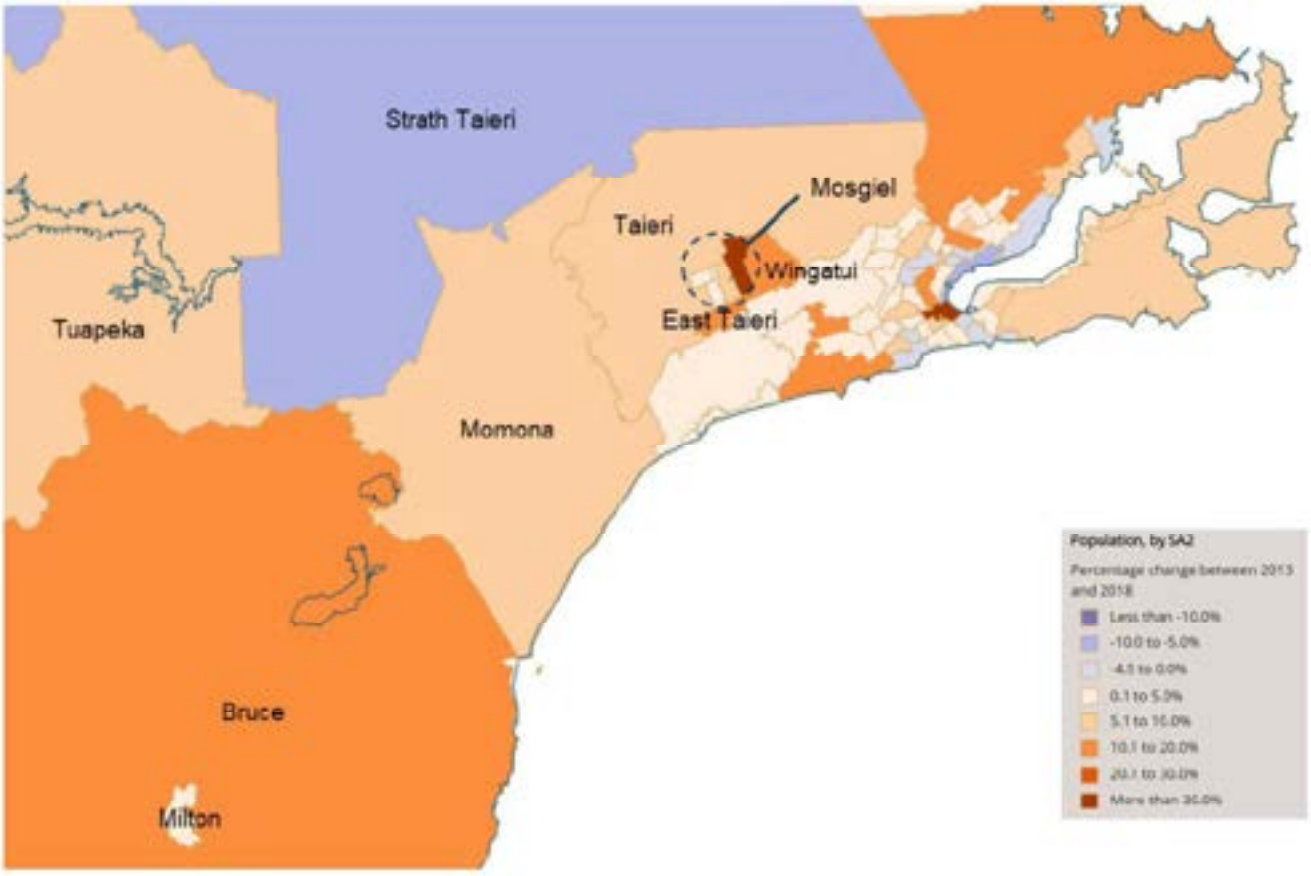

Figure 20 Wider hinterland percentage change between 2013 and 2018 Census Populations by Statistical Area[33]

[31] Stats NZ, 2022. *2018 Census Place Summaries.* Retrieved 27 June 2022, from **https://www.stats.govt.nz/tools/2018-census-place-summaries**

[32] Stats NZ, 2022. *2018 Census Place Summaries.* Retrieved 8 June 2022, from **https://www.stats.govt.nz/tools/2018-census-place-summaries**

[33] Stats NZ, 2018. *Population change between the 2013 and 2018 Censuses.* Retrieved 13 June 2022 from **Population change between the 2013 and 2018 Censuses (arcgis.com)**

Future growth in Mosgiel is expected as a result of the release of Variation 2 of the Second Generation Plan (2GP) which provides an overarching plan for development in Dunedin. Of relevance to Mosgiel is the reduction in minimum site sizes which is anticipated to result in infill development and new development of medium-density. Figure 21 shows the areas earmarked for residential development in Mosgiel according to the 2GP Plan.

Figure 21 Areas earmarked for residential development in Mosgiel, (DCC)

As of December 2022, developments in planning stages in Mosgiel include:

[34] Otago Daily Times, 2022. *Development clears hurdle.* Retrieved 27 June 2022, from **Development clears hurdle | Otago Daily Times Online News (odt.co.nz)**

[35] Radio NZ, 2021. *Plan that could lead to 130 new houses in Mosgiel upsets locals* Retrieved 27 June 2022, from **Plan that could lead to 130 new houses in Mosgiel upsets locals | RNZ News**

[36] Otago Daily Time, 2022. *Mosgiel public housing development planned.* Retrieved 4 December 2022 from **Mosgiel public housing development planned | Otago Daily Times Online News (odt.co.nz)**

[37] Otago Daily Times, 2021. *Mosgiel subdivision granted consent.* Retrieved 27 June 2022, from **Mosgiel subdivision granted consent | Otago Daily Times Online News (odt.co.nz)**

... and a reliance on private vehicles ...

Mosgiel residents, like most suburban areas of New Zealand, are car centric and rely heavily on their private vehicles for regular trips. Of the 4,704 households in Mosgiel at 2018 Census, 85% had at least one motor vehicle, and over 2,000 (or 44%) had access to two or more motor vehicles. This is an increase from the 2013 Census when 41% of households in Mosgiel had access to two or more motor vehicles.[38]

The use of these private vehicles for key regular journeys is reflected in mode share statistics. Figure 22 shows the main means of travel to work or school (mode share) for the 9,141 resident workers and students who lived in Mosgiel (including East Taieri and Wingatui) at the time of the last Census in 2018 was by private vehicle.

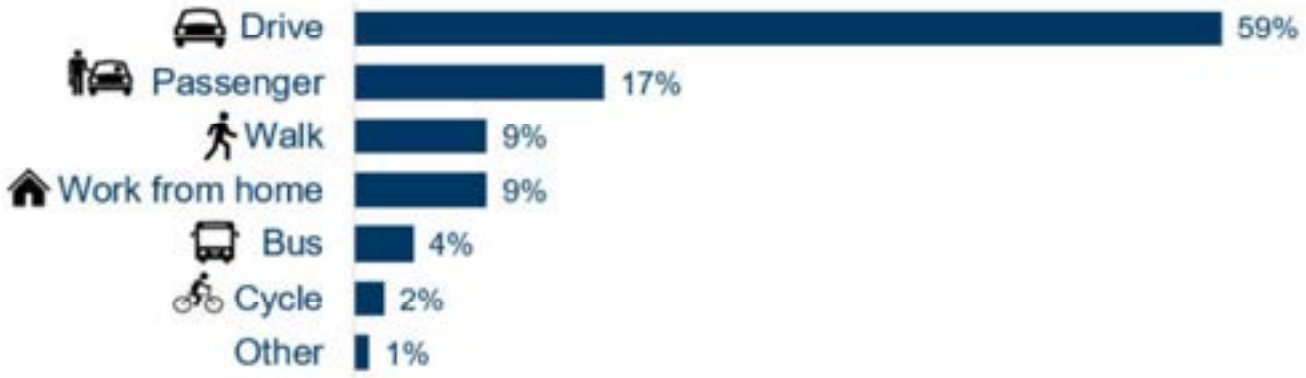

Figure 22 Census 2018 Main Means of Travel to School or Work for Mosgiel Resident Workers and Students (GHD 2022)[39]

At the 2018 Census, Dunedin Central was the most popular destination for travel to work or school trips outside of Mosgiel, representing 1,125 (or 17% of all) departures. A heat map of destinations for departures from Mosgiel to Dunedin is shown in Figure 23.

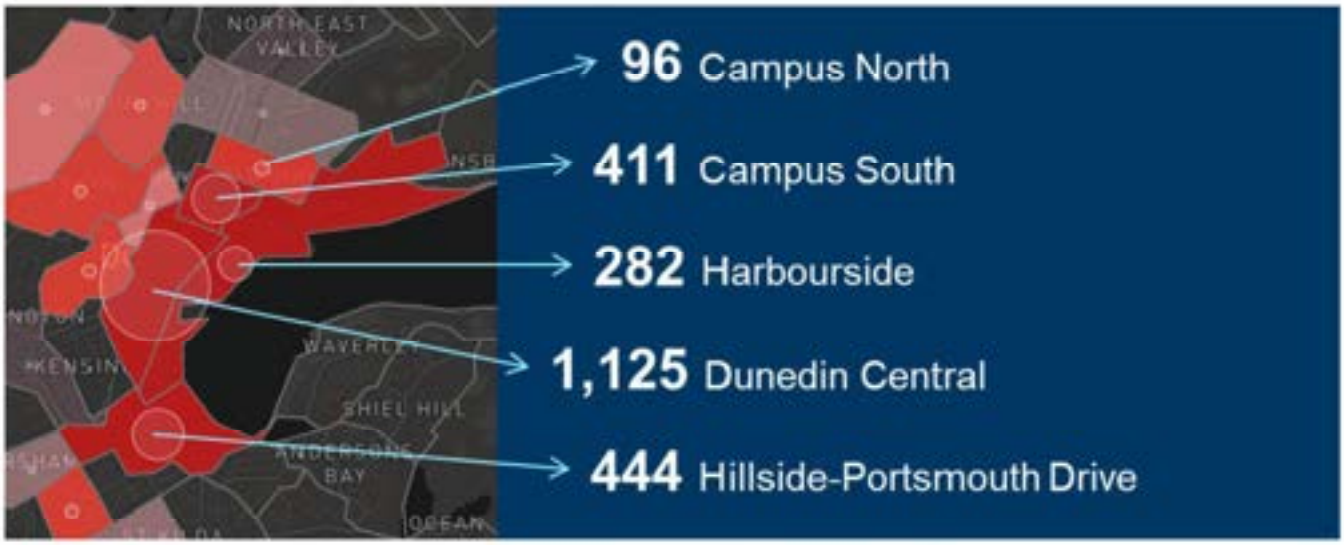

Figure 23 Census 2018 Departures from Mosgiel for work and education (GHD 2022)[40]

[38] Stats NZ, 2020. *Statistical area 1 dataset for 2018 Census – updated March 2020.* Retrieved 8 June 2022, from https://www.stats.govt.nz/information-releases/statistical-area-1-dataset-for-2018-census-updated-march-2020 Statistical areas: Bush Road, Mosgiel Central, Mosgiel East and Seddon Park

[39] Data sourced from Stats NZ Commuter Waka Departures from Statistical areas: Bush Road, East Taieri, Mosgiel Central, Mosgiel East, Seddon Park and Wingatui. Retrieved 17 May 2022 from, **Bush Road & 5 other areas - Commuter - Waka**

[40] Data sourced from Stats NZ Commuter Waka Departures from Statistical areas: Bush Road, East Taieri, Mosgiel Central, Mosgiel East, Seddon Park and Wingatui. Retrieved 17 May 2022 from, **Bush Road & 5 other areas - Commuter - Waka**

... coupled with readily accessible parking in Dunedin CBD ...

As noted above, Dunedin Central is a major destination for resident workers and students travelling from Mosgiel. The accessibility and cost of parking at, or near their destination, is a key influence on the mode of travel people choose for their daily journeys. Attendees at the ILM workshop confirmed the ease of finding either free or low cost parking within a reasonable walking distance of destinations in the central city contributes to car centric behaviours.

In the central Dunedin area, there are approximately 11,440 on-street parking spaces available to private vehicle users. The majority (67%) of these spaces are unrestricted and unpaid.[41] Figure 24 shows the composition of parking in the central Dunedin area.

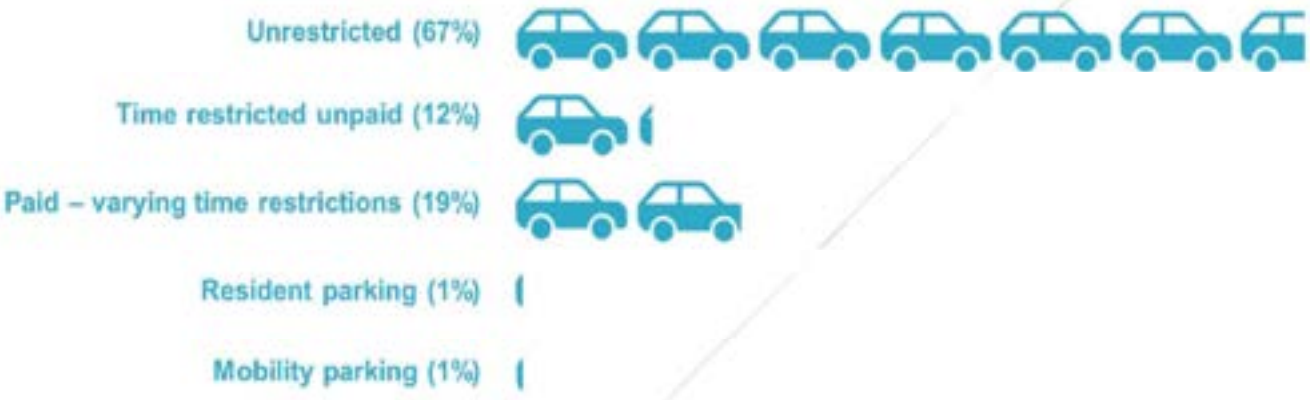

Figure 24 Types of on-street parking in central Dunedin area (GHD 2022)[42]

Table 2 presents the parking prices for the various parking typologies available in Dunedin. Paid all day on-street parking is $7 per day in parks provided by DCC.[43] Notably, all day paid on-street parking is not permitted in Wellington[44], Christchurch[45] or Hamilton[46] city centres, so a comparison cannot be made for all day rates.

Table 2 Dunedin parking pricing, weekdays (2022/23)[47] [48]

Parking type	Provider	Hourly rate	Daily rate	Leased rate (weekly)
On-street paid parking, inner/core zone	DCC	$2 - $4 (varying time limits)	N/A	N/A
On-street paid parking, outer zone	DCC	$1 (four hour max) $1.50 (unrestricted)	$7	N/A
Car park building	DCC	$2.50	N/A	$46.50 - $66.50
Off-street metered parking	DCC	$2	$7	$25.00 - $44.50
Wilson Parking	Private	$2.50 - $5	$6.50 - $15	N/A

In 2020, 78% (8,923 spaces) of all on-street parking in the central city area were allocated for long-stay (commuter) use.[49] This is considered a high proportion of on-street parking in central Dunedin. It is also high in comparison with other cities. For example, there are approximately 3,300 on-street paid parking spaces in the Wellington city centre, and all are restricted to short-term use; time limited to three-hours or less.[50]

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[41] MRCagney, 2020. *Dunedin Parking Roadmap. Appendix A: Parking data analysis report. Pp. 53.* DCC.
[42] Data sourced: MRCagney, 2020. *Dunedin Parking Roadmap. Appendix A: Parking data analysis report. Pp. 52 – 59.* DCC.
[43] Dunedin City Council, 2021. *Parking.* Retrieved 12 June 2022 from **Parking - Dunedin City Council**
[44] Wellington City Council, n.d. *Pay by Space parking locations and fees.* Retrieved 12 June 2022 from **Parking - Pay by Space parking locations and fees - Wellington City Council**
[45] Christchurch City Council, n.d. *Parking.* Retrieved 12 June 2022 from **Parking : Christchurch City Council (ccc.govt.nz)**
[46] Hamilton City Council, 2013. *Parking.* Retrieved 12 June 2022 from **Parking - Hamilton City Council**
[47] Dunedin City Council, 2022. *Parking.* Retrieved 4 December 2022 from **Pay and Display car parks - Dunedin City Council**
[48] Wilson Parking, 2020. *Find a park.* Retrieved 25 July 2022 from **Dunedin CBD Car Park | Wilson Parking**
[49] MRCagney, 2020. *Dunedin Parking Roadmap. Appendix A: Parking data analysis report. Pp. 54.* DCC
[50] Wellington City Council, n.d. *Central city street parking.* Retrieved 12 June 2022 from **Parking - Central city street parking - Wellington City Council**

Parking occupancy surveys commissioned by DCC in March 2020 (completed before the COVID-19 lockdown) found peak occupancy of around 81% at midday.[51] However, long-stay parking (4 hours or longer) averaged above 90% occupancy, evidencing that commuters to central Dunedin typically make use of free, or reasonably cheap, all day parking near their place of employment or education. Figure 25 provides an occupancy heat map from the survey.

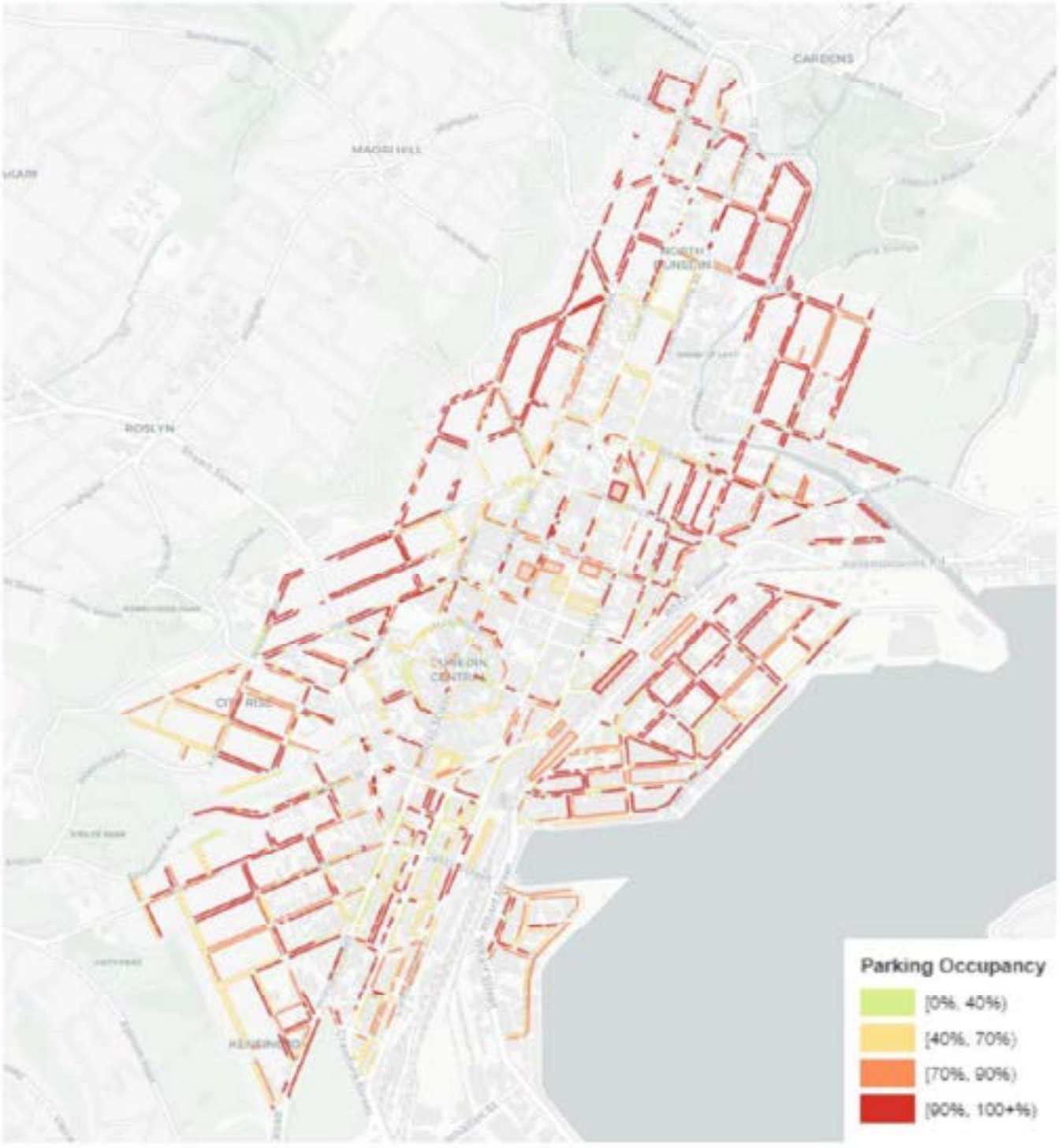

Figure 25 *Parking occupancy heat map, March 2020 at midday*[52]

[51] MRCagney, 2020. *Dunedin Parking Roadmap. Appendix A: Parking data analysis report. Pp. 57.* DCC
[52] MRCagney, 2020. *Dunedin Parking Roadmap. Appendix A: Parking data analysis report. Pp. 58.* DCC

2.2.3 Effects evidence

... is resulting in increased costs ...

High usage of, and reliance on, private vehicles in Mosgiel is resulting in increased costs and poor economic outcomes for households, and road controlling authorities:

- Households incur the costs of increased travel time delays due to congestion from single occupancy vehicles, and the related increased vehicle operating costs. When asked in the Customer Insights survey (refer to section 1.5) about the level of satisfaction of their commute, 67 respondents commented about the price of fuel and the negative impact this was having on their commute.

  "I don't like to drive my car in as the petrol prices are high"[53]

- Households also incur the costs of owning more vehicles per household due to a lack of competitive other transport options.

  "Gas and parking are expensive but there isn't a bus that can get me to work on time, so I have no choice [other than to drive]"[54]

- Road controlling authorities bear the increased annual costs to maintain and operate roads that are used by more motor vehicles.

Household costs

The AM Peak average median travel time for vehicles travelling between Mosgiel and the Dunedin CBD Bus Hub is 18.7 minutes. This is an increase of 2.6 minutes when compared to average median off-peak travel times between the same locations.[55] [56]

90% of Mosgiel households have access to at least one car[57], which they must pay for and maintain, as well as the sunk cost of the initial investment.

Road Controlling Authority costs

Dunedin City Council and Waka Kotahi spent $23.1 million in the 2020/21 financial year on road maintenance, operations and renewal activities on road corridors in Dunedin. $10.6 million was local council expenditure and the remaining $12.5 million was Waka Kotahi expenditure.

Approximately $6.1 million of this total cost (or 26%) was in the pavement and seal work category. [58]

... and transport related carbon emissions ...

An adverse effect of high private vehicle usage and low public transport mode share is transport related carbon dioxide (CO_2) emissions. The Ministry for the Environment set a target of a 20% reduction in vehicle kilometres travelled (VKT) by 2035 to support Aotearoa New Zealand's first emissions reduction plan which was released in 2022.

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[53] Comment received on Customer Insights study, 2022.
[54] Comment received on Customer Insights study, 2022.
[55] The AM Peak average median travel time 7.30am – 9.30am. Off peak average median travel time 7.00am – 7.30am. Travel times shown are between 1 Quarry Road/ Gordon Road, Mosgiel and Dunedin CBD Bus Hub
[56] Source: Travel Times – Mosgiel to Andersons Bay Road and Andersons Bay Road to Bus Hub 08112021 to 14112021. Data provided by DCC May 2022.
[57] Stats NZ, 2020. Statistical area 1 dataset for 2018 Census – updated March 2020. Retrieved 8 June 2022, from https://www.stats.govt.nz/information-releases/statistical-area-1-dataset-for-2018-census-updated-march-2020 Statistical area: Mosgiel Central.
[58] Waka Kotahi, 2022. *Data and Tools. Funding – Road maintenance, operation and renewals.* Retrieved 8 June 2022, from https://www.nzta.govt.nz/planning-and-investment/learning-and-resources/transport-data/data-and-tools/

Figure 26 shows the current motor vehicle fleet in registered in Mosgiel by engine type as of May 2022. With 97% of the fleet having combustion engines, this means that private vehicle reliance and usage in the area continues to generate significant CO_2 emissions.

Figure 26 Composition (%) of Mosgiel motor vehicle fleet[59]

The transport related carbon dioxide emissions generated from household private vehicle users in Otago region in 2019 was estimated to be 395 kilotonnes of carbon dioxide equivalents.[60]

... and poor social outcomes

Poor social outcomes are realised due to parking being a low amenity use of public space. Attendees at the ILM workshop confirmed that historically road space has been undervalued. They also recognised that as Dunedin grows there is increased contention for central city space that competes with on-street parking:

- Safety improvements
- Wider footpaths
- Public transport priority
- Cycle facilities, including bike stands, and
- Green space.

In 2018, Dunedin City Council adopted the Global Street Design Guide. Included in this guide is a street hierarchy that determines the priority for allocating road space based on user vulnerability and spatial efficiency of modes. As shown in Figure 27, this hierarchy puts people first (and private vehicles last) to help ensure private vehicle traffic does not undermine pedestrian amenity, and to create equitable access to our streets.

Figure 27 Global Street Design Guide (NACTO) street hierarchy[61]

[59] Data source: EVs by SA2 (Mosgiel Central, Mosgiel South, Bush Road, Seddon Park, East Taieri, Wingatui). Data provided by DCC July 2022.
[60] Source: Stats NZ, Sept 2021. *Greenhouse gas emissions by region (industry and household): Year ended 2019. Table 23 Otago's emissions profile 2007- 2019.* Retrieved 24 Nov 2022, from **https://www.stats.govt.nz/information-releases/greenhouse-gas-emissions-by-region-industry-and-household-year-ended-2019**
[61] Waka Kotahi, 2021. *Aotearoa Urban Street Planning & Design Guide, He Whenua, He Tangata.* Pp 5

Poor social outcomes also include the social cost of crashes associated with private vehicle travel. Figure 28 shows the collective risk ratings for roads in Dunedin. Collective risk estimates road safety risk based on density of deaths and serious injuries (DSIs) per kilometre. The state highway corridor between Mosgiel and Dunedin is mostly identified as medium-high collective risk.

Figure 28 *Dunedin Collective Risk ratings*[62]

Over the most recent complete five-year period from 2017 to 2021, 178 crashes were reported in Mosgiel.[63] This consists of twelve crashes that resulted in serious injuries, 46 crashes that resulted in minor injuries. The remaining 120 crashes were without injury. This five-year crash history resulted in an **estimated social cost of $21.3 million**. Crashes by year and crash severity are shown in Figure 29.

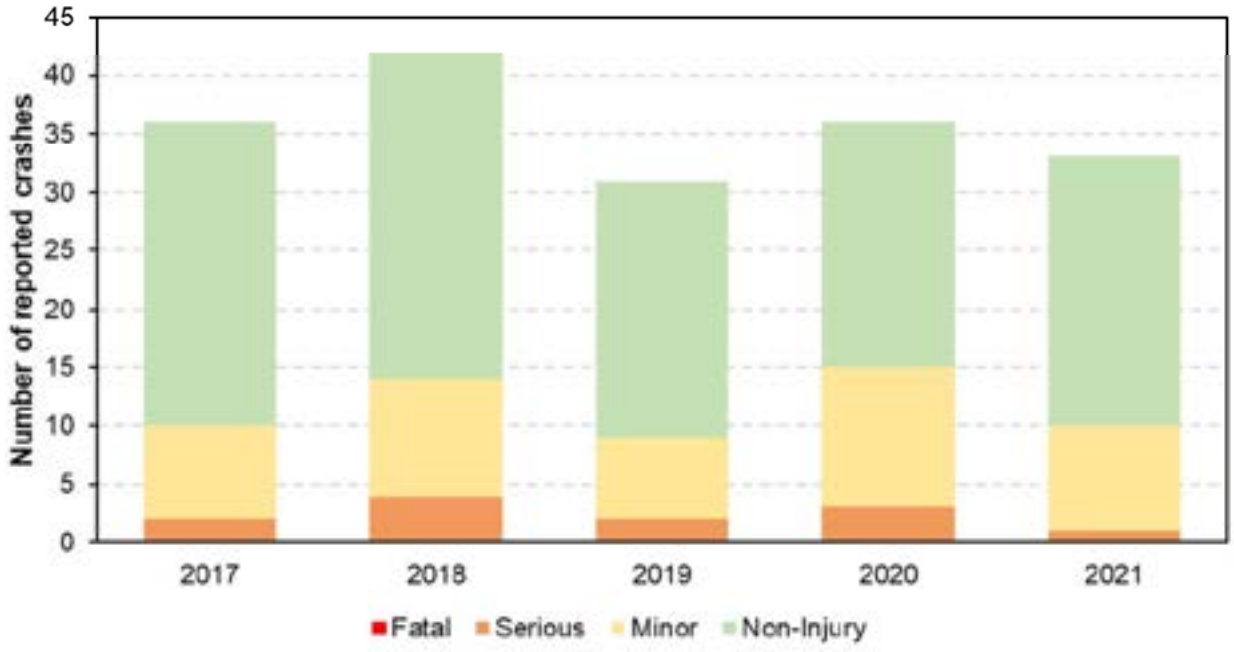

Figure 29 *Mosgiel total crashes by year and crash severity, 2017 to 2021*[64]

[62] Waka Kotahi, 2022. *MapHub MegaMaps Edition III*, extracted 12 June 2022
[63] Census area units: Bush Road, Mosgiel East (includes Seddon Park) and Mosgiel South (Mosgiel Central)
[64] Waka Kotahi, 2022. *CAS Database*, extracted 12 June 2022

Active mode users (pedestrians and cyclists) were involved in sixteen of the 178 crashes in Mosgiel over the five-year period as shown in Figure 30. Eight of these crashes resulted in serious injuries, five resulted in minor injuries, and three crashes were without injury.

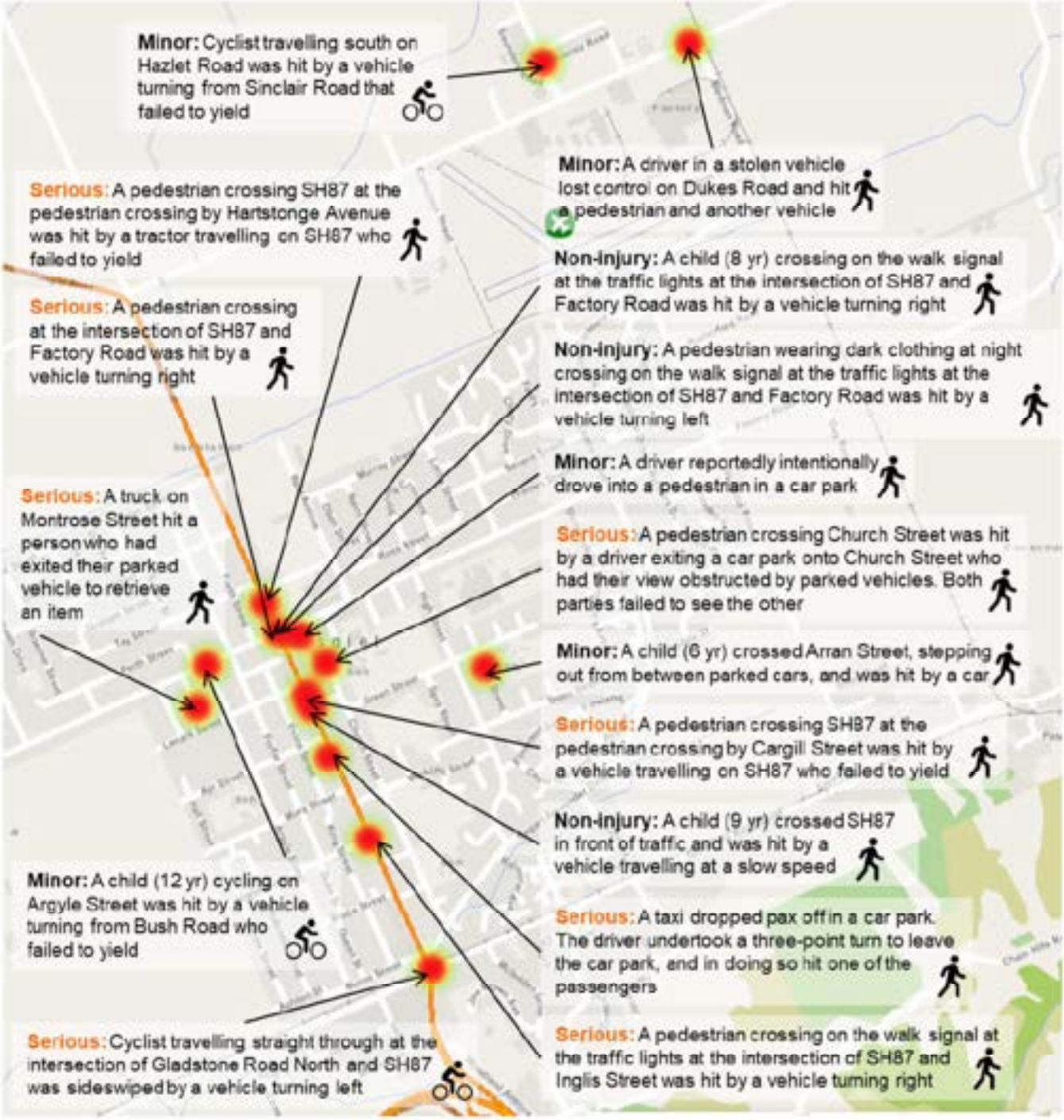

Figure 30 *Mosgiel active mode user crashes, 2017 to 2021*[65]

Crashes have a significant impact on the community through loss of lives and harm from serious injuries. In addition, it can have a significant impact on public transport as they can lead to both perceived and actual concerns about safety. If people feel unsafe crossing the road to access a bus stop for example, they are deterred from making trips they would like to take via public transport. This severance barrier to accessing public transport is particularly amplified for vulnerable individuals such as seniors, children, or those with mobility issues who may have a heightened sense of risk.

[65] Data and base map sourced: Waka Kotahi, 2022. *CAS Database*, extracted 12 June 2022

A third category of social outcomes concerns the effects on health outcomes. Public transport users typically spend more time outdoors walking between bus stops and their final destinations (refer to Figure 31), which generates health benefits that accrue from regular physical activity: [66]

- Reduction in the risk of developing coronary heart disease
- Reduction in the risk of developing adult diabetes
- Reduction in the risk of becoming obese
- Reduction in the risk of developing hypertension
- Decline in blood pressure in people with hypertension
- Reduced osteoporosis in the elderly, and
- Reduced symptoms of depression and anxiety.

These benefits may not be realised for private vehicle commuters in Mosgiel who have parking options available to them throughout the Dunedin CBD within a short distance of their destination; Ministry of Transport research found the average time spent walking as part of commuting to work has decreased to an average of 8 minutes per person per day.[67]

Figure 31 Walking and public transport[68]

2.2.4 Implications

The main implication of not addressing the issues identified in Problem Statement One is the embedded car centric behaviours and private vehicle reliance in Mosgiel will continue. Consequently, the economic, environmental, social and health effects of the problem will be exacerbated with the expected population growth in Mosgiel. This will make it increasingly difficult for the city to achieve:

- Their mode shift and carbon targets
- The goals ofInāia tonu nei: a low emissions future for Aotearoa, and
- The vision of the Shaping Future Dunedin Transport programme.

[66] Litman, T., 2010. *Evaluating Public Transportation Health Benefits*. Retrieved 26 July 2022 from **Microsoft Word - APTA_Health Benefits_14June2010.doc**

[67] Ministry of Transport, 2015. *25 years of New Zealand travel: New Zealand household travel 1989 – 2014*. Pp 12. Retrieved 26 July 2022 from **untitled (transport.govt.nz)**

[68] Ministry of Transport, 2015. *25 years of New Zealand travel: New Zealand household travel 1989 – 2014*. Pp 53. Retrieved 26 July 2022 from **untitled (transport.govt.nz)**

2.3 Problem Statement Two

Problem Statement Two relates to the existing facilities and services acting as barriers limiting public transport uptake. Attendees at the ILM workshop confirmed Problem Statement Two as:

A lack of safe facilities, and reliable and attractive services creates barriers to public transport uptake, resulting in limited viable travel choices for people, reinforcing reliance on use of single occupancy vehicles

2.3.1 Contributing factors

There were a wide range of pre-existing factors identified at the ILM workshop that are considered to contribute to Problem Statement Two. These factors were themed around:

- Factors that make public transport 'not convenient' such as bus timetables not aligning with hospital shift-work
- Factors that reinforce car centric behaviours including poor quality infrastructure that creates unsafe first and last mile journeys
- Factors that impact the ability to provide a public transport service that is competitive to travel by car, for example optimising the trade-off between a door to door service for everyone and overall travel times, and
- Factors that may motivate people to change modes such as rising fuel prices.

Figure 32 summarises the key contributing factors that were identified for Problem Statement Two.

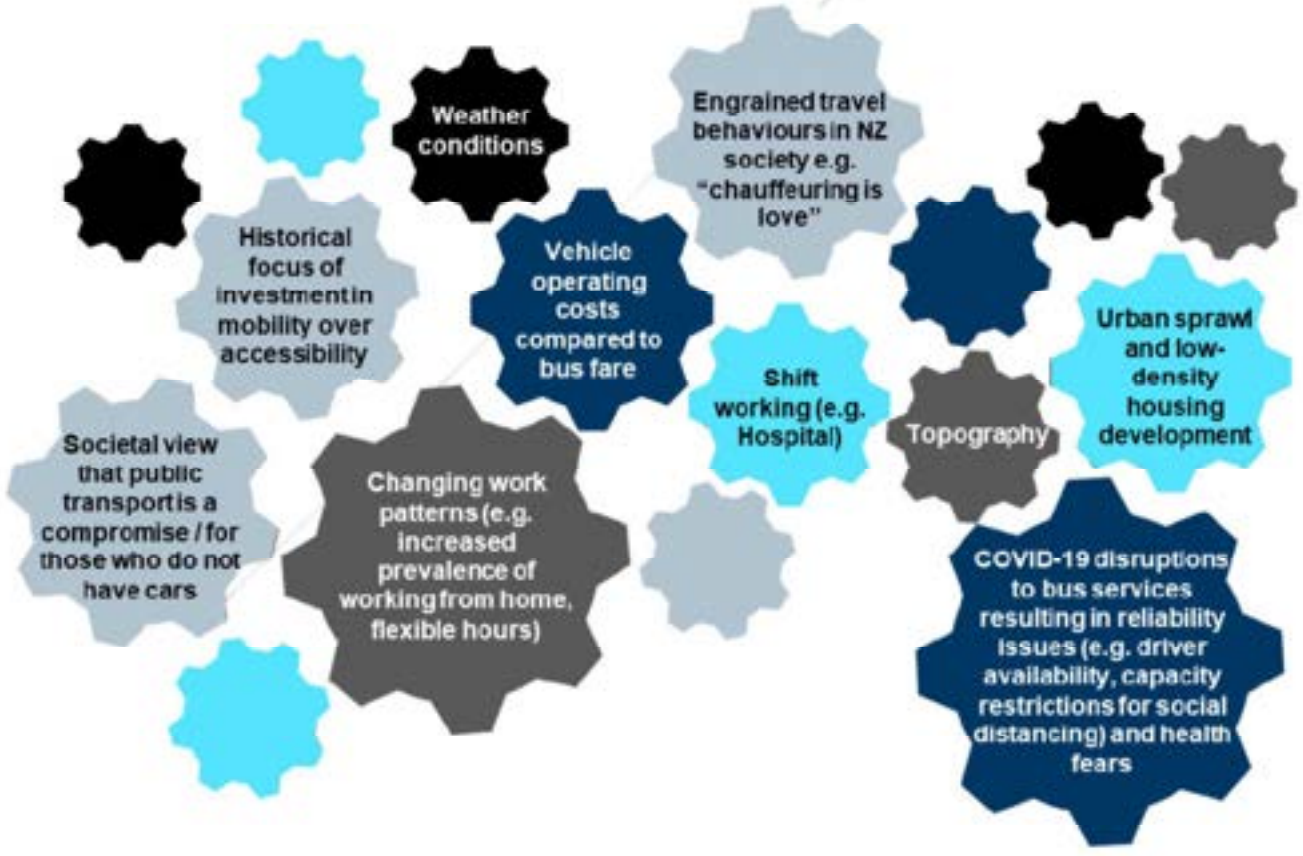

Figure 32 Problem Statement Two contributing factors

2.3.2 Causes evidence

A lack of safe facilities ...

The physical design of public transport facilities is typically the first impression that people receive about potential passenger experience.[69] In this way, the design elements of a bus stop have influence on people's decision on whether to make a trip by bus or by a competing mode, and can also have a bearing on if people make a trip at a specific time of day or in certain weather conditions. A 2015 study by the University of Minnesota found:

"... as wait time increases, stops with even basic shelters or seating can significantly reduce wait-time perception, especially when wait time approaches 10 minutes."[70]

A modern and well-designed public transport system includes a range of facilities to attract passengers and encourage continued use of public transport services. Figure 33 shows the required level of infrastructure provision at a Regular Bus Stop[71] as per the Auckland Transport Code of Practice. Any proposed Park and Ride will need to consider the facilities shown in the image below as specific requirements:

- Bus stop sign and bus schedule, bus route and real time information at shelter
- Bus facilities including stop box marking and areas for safe bus turning / manoeuvring
- Good quality footpaths connecting to wider network
- Priority parking for mobility impaired users (not shown in figure), and
- Secure cycle parking (not shown in figure).

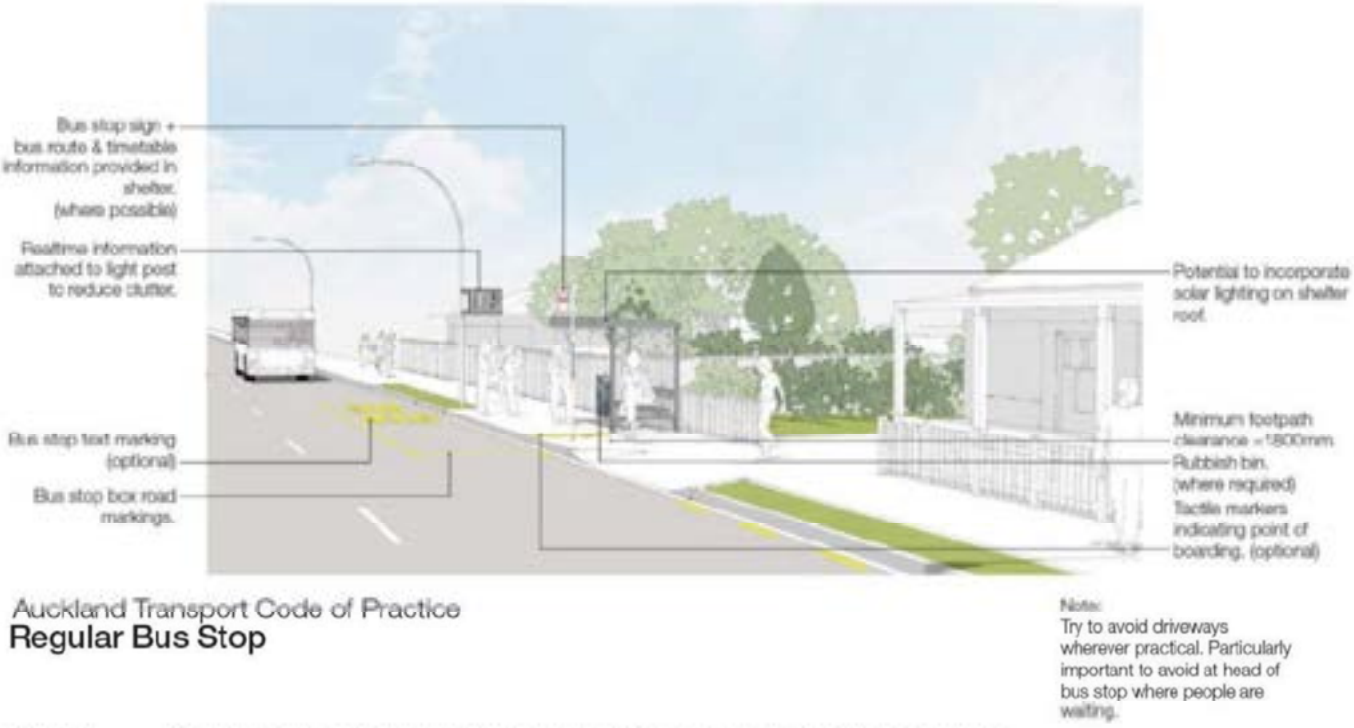

Figure 33 Schematic illustration of regular bus stop, Auckland Transport Code of Practice[72]

In comparison to the above figure, the quality of existing public transport facilities in Mosgiel is limited and is consistent with public transport facilities provided historically across New Zealand. Improved facilities can be used to reduce disincentives or barriers for any potential new bus users. Two examples of bus stops in Mosgiel are shown in Figure 34. These stops are both on Factory Road for Route 77 bus users travelling toward Dunedin.

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[69] National Association of City Transportation Officials (NACTO), 2016. *Transit Street Design Guide*. Retrieved 13 June 2022 from **Stop Elements | National Association of City Transportation Officials (nacto.org)**

[70] Fan, Y., Guthrie, A., and Levinson, D., 2015. *Perception of Waiting Time at Transit Stops and Stations*. University of Minnesota

[71] A Regular Stop has moderate to high frequency bus services (at least every half an hour) and are generally located in both suburban areas and some major attractions (including shopping centres) and/or along main passenger transport corridors.

[72] Auckland Transport, n.d. *Auckland Transport Code of Practice, Chapter 20 Public Transport – Buses*. Pp 739. Retrieved 13 June 2022 from **Auckland Transport Code of Practice (at.govt.nz)**

It should be noted that:

- The majority of bus stops in Mosgiel have shelters and seating or leaners available, but some do not
- Very few bus stops have additional lighting other than what is already provided by the urban streetlights
- Bus timetables are typically provided, however, no bus stops in Mosgiel currently have real time bus arrival information boards
- Tactile pavers and Kassel kerbs are not typically installed which presents accessibility restrictions
- Access to bus stops is often via routes that are not wheelchair accessible without kerb cutdowns at crossing points
- Facilities such as bike stands / bike parking are not available for those who may want to cycle to the bus stop, and
- There are also no stops with safe, designated parking for public transport users.

Figure 34 Images of existing bus stops on Route 77 on Factory Road [73]

Similarly, the Customer Insights gathered for this project found the community rated 'sufficient parking so spaces are always available' as the most important aspect of a Park and Ride facility. A summary of the ranking results is shown in Figure 35.

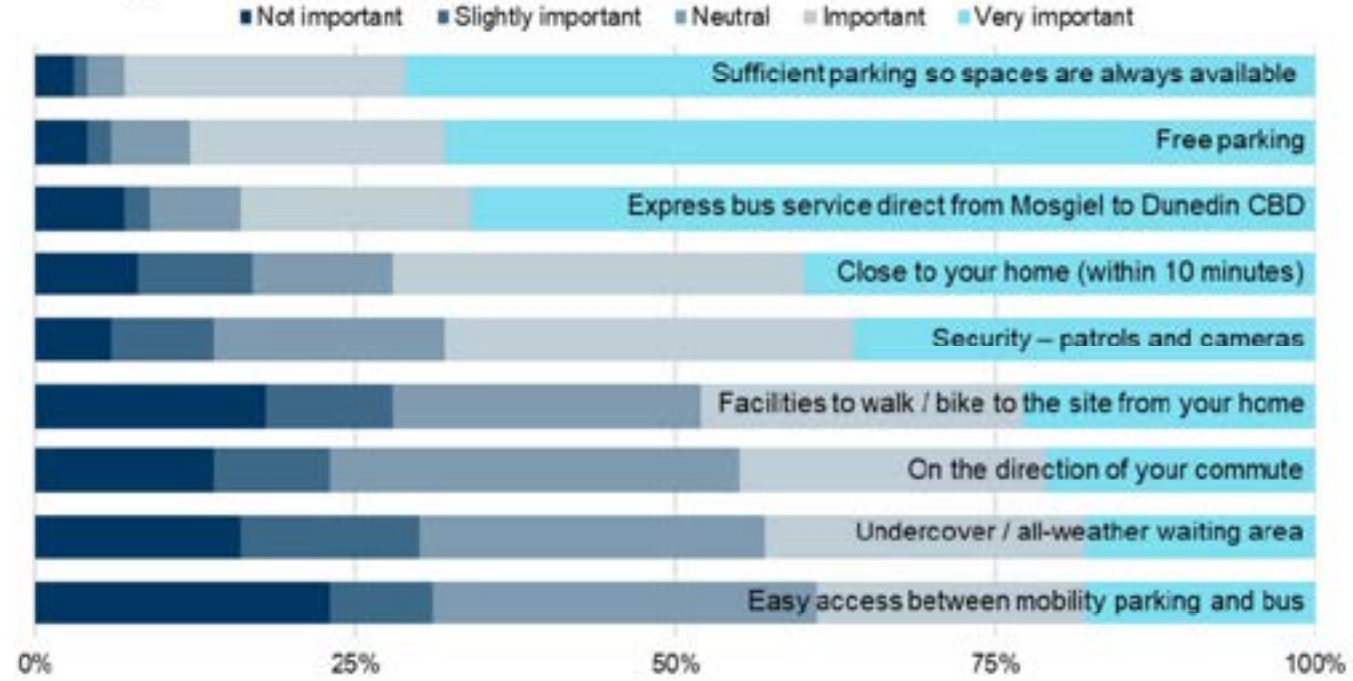

Figure 35 Customer Insights results, question 11 (GHD 2022)

[73] Images Sourced from Google Maps. Images shown are bus stop at Factory Road at Morrison Street (left) and 18 Factory Road (right).

... and reliable ...

As described in Section 1.3, bus service 77 runs daily from Mosgiel to the Dunedin CBD. In peak times this service operates every 30 minutes. Comparatively, bus services on major routes in Wellington can operate as frequently as every 10 minutes in peak times, which makes certainty of wait time much more reliable.[74]

25 written comments were received in the Customer Insights survey (refer to section 1.5) around the theme of public transport being unreliable. These respondents provided examples such as buses not running in accordance with the advertised schedule and arriving either too early or too late, or is cancelled due to drivers being sick (refer to Figure 36). As the service is perceived as being unreliable, these respondents stated that they preferred using their own vehicle or ride-share into Central Dunedin.

According to one respondent ***"I wish to take public transport but it is too unreliable. As I have kids to get home to and can't afford to be waiting 40mins [sic] for a bus."*** [75]

Figure 36 Online news articles, Otago Daily Times[76] [77] [78]

Similarly, in the 2022 Dunedin Quality of Life Survey, only 44 percent of respondents from Mosgiel / Taieri (n = 83) agreed or strongly agreed that public transport is reliable.[79]

... and attractive services ...

Commuters travelling at peak periods are in general relatively insensitive to cost while being more sensitive to journey time. The attractiveness of the existing Mosgiel to Dunedin service is low when the bus journey time is compared to the same trip taken by private vehicle. Table 3 displays the expected morning peak travel times of bus services compared to average median morning peak travel times for private vehicles observed in November 2021.

Note this is based on a journey from approximately the bus stop at 1 Quarry Road, Mosgiel to the Dunedin bus hub. For passengers who board at the route terminus on Factory Road, the average bus journey time in the morning peak is 38.3 minutes.[80]

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[74] Metlink, 2022. Timetable 1, Island Bay - Johnsonville West/Churton Park/Grenada Village. Retrieved 9 June 2022, from https://www.metlink.org.nz/service/1/timetable

[75] Comment received on Customer Insights study, 2022.

[76] Otago Daily Times, 2022. *Calls to deal with bus disruption.* Retrieved 4 December 2022 from Calls to deal with bus disruption | Otago Daily Times Online News (odt.co.nz)

[77] Otago Daily Times, 2022. *Cascade of bus cancellations due to driver illnesses.* Retrieved 4 December 2022 from Cascade of bus cancellations due to driver illnesses | Otago Daily Times Online News (odt.co.nz)

[78] Otago Daily Times, 2022. *Bus services to be reduced.* Retrieved 4 December 2022 from Bus services to be reduced | Otago Daily Times Online News (odt.co.nz)

[79] Nielsen IQ, 2022. *Rangahau te Korou o te Ora / Quality of Life Survey 2022 Dunedin Report.* Retrieved 5 December 2022 from Dunedin QoL report Oct 2022

[80] Phillips, J., email to Smith, S. and Wilson, G. August 4, 2022

Table 3 Mosgiel to Dunedin AM peak period average travel time comparison between public bus and private vehicle[81] [82]

Transport mode	AM peak period median travel time	Travel time data source
Bus service #77	29 minutes	ORC timetable for services departing 7:30-9:30 am weekdays
Private vehicle	18.7 minutes	Average median vehicle travel times observed 08/11/21 – 14/11/21 for trips commencing at origin between 7.30 am and 9.30 am (travel via SH1)
Difference	10.3 minutes	-

This shows average morning commute times between Mosgiel and Dunedin by bus are on average **10.3 minutes (55%) slower** than the equivalent car trips. Note, the bus travel time shown does not currently include the passenger walk time to and wait time at the bus stop for the service to arrive.

... creates barriers to public transport uptake ...

Figure 37 displays a typical 10-minute walking and cycling journey many residents in Mosgiel would have to make to access bus services (route 77) on Gordon Road. For many, this added walk / cycle time just to access public transport services means their total travel times to Dunedin would likely double those same expected journey times by private vehicle.

People who are making trips that are less time-sensitive may consider public transport, however the lack of safe facilities and shelter from wet weather create accessibility barriers and provide a reduced customer experience. This results in many people not considering public transport as a viable travel option.

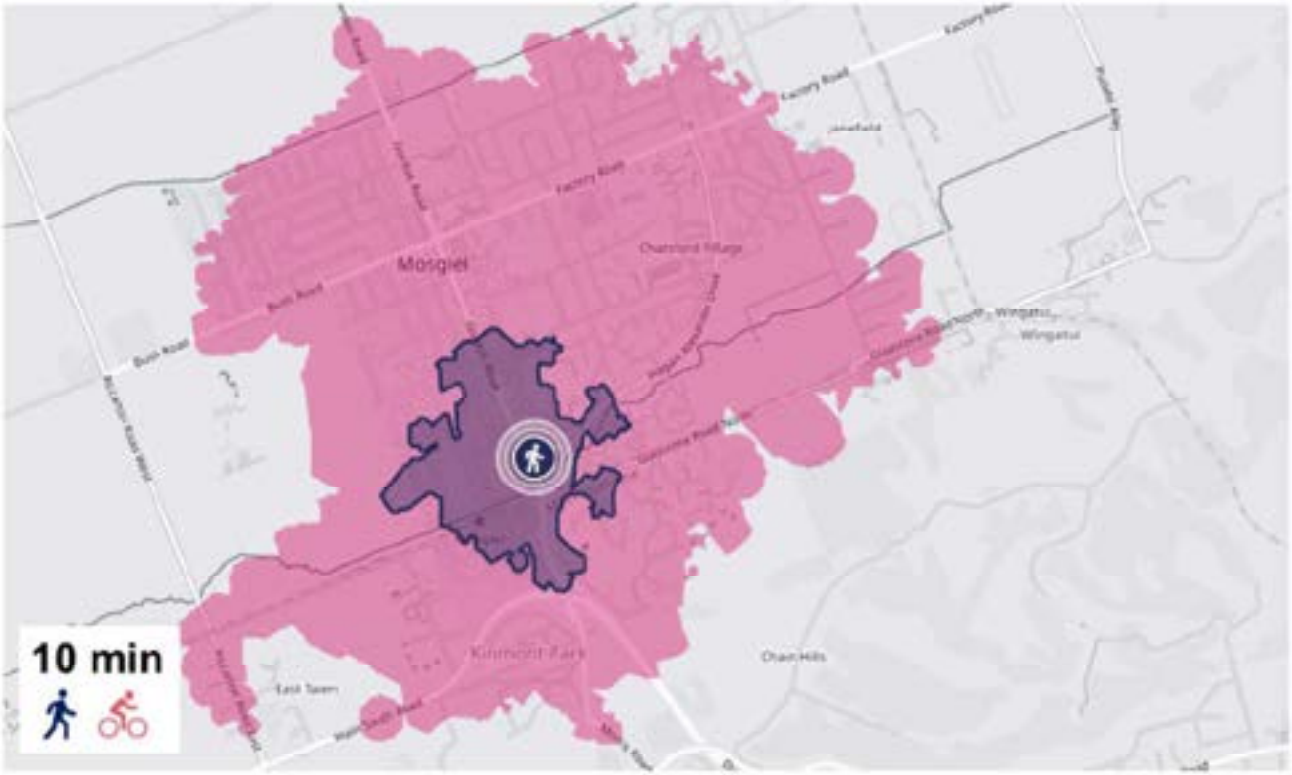


Figure 37 Mosgiel walking and cycling isochrones, ten minutes[83]

[81] Note: Average travel times shown are between 1 Quarry Road/ Gordon Road, Mosgiel and Dunedin CBD Bus Hub.
Source: Travel Times – Mosgiel to Andersons Bay Road and Andersons Bay Road to Bus Hub 08112021 to 14112021 Data provided by DCC.
[82] Note, the bus travel time shown does not currently include the passenger walk time to and wait time at the bus stop for the service to arrive.
[83] Travel Time Map, 2022. *Drive Time Radius and Other Modes.* Retrieved 9 June 2022, from https://app.traveltime.com/

The perceived limited travel choice for commuters needing to travel to Dunedin is reinforced when comparing the Mosgiel walking and cycling isochrones in Figure 37 to the Mosgiel drive time isochrones in Figure 38. The latter show that commuters can travel a much larger distance towards Dunedin City by private vehicle in the same time it takes many residents to access a bus stop without Park and Ride facilities.

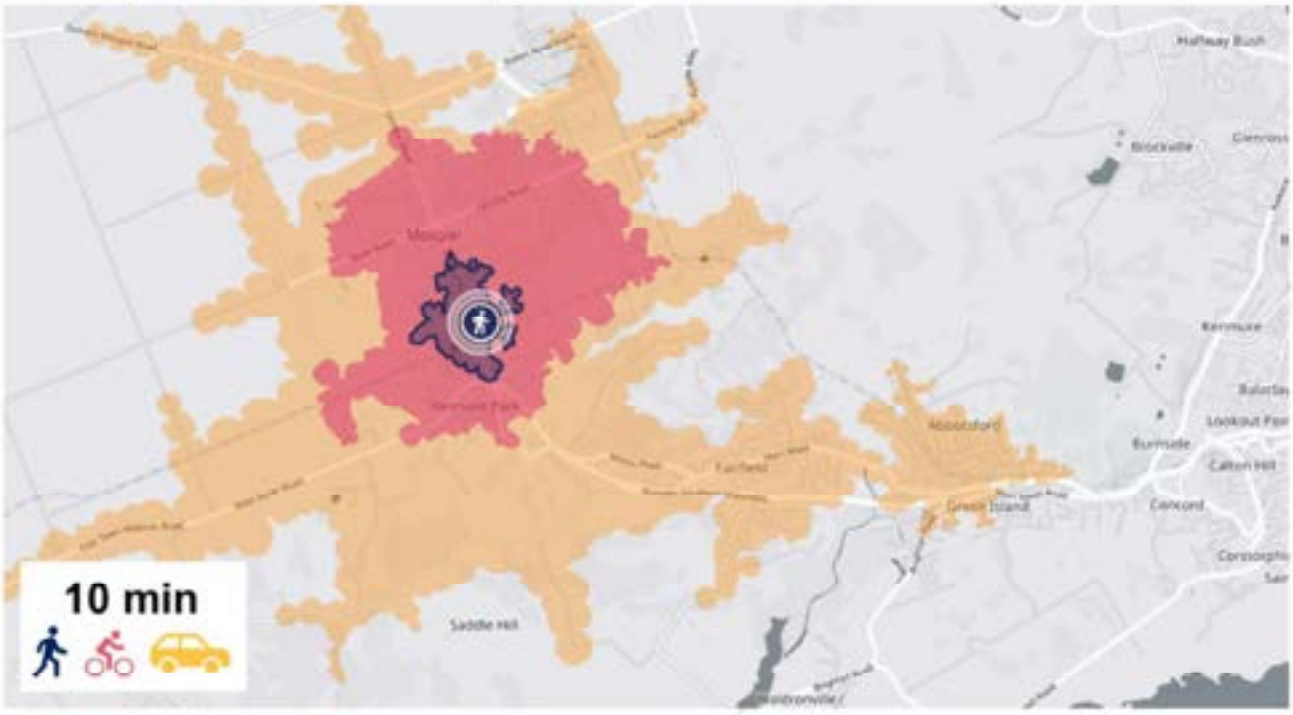


Figure 38 *Mosgiel private vehicle driving isochrone, ten minutes departing at 7:30 am*[84]

The Customer Insights survey (refer to section 1.5) asked the question "*what prevents you from using buses or public transport more often?*". 573 written comments (some respondents provided multiple responses on this question) were received with the most common response (40%) being about reliability of the bus service. A summary of the themes evidenced in the responses is shown in Figure 39. More detail is provided in the Customer Insights report provided in Appendix A.

228 comments about **Amount of time and reliability of the bus service**

107 comments about **Infrequent bus service**

90 comments about **Accessibility of bus services**

35 comments about **Required use of private vehicle**

31 comments about **Travelling with children**

19 comments about **Health and wellbeing on public transport**

63 comments about **Other**

Figure 39 *Customer Insights results, question 10 (GHD 2022)*

[84] Travel Time Map, 2022. *Drive Time Radius and Other Modes.* Retrieved 9 June 2022, from https://app.traveltime.com/

2.3.3 Effects evidence

... resulting in limited viable travel choices for people...

A lack of reliable and competitive bus services is resulting in limited viable travel choices for people living in Mosgiel and further afield in the wider hinterland.

The Customer Insights survey found that approximately 87% of people who responded travel to central Dunedin by private vehicle. This is similar to the 2018 Census Travel to Work data (refer to Figure 22, page 19) which reported 76% of people living in Mosgiel used private vehicle as their main means of travel to work or education.

Travelling to Dunedin by modes other than private vehicle or public transport is not considered feasible.

Walking is not considered a realistic travel option due to the 14-kilometre trip distance (one-way).

Cycling is also not a realistic option for many due to the distance, combined with the elevation changes[85], and the lack of safe cycling infrastructure.

Through the Tunnels Trail project, DCC are looking to construct an off-road, relatively flat cycle route between Mosgiel and Central Dunedin. This project is included in the Council's Long Term Plan, the Otago Southland Regional Land Transport Plan and the National Land Transport Programme with a **probable** funding priority.[86] Pre-implementation funding was confirmed in 2022 and the project is currently four months (as at January 2023) into this stage. The Tunnels Trail project will reduce the barriers for some commuters to travel by bike, acknowledging this will mostly be suitable for people who are willing to use, and can afford, an e-bike.

There are currently no passenger **rail** services between Mosgiel and Dunedin. It is understood that DCC has aspirations to operate a commuter rail service however early indication is that this is a long term goal.

The lack of travel options is recognised by ORC in the 2021-31 Otago Regional Public Transport Plan:

"Currently, limited travel options are available for residents in Green Island, Mosgiel, Brighton and the Taieri."[87]

The strategic response from ORC is to increase the frequency of the Route 77 service to 15 minute intervals and commence operation of a new express service from Mosgiel to the central city. The draft timetable for the express service is shown in Figure 40, followed by the proposed route map shown in Figure 41.

The contract for operating these services was signed in mid-2022, however constraints on driver availability has meant these service changes have not yet been implemented at the time of writing.[88]

Mosgiel Terminus	Bus Hub
0715	0745
0745	0815
0815	0845

Bus Hub	Mosgiel Terminus
1530	1600
1600	1630
1630	1700
1700	1730
1730	1800
1800	1830

Figure 40 Mosgiel Express service proposed timetable[89]

[85] Cycling between Mosgiel and Dunedin via Three Mile Hill Road has total elevation gain of 343 m and total descent of 357 m. Source Google Map data, 2022. Retrieved 28 June 2022 from Mosgiel to Dunedin Hospital - Google Maps

[86] Waka Kotahi NZ Transport Agency, 2022. *Regional and activity tables.* Retrieved 26 July 2022 from **Regional and activity tables | Waka Kotahi NZ Transport Agency (nzta.govt.nz)**

[87] Otago Regional Council, 2021. *2021-2031 Otago Regional Public Transport Plan.* Pp 31. Retrieved 27 June 2022 from **orc_rtp_document_final-july-2021_online.pdf**

[88] Phillips, J., email to [redacted], February 09, 2023

[89] Phillips, J., email to [redacted], November 01, 2022.

Figure 41 ***Mosgiel Express service proposed route map[40]***

[40] Phillips, J., email to [redacted] February 09, 2023

… reinforcing reliance on use of single occupancy vehicles

The reliance of Mosgiel residents on single occupancy vehicles for key journeys is evidenced by the mode share statistics shown in Figure 22 (Section 2.2.2). It is also reflected in the recent Dunedin CBD – *Cordon Travel Survey* findings completed over two weekdays in 2022 shown in Figure 42.

Over the two survey days there were a total of 4,582 movements into the Dunedin CBD cordon from the south, (vehicle movements were counted on the first day, and active modes counted on the second day). Light vehicles were the largest mode counted entering from the south with 4,074 movements, making up 89% of the total count. In comparison, travel by bus had one of the lowest percentages at 1.5%. Note this survey counted movements only and did not account for occupancy.

Figure 42 2022 southern cordon count by transport mode into Dunedin CBD cordon[91]

Of note, Route 77 (Mosgiel to Dunedin) had the highest passenger count of all public services in Dunedin during the 2022 cordon count. 168 passengers were counted travelling on Route 77 into the Dunedin CBD in the morning peak period (between 07:30 am and 09:30 am) on Thursday 7th April 2022.[92] The 2022 passenger counts were similar to the 2021 counts with 154 passengers counted in 2021.[93] However, despite being the route with the highest passenger count, this represents less than 2% of the Mosgiel population.[94]

Figure 43 shows the passenger arrivals into the CBD on Route 77 in half-hourly intervals in the 2022 morning peak. Route 77 runs on half-hourly frequency with a capacity of approximately 50 seated passengers. The patronage shown in Figure 43 indicates that the service is typically running at full capacity in the morning peak. As a result, potential passengers have barriers to uptake simply because the buses are full.

It is understood Otago Regional Council have begun operating 'chaser' buses on this route to cater for the demand. This is assumed to have occurred on the morning of the cordon count with two buses arriving in the CBD cordon between 8:00 am and 8:30 am instead of one bus as timetabled.

[91] Data received from DCC July 2022.
[92] Data received from DCC July 2022.
[93] Stantec, Cordon Travel Survey 2021, counted at Market Reserve bus stop on Wednesday 17th March 2021.
[94] Route 77 travels from Mosgiel to the city centre, also carrying passengers from Green Island, Abbotsford and Brighton

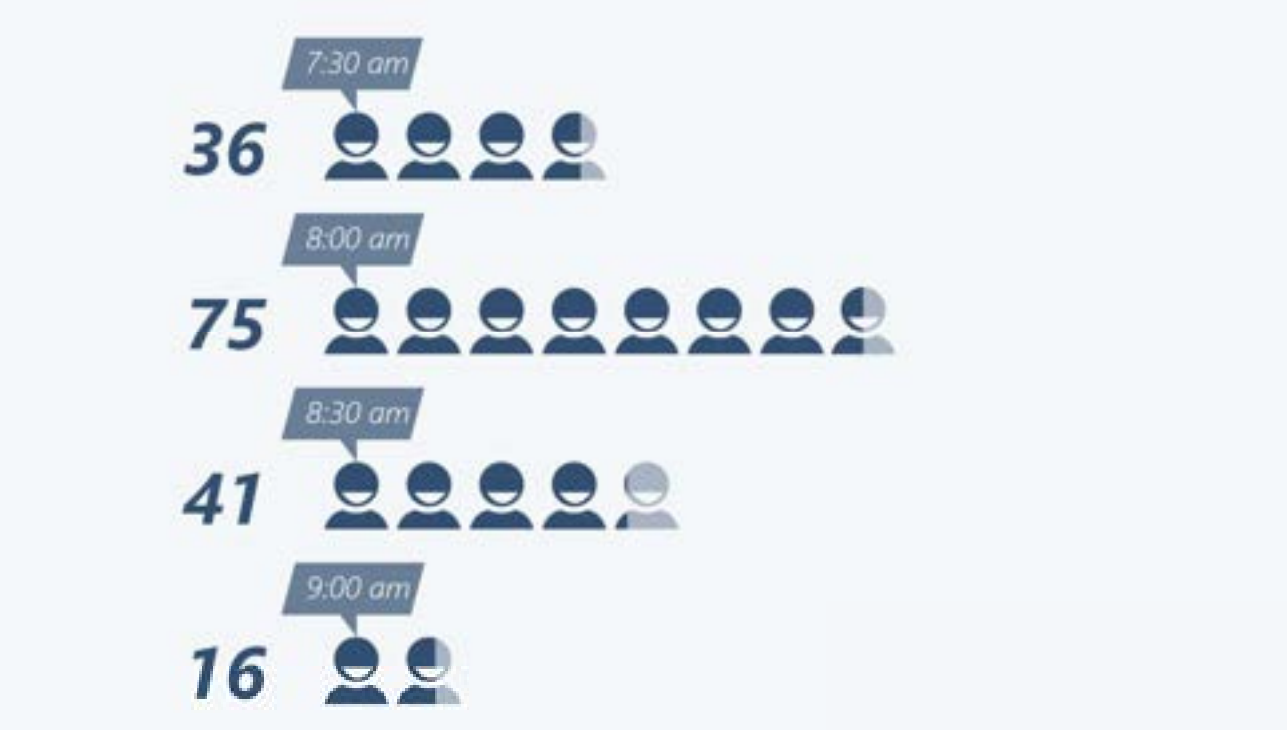


Figure 43 Passenger arrivals into Dunedin CBD on Route 77 in half-hourly intervals in morning peak period[92]

2.3.4 Implications

The implications of not addressing the issues identified in Problem Statement Two are the barriers to public transport uptake in Mosgiel will remain and residents will continue to rely on single occupancy vehicles for daily travel. This will increase the accessibility-related challenges that Dunedin is facing, and people will miss out on economic and social opportunities as a result.

Mosgiel remaining as an almost completely private vehicle dependent town will make it increasingly difficult for the city to achieve:

– Reduced congestion and demand for parking in the Dunedin central city
– The goals of Ināia tonu nei: a low emissions future for Aotearoa, and
– The vision of the Shaping Future Dunedin Transport programme.

2.4 Benefits and Investment Objectives

2.4.1 Benefits

Through addressing the two core problems identified, this project is expected to deliver the key benefits detailed in Figure 44 as identified at the ILM workshop with partners. Figure 45 maps the alignment between the project benefits and the Government Policy Statement (GPS) on land transport and the Ministry of Transport's Transport Outcome Framework.

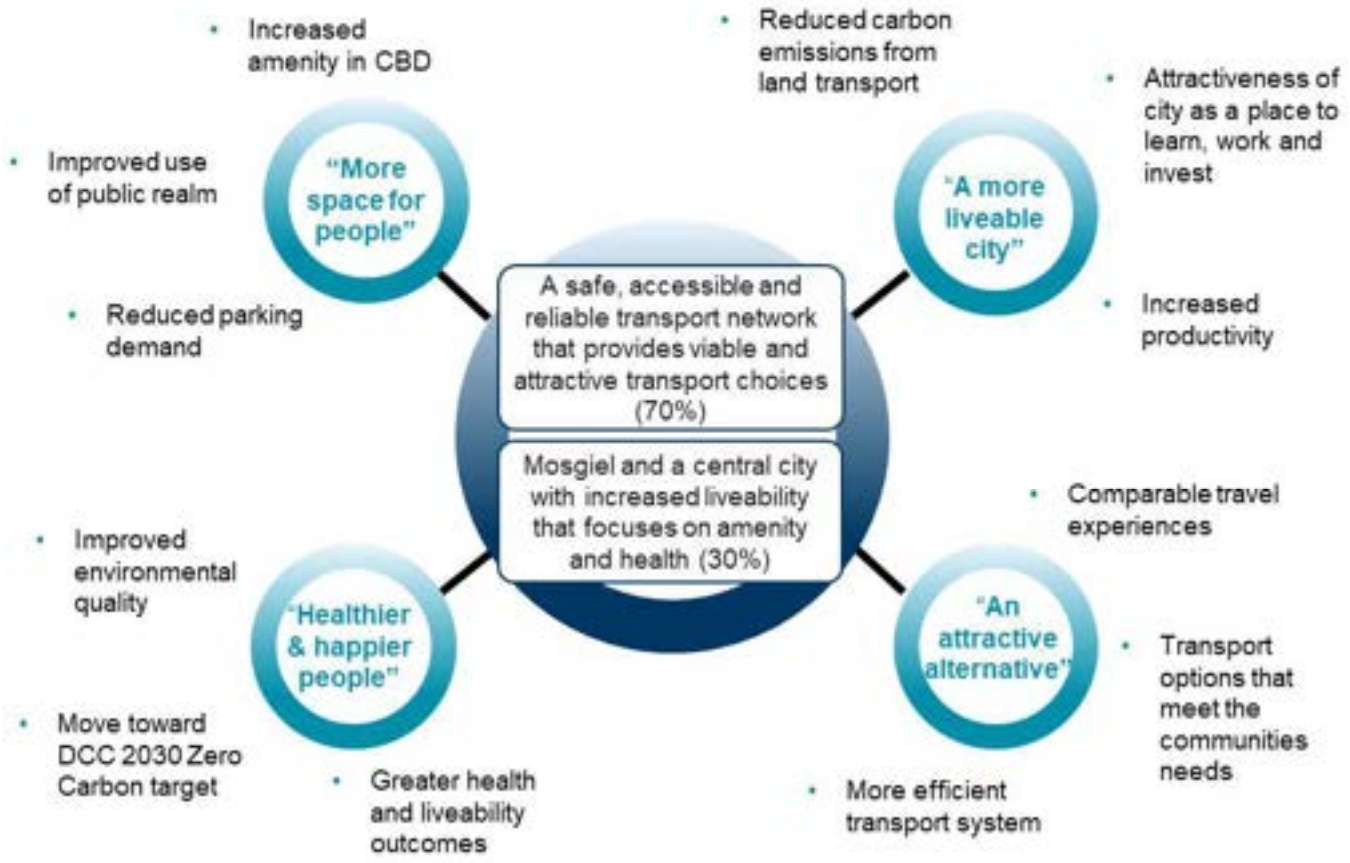


Figure 44 Investment benefits (GHD 2022)

Figure 45 Investment benefits alignment with GPS and Outcomes Framework (GHD 2022)

2.4.2 Investment Objectives

Table 4 details the project investment objectives and key performance indicators, along with baselines and targets.

Table 4 Investment Objectives and Key Performance Indicators

Investment Objective	Key Performance Indicators	Baseline	Estimated Outcome (Target)	Transport Outcomes Framework
 Increase public transport patronage through reducing the barriers to uptake and improving the attractiveness of travelling by bus *Note the benefits of this investment objective will be realised by the Park and Ride supported by the Express Service*	Mode share for journey to work / education trips departures from Mosgiel to Dunedin using Census data *In recognition that Census data is a passive lag indicator, an interim indicator of the number of people travelling by bus from Mosgiel to Dunedin, based on Bee Card data, is proposed.*	**2018** 4% of journeys to work / education made by bus[95] **2022** *7,098 passengers tagged on to Route 77 in March 2022*[96]	**2033** 9% of journeys to work / education made by bus[97] **2025** *14,000 passengers tagged on to Route 77 and Express service in March 2025*[97]	8. Changes in climate
	Average difference in travel time of public transport compared to private vehicle from Mosgiel to Dunedin CBD in morning peak *Measured from approximately 1 Quarry Road Mosgiel to Dunedin Bus Hub*	**2022** Route 77: 29 mins[98] Private vehicle: 18.7 mins[99] Difference: 10.3 mins	**2024** Express service: est. 24 mins[100] Private vehicle: 18.7 mins[101] Difference: 5.3 mins	10. Changes in access to social and economic opportunities
	Frequency and reliability of public transport services from Mosgiel to Dunedin	**2022** Route 77 – 26 weekday bus services at half hourly intervals[102]	**2024** Route 77 – 34 weekday bus services at 15 min intervals (peak) Express service – 3 morning peak services[100]	10. Changes in access to social and economic opportunities

[95] Source: Stats NZ Commuter Waka Departures from Statistical areas: Bush Road, East Taieri, Mosgiel Central, Mosgiel East, Seddon Park and Wingatui. Retrieved 17 May 2022 from, Bush Road & 5 other areas - Commuter - Waka

[96] Source: ORC, 2022. Route 77 – Stop Data March 2022. Wilson, G., [redacted] May 04, 2022. *Passengers boarding Route 77 inbound between Mosgiel Terminus and 1 Quarry Road, inclusive.*

[97] GHD, 2022. *Preferred Option – Demand Estimation Technical Memorandum*

[98] Source: ORC, 2022. Route 77 Mosgiel, Fairfield, Green Island – City. Scheduled travel time from 1 Quarry Road to Dunedin Bus Hub.
Note: ORC timetable for services departing 7:30-9:30 am weekdays

[99] Source: Travel Times – Mosgiel (Gordon/ Quarry Rd intersection) to Andersons Bay Road and Andersons Bay Road to Bus Hub 08112021 to 14112021 Data provided by DCC. Note: Average median vehicle travel times observed 08/11/21 – 14/11/21 for trips commencing at origin between 7.30 am and 9.30 am (travel via SH1)

[100] Phillips, J., email to [redacted] November 01, 2022.

[101] Note: Assume same average private vehicle travel time as 2022.

[102] ORC, 2022. Route 77 Mosgiel, Fairfield, Green Island – City. Bus Schedule Nov 2022. Retrieved 24 Nov 2022, from https://www.orc.govt.nz/public-transport/dunedin-buses/check-your-timetables/77-mosgiel-fairfield-green-island-city
Note: Reduced timetable from 19 July 2022.

Investment Objective	Key Performance Indicators	Baseline	Estimated Outcome (Target)	Transport Outcomes Framework
 Decrease the number of single occupancy vehicles travelling from Mosgiel to Dunedin in the morning peak to reduce parking demand and traffic in the central city and improve safety	Average number of vehicles driving to Dunedin from Mosgiel in the morning peak *Measured at the Mosgiel SH1 northbound on-ramp*	**2022** 2,367 average number of vehicles per day recorded between 6 am and 9 am [103]	**2024** 2,420 average number of vehicles per day recorded between 6 am and 9 am [104]	8. Changes in climate
	Five-year average annual number of death and serious injury crashes between Mosgiel and Dunedin CBD in morning peak *Reported injury crashes on SH87 (Factory Road to SH1) and SH1 (Mosgiel overbridge to Great King Street North)*	**2017-2021** 4.6 average annual injury crashes per year reported between 6 am and 9 am [105]	**2024 – 2028** An estimated reduction of 0.05 average annual injury crashes per year due to mode shift and a reduction in private vehicles (and potential conflicts) generated from a Park and Ride facility	1. Changes in user safety
	Throughput – people per vehicle from Mosgiel to Dunedin in the morning peak	**2021** 1.15 people per light vehicle travelling into the Dunedin CBD cordon [106]	**2024** TBC – requires cordon survey specific to people travelling from Mosgiel	10. Changes in access to social and economic opportunities

[103] Waka Kotahi, 2022. *NZTA Traffic Monitoring System Portal: Southern Mway Mosgiel On Ramp TMS Site Reference 01S50720.* Retrieved 8 November 2022, from https://tms.nzta.govt.nz/

[104] Note: Assumes a 2.16% per annum traffic growth rate from 2022 based on historical population growth for the area and an estimated reduction of 50 vehicles due to mode shift from private vehicle use to using the Park and Ride

[105] Waka Kotahi, 2022. *CAS Database.*

[106] Stantec, 2021. *Cordon Travel Survey: 3.0 Results, Table 2 Mode share by people.* Dunedin City Council.

Investment Objective	Key Performance Indicators	Baseline	Estimated Outcome (Target)	Transport Outcomes Framework
Reduce the environmental and social impact of land transport whilst maintaining efficient movement of people and products	Carbon dioxide (CO_2) emissions from land transport from Mosgiel to Dunedin	**2021/22** 425,011,071 total annual vehicle kilometres travelled on State Highways in Dunedin City (TA)[107]	**2024** An estimated reduction of 350,000 total annual vehicle kilometres travelled on State Highways per annum in Dunedin City due to mode shift from private vehicles to public transport as a result of a Park and Ride[108]	8. Changes in climate
	Mosgiel residents' responses around social determinants in Dunedin Quality of Life survey (undertaken every two years)	**2022** 58% of respondents from Mosgiel / Taieri agreed or strongly agreed that public transport is easy to access 42% agreed *or* strongly agreed that public transport is safe from crime and harassment[109]	**2026** Five percent increase in both metrics	10. Changes in access to social and economic opportunities
	Proportion of Mosgiel population living within 30 minutes travel threshold[110] of key economic opportunities in the morning peak by public transport as the primary mode of travel	**2022** *To be updated with data from next strategic transport model iteration*	**2024** Proportion expected to increase due to Park and Ride extending reach of public transport, and reduced travel time of Express Service compared to existing route 77	10. Changes in access to social and economic opportunities

[107] Waka Kotahi, 2022. *Data and tools, Vehicle use (VKT) 'Vehicle Kilometres Travelled' within Road Controlling Authority areas.* Retrieved 30 November 2022, from https://www.nzta.govt.nz/planning-and-investment/learning-and-resources/transport-data/data-and-tools/

[108] Note: Now AM Peak period user numbers sourced from GHD, *Nov 2022: Preferred Option – Demand Estimation Technical Memorandum*. A diversion rate of 50% is assumed from existing private vehicle users.

[109] Nielson IQ, 2022. *Rangahau te Korou o te Ora / Quality of Life Survey 2022 Dunedin Report.* Retrieved 5 December 2022 from Dunedin QoL report Oct 2022

[110] Waka Kotahi, 2020. *Non-Monetised Benefits Manual; Qualitative and Quantitative measures.* Pp 56. Retrieved 6 December 2022 from Non-monetised benefits manual (nzta.govt.nz)

2.5 Alignment to existing strategies

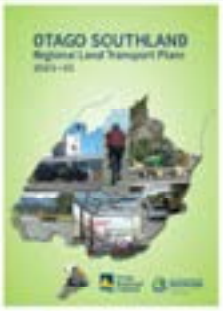
This section explores the various key national, regional, and local strategies to demonstrate how this project aligns with the various strategic objectives.

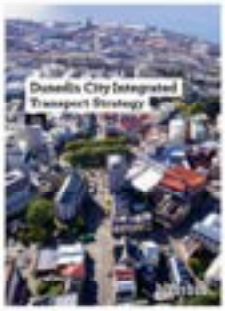
2.5.1 National strategies

Document	Alignment
	**Te Tauākī Kaupapa Here a te Kāwanatanga mō ngā waka whenua** **Government Policy Statement on Land Transport 2021** The Mosgiel Park and Ride project aligns with the Government Policy Statement on Land Transport 2021 by supporting GPS strategic priorities of: – *Better Travel Options:* The focus of the project is to provide viable and attractive transport choices to people living in Mosgiel and the outer hinterland – *Climate change:* Through proving transport choice this enables mode shift from private vehicle trips to public transport which will reduce emissions and VKT. Government Policy Statement on land transport 2021/22-2030/31
	**To Tātou Mahere mō te pūnaha waka whenua** **Waka Kotahi Arataki (Version 2)** This project aligns with the Arataki focus in Ōtākou / Otago to encourage increased use of public transport to support urban development and thriving communities in Dunedin (and Queenstown). The Connecting Dunedin project is included under the areas of focus for 2021-31. The region step changes supported include: – *Transforming urban mobility:* Through providing viable transport choice to employment and essential services – *Tackling climate change:* Through enabling mode shift which will reduce emissions and VKT – *Supporting regional development:* Through improving access to the regional hospital. Arataki version 2 – key drivers, step changes, levers and interventions (nzta.govt.nz)
	**Te Ara ki te Ora** **Road to Zero | New Zealand's Road Safety Strategy 2020-2030** The provision of improved facilities for public transport in Mosgiel aligns with Focus Area 1 of the strategy – *Investment in infrastructure improvements (and speed management).* Through making public transport a viable choice for people living in Mosgiel this reduces the proportion of private vehicles travelling in the morning peak, making this corridor safer for users. This contributes to the Waka Kotahi Road to Zero vision of zero deaths and serious injuries on New Zealand roads. Road-to-Zero-strategy_final.pdf (transport.govt.nz)
	**Waka Kotahi Keeping Cities Moving** The Waka Kotahi Keeping Cities Moving Plan is a plan to improve travel choice and reduce car dependency. Keeping Cities Moving and the Mosgiel Park and Ride project share the same goal to transition away from car-centric infrastructure and develop public transport as a viable transport choice for people living in Mosgiel. Keeping cities moving: Increasing the wel being of New Zealand's cities by growing (nzta.govt.nz)

Document	Alignment
	**National Policy Statement on Urban Development (NPS-UD) 2020** **Updated May 2022** The Mosgiel Park and Ride project supports the main aim of NPS-UD to ensure that New Zealand towns and cities are well-functioning urban environments that meet the changing needs of our diverse communities. For Mosgiel this involves providing increased access to public transport for regular trips. National Policy Statement on Urban Development 2020 (environment.govt.nz)
	**He Pou a Rangi Climate Change Commission** **Ināia tonu nei: a low emissions future for Aotearoa** The Mosgiel Park and Ride supports the Climate Change Commission's advice to New Zealand Government 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. Ināia tonu nei: a low emissions future for Aotearoa (amazonaws.com)
	**Te hau mārohi ki anamata: Towards a productive, sustainable, and inclusive economy | Aotearoa New Zealand's first emissions reduction plan** **Ministry for the Environment** 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 Mosgiel Park and Ride project supports are reducing reliance on cars and supporting people to use public transport and active modes. A target of 20% reduced vehicle kilometres travelled (VKT) by 2035 has been set by the Government. Through reducing the barriers to uptake and improving the attractiveness of travelling by bus, it will be easier for people to make trips by other modes, and subsequently reduce car travel and VKT. Aotearoa New Zealand's first emissions reduction plan (environment.govt.nz)

2.5.2 Regional and local strategies

Document	Alignment
	**Otago Southland Regional Long Term Plan (RLTP) 2021-2031** This project supports the RLTP third strategic priority (after Road Safety and Asset Condition) of Connectivity and Choice: *"...the need for co-ordinated, integrated planning to improve choices for the movement of people and goods, and create real change in the way people travel, particularly to work and school"* The Mosgiel Park and Ride project (and Burnside) is listed in the Improvement Activities table with a regional priority of 1, to facilitate people living in southern suburbs to connect to express public transport. RLTP Draft – layout template (es.govt.nz)
	**Otago Regional Public Transport Plan (RPTP) 2021-2031** This project supports the RPTP vision of "***Inclusive, accessible***, *and* ***innovative*** *public transport that connects Otago and contributes positively to our* ***community, environment*** *and* ***economy***." Investigating the feasibility of an express bus service from Mosgiel to Dunedin and Park and Ride facilities in Mosgiel are included in the plan. orc_rtp_document_final-july-2021_online.pdf

Document	Alignment
	**Dunedin City Council Central City Plan** The Mosgiel Park and Ride project will contribute to the Central City Plan vision that Dunedin's Central City is a place focused on people. Through delivering viable transport choices, this project looks to reduce parking demand in the central city and work toward addressing *Challenge 4: a car-dominated environment*, by reducing the number of private vehicle trips into the central city from Mosgiel. Central-City-Plan.pdf (dunedin.govt.nz)
2GP SECOND GENERATION DISTRICT PLAN	**Dunedin City Council Second Generation District Plan 2017 (2GP)** The 2GP includes the decisions that have been made to set the scene for development in Dunedin to sustainably manage the natural and physical resources to meet the needs of the community, both current and future generations. The Mosgiel Park and Ride project aligns with *Objective 2.2.2 Energy Resilience b) reduced reliance on private motor vehicles for transport.* DCC 2GP (dunedin.govt.nz)
	**Dunedin City Integrated Transport Strategy (2013)** The Mosgiel Park and Ride project aligns with the Dunedin City Transport Strategy key focus on travel choices to achieve the goal of 40% active/public transport for journey to work trips by 24. The project supports the strategic response to: *Reprioritise investment and reallocate space on the transport network to achieve a significant improvement in the provision of active travel modes and public transport in Dunedin, and explore initiatives to support the uptake of travel choices.* Transport-Strategy-as-PDF.pdf (dunedin.govt.nz)
	**tō tātou eke wakamuri | the future of us** **Dunedin City Council 10 Year Plan 2021-2031** This project supports the 10 year plan vision of "*Dunedin is one of the world's great small cities*" and the key community outcome of: – *A connected city with a safe, accessible and low-carbon transport system* The Mosgiel Park and Ride project (and Burnside) is listed in the programme of capital investment for delivery between 2023 and 2029. 10-Year-Plan-2021-31.pdf (dunedin.govt.nz)

2.6 Project risks and dependencies

2.6.1 Risks

The initial project risks and uncertainties are outlined in Table 5. These will be furthered explored as part of the SSBC development and reported in Appendix C.

Table 5 Project risks and uncertainties

Risk / uncertainty	Risk level
Public opinion / experience Poor public perception of public transport resulting from current service impacts due to COVID-19 which may hinder realisation of mode shift goals.	
Project dependencies Shaping Future Dunedin Transport programme delivery misalignment resulting in key changes in the central city to complement this project not being realised at the appropriate time.	
Consenting Site specific complexities including consenting and land acquisition are unknown at the Strategic Case phase at the site(s) is not confirmed. Consenting risks will be discussed in detail in Part B and C of this SSBC.	
Express service The operation and timing of the express bus service from Mosgiel to Dunedin are being confirmed and finalised at this stage. Risk that the bus service (frequency, journey time, reliability) does not adequately complement this project and vice versa. Future funding for these services may also be constrained.	
Political will Lack of political will, combined with local elections in 2022 and national elections in 2023, resulting in changes to central city Parking Management Strategy to support this project not being implemented.	
Funding This project has a "N" funding source meaning it will compete with other projects nationally for funding in the NLTP. Risk that funds in the NLTF are allocated to other projects within the 561 activity class (passenger facilities and infrastructure improvements – bus). Note, funding allocation has been based on a high-level indicative cost from the Shaping Future Dunedin Transport PBC (August 2021). Assumptions made at the programme level regarding improvements works required, for example, may be incorrect depending on the preferred option of this SSBC.	

2.6.2 Dependencies

The projects identified in Figure 46 are being progressed concurrently with this SSBC.

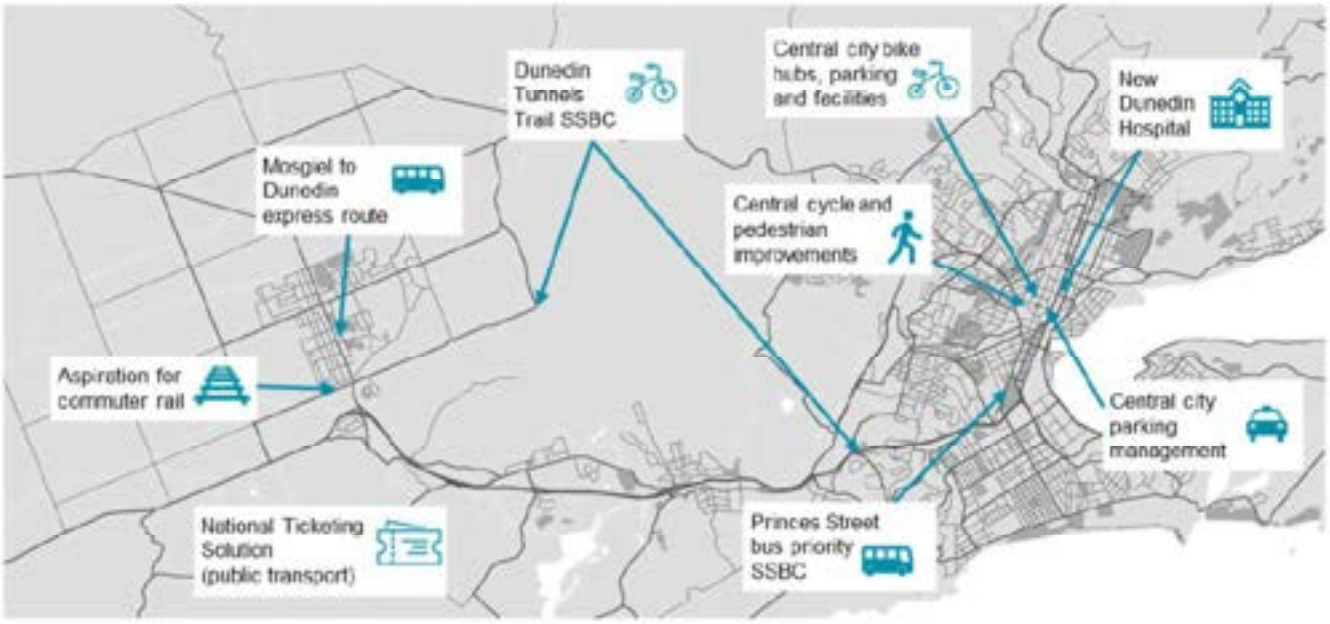


Figure 46 Project dependencies (GHD 2022)

New Dunedin Hospital

The New Dunedin Hospital will service the lower half of the South Island. With 421 beds, 16 theatres and 30 ICU or high dependency beds, the hospital project is expected to contribute an estimated $429 million GDP, and bring thousands of construction workers to Dunedin.[111]

Timeframe: The hospital will be completed in two stages, with the Outpatient Building planned to open January 2025 and the Inpatient Building planned to open April 2028. The hospital is considered the catalyst for changes to the Dunedin transport network.

Mosgiel to Dunedin express bus route

Otago Regional Council have plans for an express bus route from Mosgiel to Dunedin. It is understood this service would be a 'non-stop' service and travel from Mosgiel via SH1 / South Road / Princes Street to the Dunedin bus hub in peak travel times.

The expected weekday timetable for the express bus service between Mosgiel and Dunedin City (as of 1 November 2022) is three services in the morning at half hourly intervals, and six return services in the afternoon also at half hourly intervals.[112]

It is also understood ORC are planning to increase frequency of the existing Route 77 service to 15 minute intervals at peak times.

Timeframe: Estimated March 2023.

Central cycle and pedestrian improvements

This project, led by DCC, looks to "fill in the gaps" in the central city walking and cycling network to provide improved and safer access to the central city.

Timeframe: Albany Street is expected to be constructed in summer 2023/24, followed by Bank/George Street in 2023/24. St Andrew Street timing is TBC dependant on SH88 relocation decisions.

Central city bike hubs, parking and facilities

This DCC project looks to provide improved end of trip facilities for cyclists including sheltered lockers, and repair and charging services.

Timeframe: Three year construction period from 2022/23 to 2024/25.

[111] New Dunedin Hospital, 2022. *The New Dunedin Hospital.* Retrieved 15 June 2022 from **The New Dunedin Hospital | New Dunedin Hospital**

[112] Phillips, J., email to [redacted] November 01, 2022.

Central city parking management

A review of Parking Management Policy for the central city is one of the seven DCC projects for the SFDT programme. Through this project, an Implementation Plan will be produced that includes a review of pricing and availability of parking in the central city.

Timeframe: Implementation of new policy targeted early 2024.

Princes Street Bus Priority SSBC

The Princes Street bus priority and corridor safety improvements project is one of the seven DCC projects for the SFDT programme. The SSBC is identifying improvements to Princes Street to enable more effective bus movements, improvements for pedestrians and cyclists, and safety improvements for all modes.

Timeframe: Construction expected to start 2024/25.

Dunedin Tunnels Trail

The Dunedin Tunnels Trail project looks to connect Mosgiel and Dunedin with a 15 km cycle and walking trail using two tunnels built in the 1870s by NZ Railways (that are now redundant). The project has three sections: Mosgiel to Abbotsford, Abbotsford to Burnside, and Burnside to Caversham.

Timeframe: Construction expected to start 2023/24.

Aspiration for commuter rail

The Main South Line connects Dunedin to Mosgiel with train stations at Mosgiel and Wingatui. This line is currently used for freight only, however, DCC has aspirations to operate a commuter rail service.

Timeframe: Early indication is that this a long term goal.

National Ticketing Solution

The National Ticketing Solution project is being led by Waka Kotahi and aims to improve the public transport experience for New Zealanders through implementing a standardised approach for fare payment across the country.

Timeframe: Current timeframes for implementation are still being agreed.[113]

[113] Waka Kotahi NZ Transport Agency, 2022. *National Ticketing Solution*. Retrieved 15 June 2022 from **National Ticketing Solution | Waka Kotahi NZ Transport Agency (nzta.govt.nz)**

Economic Case

Chapters Three to Six

3. Options development and assessment

3.1 Development

This section outlines the development and assessment of the alternatives (including intervention hierarchy) and options that seek to address the problems identified in the Strategic Case. Following this there is a long list development and assessment process, as well as the refinement of the short list options to identify a preferred option.

3.1.1 Methodology

The process to determine the preferred option utilised the previous work from the Connecting Dunedin programme which sought to identify the most appropriate potential park and ride sites in Dunedin's largest suburban catchment, and is premised on making the best use of local knowledge. A review of previous work, a literature review (refer to Appendix D) and a desktop analysis were the starting points. Site visits were then undertaken to inform option assessment. This was complemented by input from DCC, Waka Kotahi, ORC, Aukaha, and key stakeholders including Te Whatu Ora Health NZ Southern (the former Southern District Health Board), the Mosgiel-Taieri Community Board and KiwiRail (as a potentially affected landowner). The approach taken is shown in Figure 47.

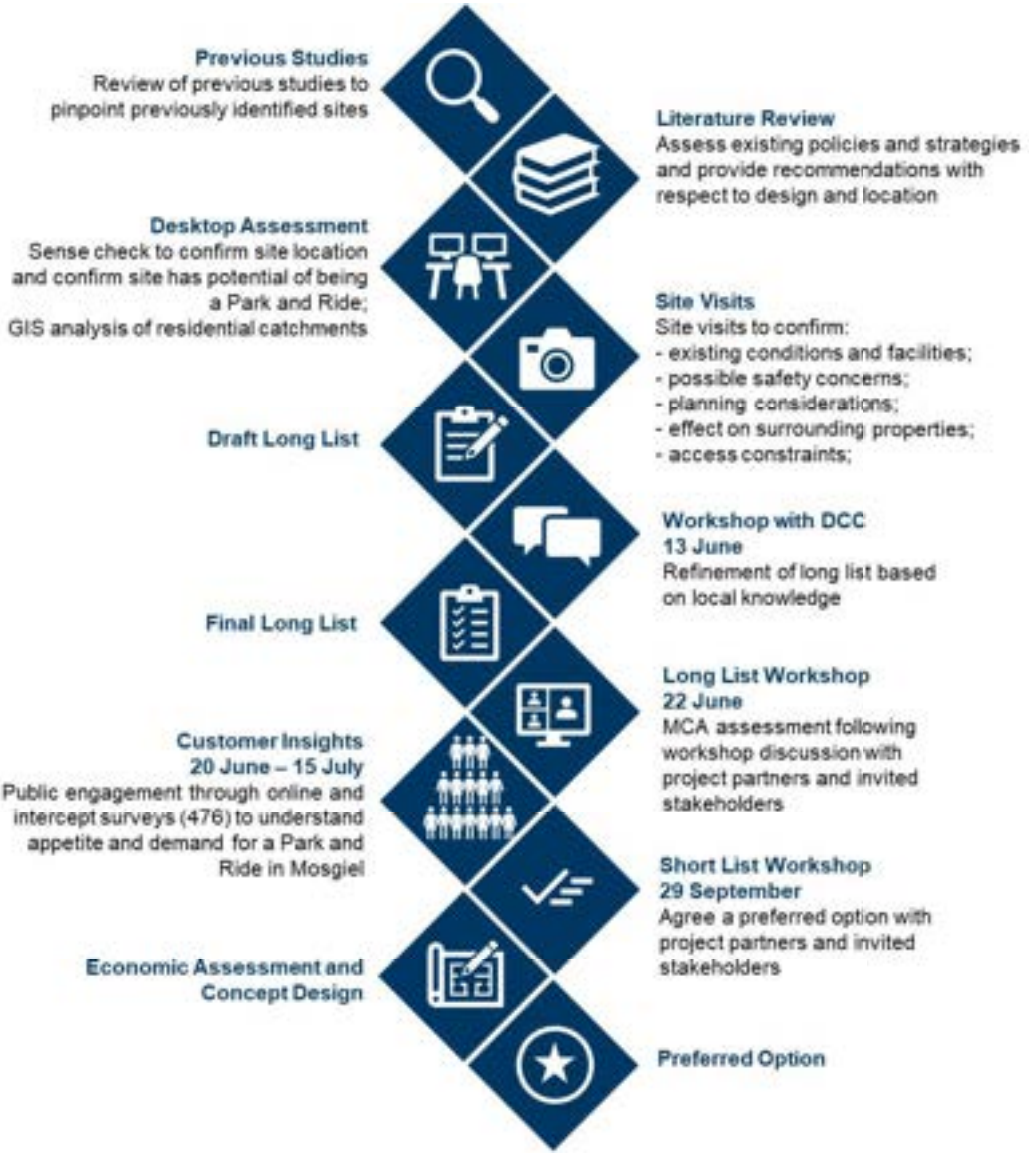


Figure 47 Mosgiel option development methodology (GHD 2022)

3.1.2 Intervention hierarchy

Dunedin City Council make transport planning and investment decisions based on the intervention hierarchy shown in Figure 48. The DCC hierarchy is in alignment with the Waka Kotahi intervention hierarchy, shown in Figure 49.

Both hierarchies prioritise **integrated planning** to reduce single-occupancy vehicle travel and increase transport choice, followed by **demand management** to support mode shift and provide for non-car growth. It then looks at investment in **operational improvements**, and lastly investment in **new infrastructure** only when other interventions do not adequately address the problem or achieve the outcomes desired.

Figure 48 Dunedin City Council intervention hierarchy[114]

[114] Dunedin City Council, 2021. *Core Principles.* Retrieved 5 July 2022 from **Core Principles - Dunedin City Council**

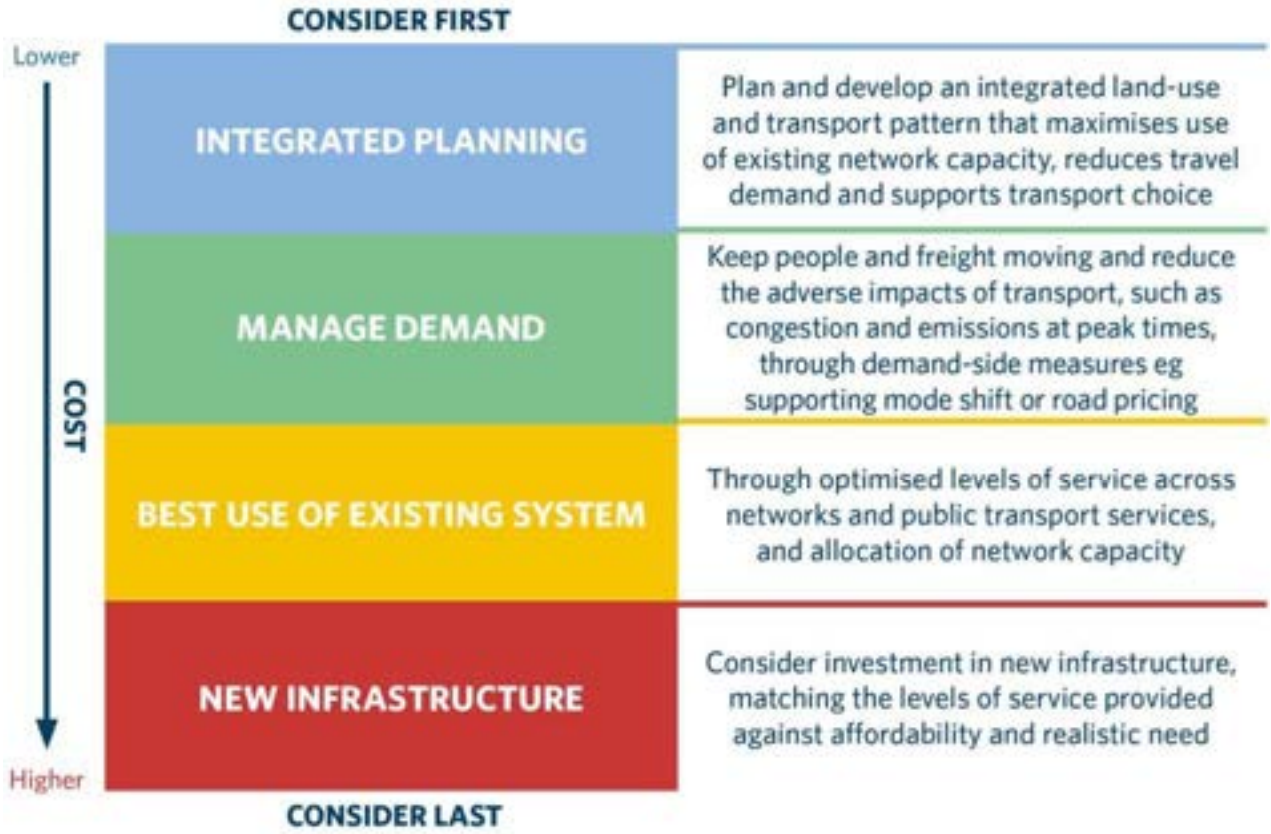


Figure 49 Waka Kotahi intervention hierarchy[115]

Under the above intervention hierarchies, the Park and Ride is considered to be an **Operational Improvement / Best use of existing system** as it will support the existing public transport service and make this mode of travel more accessible.

Table 6 identifies the alternatives considered for Mosgiel in synergy with the Park and Ride intervention as part of the Shaping Future Dunedin Transport PBC.

[115] Waka Kotahi NZ Transport Agency, 2022. *Intervention Hierarchy*. Retrieved 5 July 2022 from **Intervention hierarchy | Waka Kotahi NZ Transport Agency (nzta.govt.nz)**

Table 6 Mosgiel Park and Ride – alternative supporting interventions

Intervention Hierarchy	Intervention	Discussion
Integrated land use and transport planning	Encouraging growth around transport hubs	Location of growth affects the performance of the transport system. 2GP policies support locating new residential growth where bus services exist.
	Urban area intensification	2GP policies support higher density living in central city near employment centres.
Travel demand management	Workplace travel plans	Underway as part of Connecting Dunedin programme; targeted major employers engaged include DCC, Te Whatu Ora Health NZ Southern, University of Otago, and ACC (pending).
	Marketing campaigns	Regular marketing and promotion of better travel choices by Council and partners as part of Connecting Dunedin programme.
	Central city parking management	Reduce supply of free commuter parking and modest pricing increase in central city to be progressed as part of Connecting Dunedin programme.
	Congestion charging	**Excluded:** not currently politically supported for Dunedin. The Shaping Dunedin Future Transport PBC noted this would first require national direction and legislation.
Operational improvements / best use of existing system	Bus service improvements	Underway as part of Connecting Dunedin programme to provide express service from Mosgiel to Dunedin and increase frequency of existing service. To be considered, re-routing existing loop services to act as a feeder service to express route (ORC).
	Bus priority	Bus lanes and bus priority at signals on Princes Street to improve bus access into central city underway as part of Connecting Dunedin programme.
	Upgrade existing bus infrastructure	Bus stop upgrades to be progressed as part of Connecting Dunedin programme. To be considered, fast-tracking of upgrading stops in Mosgiel (DCC)
	Use of emerging technologies	Provide real time information at bus stops (part of Connecting Dunedin programme); improve public transport ticketing (part of National Ticketing Solution).
New infrastructure	Cycling improvements	Tunnels Trail underway to provide cycling connection between Mosgiel and Dunedin (DCC); bike racks already installed on all urban buses (ORC); Central city bike hub facility underway as part of Connecting Dunedin programme to provide covered parking, end-of-trip facilities, maintenance facilities etc. (DCC).
	Walking improvements	Intersection and crossing improvements on key pedestrian desire lines to reduce barriers to accessing public transport both in Mosgiel and in the central city. The latter is being progressed as part of the Connecting Dunedin programme. In addition, DCC have a Strategic Walking and Cycling Network Review PBC underway to identify a prioritised programme of improvements.
	Central city parking infrastructure	**Excluded:** investing in additional commuter parking capacity in central city does not align with climate change policy and the Emissions Reductions Plan to reduce single occupancy vehicle travel.

3.2 Options assessment criteria

3.2.1 Multi-criteria analysis

A multi-criteria analysis (MCA) framework was developed to assess each option's effectiveness in achieving project specific objectives and overarching organisational objectives. The MCA Framework was developed through the ILM and then in subsequent workshops with partners and stakeholders. This was then presented at both the long list and short list workshops and refined based on inputs from participants. Post-workshop reports were provided to attendees for review which clearly and concisely documented what was developed and agreed in the respective workshop.

This framework comprises of both investment objectives and critical success factors as outlined in Table 7 and Table 8, respectively. These criteria seek to reflect the outcomes sought from the investment as well as other factors that need to be considered when making an investment as identified by the literature review undertaken (refer to Appendix D). The investment objectives relate to transport related outcomes including reduced car use, improved access and reducing carbon emissions. The critical success factors relate to social and environmental effects, as well as implementability considerations.

Table 7 Multi-criteria analysis framework – Investment Objectives

Investment Objective	Key Performance Indicator	Measure
 Increase public transport patronage through reducing the barriers to uptake and improving the attractiveness of travelling by bus	Mode share for journey to work / education trips from Mosgiel to Dunedin *Interim measure: number of passenger boardings*	Census journey to work and education data *Bee Card data*
	Average difference in travel time of public transport compared to private vehicle from Mosgiel to Dunedin CBD in morning peak	Average travel time by each mode
	Frequency and reliability of public transport services from Mosgiel to Dunedin	Public bus timetable, ORC reporting
 Decrease the number of single occupancy vehicles travelling from Mosgiel to Dunedin in the morning peak to reduce parking demand and traffic in the central city	Average number of vehicles driving to Dunedin from Mosgiel in the morning peak	Waka Kotahi TMS hourly count for Southern Motorway Mosgiel On Ramp (Site ref: 01S50720)
	Five-year average annual number of death and serious injury crashes between Mosgiel and Dunedin CBD in morning peak	Waka Kotahi Crash Analysis System (CAS) database
	Throughput: people per vehicle from Mosgiel to Dunedin in the morning peak	DCC cordon count
 Reduce the environmental and social impact of land transport whilst maintaining efficient movement of people and products	Carbon dioxide (CO_2) emissions from land transport from Mosgiel to Dunedin	Reduced emissions / vehicle kilometres travelled (VKT)
	Mosgiel residents' responses around social determinants in Dunedin Quality of Life survey	Net agree score for '*public transport is easy to access*' and '*public transport is safe from crime and harassment*'
	Proportion of Mosgiel population living within 30 minutes travel threshold of key economic opportunities in the morning peak by public transport as the primary mode of travel	Stats NZ meshblock data

Table 8 Multi-criteria analysis framework – Critical success factors, opportunities and impacts

Critical success factor	Criteria	Considerations
Mana whenua	Mana whenua	*Consider:* – At the project outset, Aukaha and DCC agreed the approach to mana whenua engagement for this project. It was agreed that Aukaha would be informed through regular project updates during the SSBC. – The agreed key focus area for mana whenua is during the design phase with regard to identifying opportunities for cultural expression through the design of the urban realm.[116] – To provide assurance that the site selected is appropriate, Aukaha undertook a cultural values assessment of the preferred site.
Social and Environmental Impacts	Climate Change mitigation and adaptation	*Consider:* – Long term carbon emissions – Embodied carbon in materials used – Ability to promote sustainable energy technology – Is the option exposed to climate change risk or other natural hazards (e.g. flooding)
	Heritage and archaeology	*Consider:* – Effect on DCC / Heritage New Zealand Pouhere Taonga (HNZPT) / NZ Archaeological Association (NZAA) identified heritage, areas, archaeology and landscapes including their context
	Noise and vibration	*Consider:* – Number of PPFs[117] (being schools, residents etc) nearby – Impacts during construction and during operation
	Contaminated land	*Consider:* – Areas and types of contaminated land impacted
	Social and economic	*Consider:* – Impacts during construction – Business impacts – Impact on existing amenity and use – Surrounding land use type
	Landscape and visual	*Consider:* – Dominance of infrastructure on surrounding environment and fit within – Effect on visual quality of neighbourhoods
Design, Delivery and Operation	Engineering (technical) difficulty	*Consider:* – Existing infrastructure – Network intersection / infrastructure upgrades required – Treatment of stormwater runoff – Need for new / unfamiliar technology or methods – Impacts on services / utility relocation
	Safety and design	*Consider:* – Ease and safety of site access – Ease and safety of network access – Perceived and actual personal safety / security (CPTED[118]) – Existing vulnerable users near site (e.g. schools, medical centres) – Connectivity to existing walking and cycling networks

[116] Ward, C., email to [redacted] April 07, 2022.
[117] PPF = Protected Premises and Facilities
[118] CPTED = Crime prevention through environmental design

Critical success factor	Criteria	Considerations
	Network impacts	*Consider:* – Potential impacts on existing network – Potential to create generated demand – Proximity to Dunedin – Distance / visibility from SH87
	Property impacts	*Consider:* – Number of parcels affected – Potential difficulty of parcels (e.g. Māori land, facilities that require long lead time to relocate, numbers of easements etc) – Consentability including existing consent restrictions
	Scalability of facility and services	*Consider:* – Estimated initial capacity – Estimated demand (i.e. residents within walking, cycling and driving catchments) – Ability to 'scale' up Park and Ride capacity – Ability to extend to other key public transport modes (i.e. rail) – Suitability of site to include bus layover / bus driver rest stop facilities – Ability to support future land use developments
	Timing (programming)	*Consider:* – When can the site be delivered – Temporal availability of site (long-term)

Scoring

A standard seven-point scoring system was used for the MCA assessments at both the long list and short list stages, as shown in Table 9. At the long list, options were assessed qualitatively at a high-level, to enable differentiation between options, with more detailed quantitative assessment at the short list stage.

Table 9 Assessment scoring

Score	Scoring description
✓✓✓	Substantial positive impact and a high degree of confidence of benefits being realised, likely resulting in substantial and long-term improvements
✓✓	Moderate positive impact, likely resulting in new opportunities of short-, medium- or long-term duration
✓	Minor positive impact, likely confined to a localised area and/or short-term
-	No discernible change in impacts from current situation
x	Minor adverse impact and impact will most likely be able to be mitigated or managed
xx	Moderate adverse impact, may be of short-, medium- or long-term duration
xxx	Substantial difficulties, very high cost and/or substantial impact on resources and/or long-term negative effects

3.2.2 Additional considerations

The MCA assessment is one tool that enables comparison of options, and results are considered alongside other relevant factors to inform decision making. These additional considerations are:

Project partnering (considered mainly for design and delivery stage)

Consideration and incorporation of cultural values and impacts of each option, including:

– Impact on te ao Māori values
– Treaty partner requirements.

Cost and affordability

High level relative cost and affordability of each option, including:

– Estimated CAPEX (capital expenditure)
– Estimated OPEX (operating expenditure including maintenance).

Risk assessment (captured in Design, Delivery and Operation – i.e. Engineering difficulty)

Consideration of the relative risks of each option, including:

– High impact low probability risks
– Low impact high probability risks.

Supplier capacity (considered mainly for design and delivery stage)

Consideration of how the option will be serviced by the express service between Mosgiel and Dunedin to be operated by Otago Regional Council.

Strategic fit (undertaken at programme level)

Consideration of how well each option meets the strategic objectives for Dunedin and Mosgiel, including alignment with other Shaping Future Dunedin Transport Programme projects.

4. Long list options assessment

4.1 Long list option descriptions

The criteria used to identify the long list of medium to long term options was:

– Land that is generally clear i.e. not developed with structures
– Located reasonably centrally to Mosgiel
– Accessible by bus
– Current and potential car bay capacity for a range from 25 in the short term to 150 car bays in the longer term
– Ideally near the train line and existing stations to support potential future train services, and
– Not a greenfield site that would put DCC in competition with developers for the site's use.

Based on this criteria, five sites in Mosgiel were identified as potential options for upgrading into Park and Ride facilities. These are shown in Figure 50 and described in Table 10.

Figure 50 Mosgiel long list sites (GHD 2022)[119]

[119] Base map sourced from **Create your own Google Maps style - Snazzy Maps - Free Styles for Google Maps**

Table 10 Long list details

Category	Option 1	Option 2	Option 3	Option 4	Option 5
Name	Peter Johnstone Park car park	Memorial Park sportsground car park	Glasgow Street pocket park	Wingatui Hall car park	Mosgiel Station yard
Location	Located approximately 1 km north of the town centre.	Located approximately 0.5 km north of the town centre.	Located within the Mosgiel town centre.	Located approximately 4 km southeast of the town centre.	Located approximately 1.5 km south of the town centre.
Estimated site capacity	~ 100 parks	~ 100 parks	N/A – targeted at active mode travel to the bus stop. No formal new parking able to be constructed.	~ 25 parks	> 150
Scalability of site	Would not be possible without using Parks and Reserve land.	Would not be possible without using Parks and Reserve land.	Would not be possible to provide parking without purchasing / leasing land.	Limited ability to increase car park size, however there is potential to discuss a longer-term larger facility using land owned by the Racecourse located on the opposite side of the road.	Requires discussion with KiwiRail property team, however initial discussions indicate a large area could be made available for lease.
Existing use	Peter Johnstone Park car park; car park was empty at the time of the site visit.[126]	Memorial Park car park; during the site visit, a low number of cars were parked at the site.	Pedestrians visiting the town centre use the area.	Used for community hall events; site was empty at the time of the site visit.	Used to stockpile ballast; adjacent lease holder has right of way.
Access	– Good access via Factory Road and Reid Avenue; – Good road width along Reid Avenue for cyclists; – Footpath along eastern side of Reid Avenue leading into Park; – Users may have difficulty turning right onto Gordon Road if they live to the west; – Buses may have difficulty turning right onto Factory Road out of Reid Avenue.	– Good access via Gordon Road (noting that the adjacent access to Mosgiel Pool will be signalised); – Users may have difficulty turning right onto Gordon Road if they live to the west; – Due to on-street parking along Gordon Road, cyclists have to share the carriageway with vehicles.	– Cycling access is on road/via footpaths. No clear designated facility. No available space along SH87 to install cycle facilities; – Good footpath facilities in all directions; – There is space available set back from the footpath along Gordon Road to locate waiting facilities.	– Access via Gladstone Road North, note requires crossing a level crossing; – Wide verge available; – No footpaths or cycleways in place.	– Current access from SH87 between two signalised intersections; – Will require a new crossing over the stream to gain access to the site; – Pedestrian access via footpaths; – Burns Street could be reconfigured for a cycleway; – Second existing access (by Cemetery Road) has short stacking issues at the level crossing.

[126] Morning of Tuesday 7 June 2022

Category	Option 1	Option 2	Option 3	Option 4	Option 5
Existing infrastructure	Area is surfaced, with formalised surface drain. Existing surface (sealed) appears to be in good condition, may require improvements due to bus turning movements.	Area is surfaced with lighting along the northern part of the car park. Existing surface (sealed) appears to be in good condition, may require improvements due to bus turning movements.	Seating and rubbish bins provided, site was upgraded in 2022 including landscaping, new seating, tables, decorative screens, a water fountain with a dog bubbler, along with bike and scooter parking.[121] Surrounding on-street parking is sealed. Site is paved.	The area is unsealed, will require levelling and sealing.	The yard is unsealed and undulated, will require levelling and sealing.
Required infrastructure	Will require sheltered waiting areas and bike storage facilities, formalised parking to be marked, lighting upgrades and possible intersection improvements (volume dependant).	Will require sheltered waiting areas and bike storage facilities, formalised parking to be marked, lighting upgrades and possible intersection improvements (volume dependant).	Will require sheltered waiting areas and bike storage facilities.	Will require sheltered waiting areas and bike storage facilities, sealing of the existing parking area and formalised parking to be marked, lighting upgrades and possible intersection improvements (volume dependant). Stormwater retention and treatment devices may be required due to increasing impervious surface area.	KiwiRail indicated a condition of lease would likely be forming a new access over Owhiro Stream culvert and fencing the rail line to prevent public access into the rail corridor. Will require sheltered waiting areas and bike storage facilities, levelling and sealing of the site and formalised parking to be marked, lighting upgrades and possible intersection improvements (volume dependant). Stormwater retention and treatment devices likely required due to increasing impervious surface area.
Perceived site security	Not assessed at night; lighting will require an upgrade; currently presents personal safety concerns.	Not assessed at night; lighting will require an upgrade; currently presents personal safety concerns.	Not assessed at night; street lighting along Gordon Road and Glasgow Streets; has comparatively high natural surveillance resulting in good appearance of personal safety.	Not assessed at night; lighting will require an upgrade; currently presents personal safety concerns.	Not assessed at night; lighting will require an upgrade; currently presents personal safety concerns. Reasonable level of passive surveillance from road.

[121] Dunedin City Council, 2022. *Upgrade for pocket parks on Mosgiel's main street.* Retrieved 12 July 2022 from Upgrade for pocket parks on Mosgiel's main street - Dunedin City Council

Category	Option 1	Option 2	Option 3	Option 4	Option 5
Other key considerations	This site is proposed for use as overflow car parking for the Mosgiel Pool. Site is located near social housing that is due for redevelopment by Kāinga Ora – Homes and Communities whose tenants may have reduced transport access equity.	This site is proposed for use as overflow car parking for the Mosgiel Pool.	Site is centrally located and presents a strong opportunity for walk & ride, or cycle & ride.	This site is near the existing Wingatui train station, could provide for future rail services in Dunedin. Located near the proposed Tunnels Trail to Dunedin. Will increase the bus journey time.	This site is near the existing Mosgiel train station, could provide for future rail services to Dunedin. Site is not owned by DCC so would require a lease agreement with KiwiRail.
Residential walking catchment (800 m)	800	1,900	1,800	400	2,000
Residential cycling catchment (3 km)	11,200	12,100	12,400	3,500	13,200
Residential driving catchment (5 km)	14,700	15,000	14,600	12,500	14,600
Indicative cost to upgrade	**$**	**$**	**$**	**$$**	**$$$**

4.2 Partner and Stakeholder long list workshops

The initial long list assessment was undertaken with the core DCC project team and GHD at a workshop held on Monday 13 June 2022. The project team members are considered to have a comprehensive working knowledge of the options being assessed and the likely impacts and/or challenges.

The options and scores were then presented and discussed at a workshop with project partners and invited stakeholders on Wednesday 22 June 2022. This workshop was focused around:

- Presenting a summary of previous work, including the Strategic Case
- Discussing the existing issues, problems and opportunities for Mosgiel and the wider Taieri
- Discussing the long list of options and whether there are potential gaps or further opportunities, and
- Considering each long list option in turn, discussing site characteristics, positives, negatives, risks and uncertainties.

One new option was identified at the workshop which is referred to as **Option 6: Short term use of a vacant privately owned site in central Mosgiel** (refer to Table 11). This was discussed as a potential short term option only and the project team was requested to review and assess its feasibility.

Table 11 Option 6 details

Category	Option 6
Location	Located at northern end of the town centre.
Estimated site capacity	~ 40 parks
Scalability of site	Would not be possible to expand without purchasing / leasing further land within the town centre which over time may be better suited to civic, commercial, retail or other services.
Existing use	Currently vacant however anecdotally known to be used informally for free parking.
Car park surfacing	The area is unsealed, will require levelling and sealing.
Access	– Existing access from Gordon Road (will need to be formalised) – Due to on street parking along Gordon Road, cyclists have to share the carriageway with vehicles – Footpaths along both sides of Gordon Road and side street with pedestrian crossing on Gordon Street near site – Buses would not be able to access site and would need to loop via local streets to turn around, increasing journey time.
Existing infrastructure	N/A
Required infrastructure	Will require sheltered waiting areas and bike storage facilities, sealing of the existing parking area and formalised parking to be marked, access upgrades, lighting upgrades and possible intersection improvements (volume dependant). Stormwater treatment and retention devices may be required due to increasing impervious surface
Perceived site security	Not assessed at night: street lighting along Gordon Road: has comparatively good natural surveillance resulting in good appearance of personal safety.
Other key considerations	Site is not owned by DCC so future of site would be uncertain; risk of sunk cost on infrastructure upgrades.
Indicative cost to upgrade	$$, much higher cost to expand to an appropriate park and ride facility (>100 car parks)

Key additional discussion points raised at the workshop regarding the long list sites are shown in Figure 51.

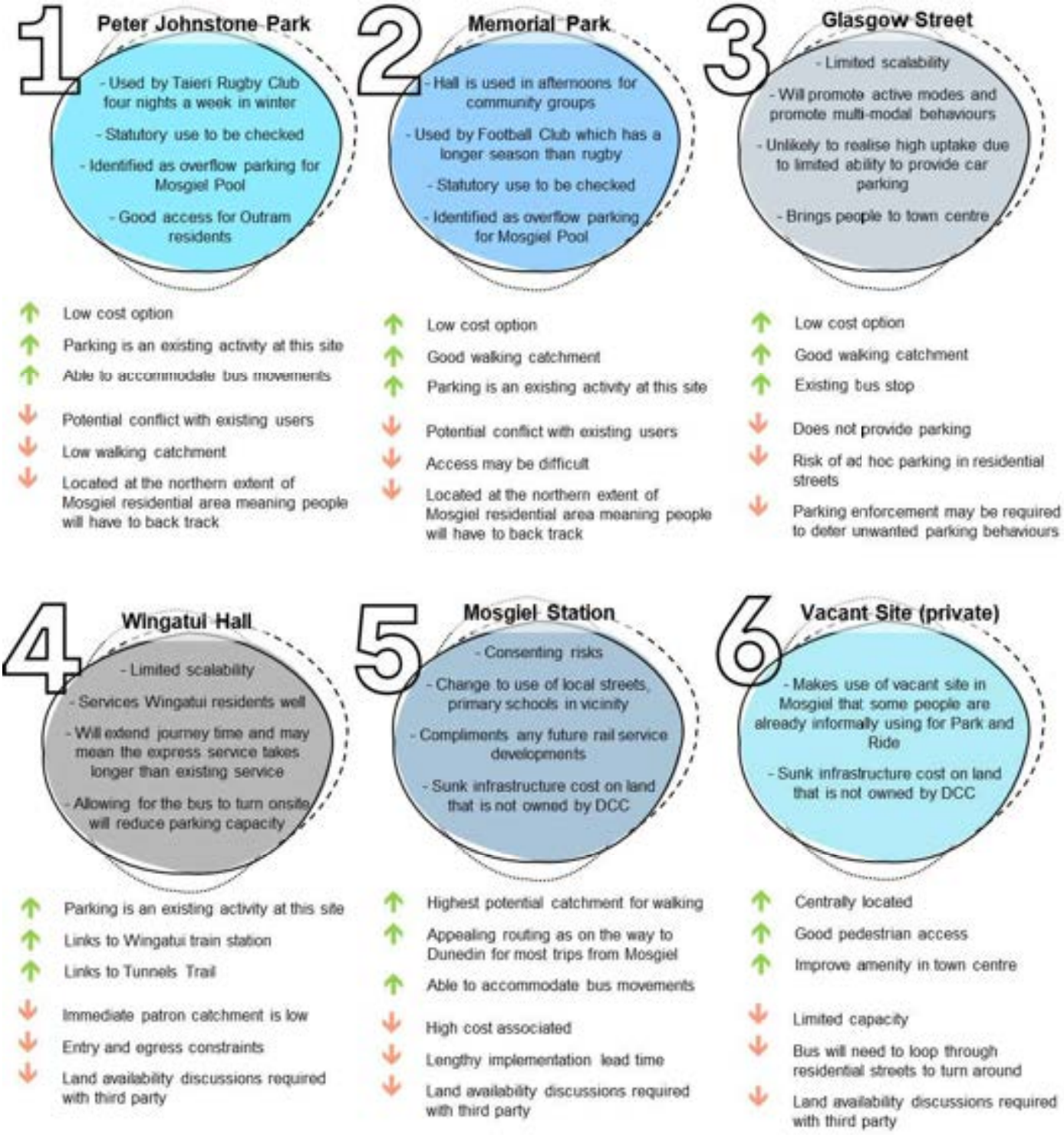


Figure 51 Long list workshop discussion points (GHD 2022)

4.3 Long list multi-criteria analysis

4.3.1 Do Minimum

Each option was scored relative to a 'Do Minimum' scenario. The Do Minimum was confirmed in the workshop as:

– No park and ride facilities provided in the short or long-term.

– Express bus service (operated by ORC) to stop in Mosgiel using existing infrastructure. The existing bus stops in Mosgiel are shown in Figure 52.

Note: it was clarified at the short list workshop that the intention is for the express bus service to stop at three locations in Mosgiel. Initial indications are that these stops will be the Terminus on Factory Road (A), a stop in central Mosgiel (B), and on SH87 near Gladstone Road North / the railway line (C).

Figure 52 Existing bus stops in Mosgiel (GHD 2022)[122]

Assumptions

The following assumptions were made during the scoring:

– The existing route 77 service between Mosgiel and Dunedin will reroute as required to include the Park and Ride as a new stop.

– The implementation of the express service is estimated to increase daily patronage by approximately 100-120 people (refer to Demand Estimation memorandum in Appendix E).

[122] Data sourced: Otago Regional Council, 2022. *77 – Mosgiel, Fairfield, Green Island – City.* Retrieved 13 July 2022 from **77 - Mosgiel, Fairfield, Green Island - City (orc.govt.nz)**

4.3.2 Assessment results

An assessment results table detailing the performance of each long list programme against the MCA criteria is shown in Table 12. The scores were allocated following the workshop, based on the discussion at the workshop.

Full scoring rationale is provided in Appendix F.

Table 12 Mosgiel Park and Ride long list assessment results

Category	Criteria	Do Min	Opt 1	Opt 2	Opt 3	Opt 4	Opt 5	Opt 6
Investment Objectives	Mode share	-	✓✓	✓✓	✓	✓	✓✓✓	✓
	Travel time	-	×	××	-	×××	×	×
	Frequency and reliability of public transport	Not scored at long list stage, as not considered a differentiator between options						
	Number of single occupancy vehicles	-	✓✓	✓✓	✓	✓	✓✓✓	✓
	Deaths and serious injuries	-	✓✓	✓✓	✓	✓	✓✓✓	✓
	People per vehicle (throughput)	-	✓✓	✓✓	✓	✓	✓✓✓	✓
	CO_2 emissions	-	✓✓	✓✓	✓	✓	✓✓✓	✓
	Residents' survey	Not scored at long list stage (waiting for Customer Insights results)						
	Access threshold[123]	-	✓✓	✓✓	✓	✓	✓✓	✓
Critical Success Factors	Mana whenua	Not scored at long list stage						
	Climate change mitigation / adaptation	-	✓✓	✓✓	✓✓	✓	✓✓✓	✓✓
	Heritage[124] and archaeology[125]	-	-	-	×	-	-	-
	Noise and vibration	-	××	××	×	××	××	××
	Contaminated land[126]	-	-	-	-	-	××	××
	Social and economic	-	×	××	×	×	✓	×
	Landscape and visual	-	✓✓	✓✓	✓✓	✓✓	✓✓✓	✓✓
	Engineering (technical) difficulty	-	×	×	-	×	××	×
	Safety and design	-	✓✓	✓	✓✓	××	✓	✓
	Network impacts	-	×	×	××	××	××	×
	Property impacts	-	×	×	-	×	××	××
	Scalability of facility and services	-	××	××	××	×	✓✓✓	××
	Timing (programming)	-	✓✓✓	✓✓✓	✓✓✓	✓✓	××	×

[123] Assessed using residential catchment sizes as a proxy

[124] Data sourced from Heritage New Zealand Pouhere Taonga, 2022. *Search the List Rārangi Kōrero.* Retrieved 5 July 2022 from **Search the List | Heritage New Zealand**

[125] Data sourced from New Zealand Archaeological Association, n.d. *ArchSite, Archaeological site recording scheme.* Retrieved 5 July from **NZAA Site Viewer (eaglegis.co.nz)**

[126] Data sourced from Otago Regional Council, n.d. *Otago Regional Council – Mapping Resource: Hazardous Activities, Industries and Bores Search.* Retrieved 5 July 2022 from **https://maps.orc.govt.nz/portal/apps/MapSeries/index.html?appid=052ba04547d74dc4bf070e8d97fd6819**

It was recognised that Option 5 (Mosgiel Station) aligns well with the investment objectives and was identified as the **preferred way forward**. However, this site is not able to be made available in the short term due to the upgrade work required to make a sufficiently operational (safe and accessible) site. It was agreed at the workshop to create an additional option that uses the Mosgiel Station site in the long term but is supplemented by an option that could be made available in the short term. This option is referred to as Option 5A, as shown in Table 13.

Peter Johnstone Park car park was selected as the supplementary short-term option as it had the most preferrable scoring in the long list assessment of the sites able to be implemented in the short term.

Table 13 Mosgiel Park and Ride – revised option five

Option	Short term option	Long term option
5	Do-minimum (i.e. no formal Park and Ride facilities provided)	Develop Park and Ride at Mosgiel Station on lease agreement from KiwiRail
5A	Peter Johnstone Park car park	

4.4 Recommendations

The assessment outcome for each long list programme is shown in Table 14. This table includes the rationale explaining why each option was, or was not, carried forward to the short list.

Table 14 Long list assessment outcomes

Option	Outcome	Rationale for inclusion / exclusion
Do Minimum Express bus service implemented with no formal Park and Ride	Progress to short list	Do Minimum to be included in short-list as a comparator.
Option 1 Peter Johnstone Park car park	Progress to short list	Site is considered to provide the best balance between social and environmental impact and the ability to provide sufficient parking capacity in an attractive location in a reasonably short time frame for an acceptable cost.
Option 2 Memorial Park sportsground car park	Not progressed to short list	Considered reasonably high potential for adverse impact on existing users. Scores worse than **Option 1.**
Option 3 Glasgow Street pocket-park used as an active modes stop	Progressed as supplementary option	Option does not fulfil the brief of providing Park and Ride facilities. However, in recognition that this site provides benefits for those able to travel by active modes and is a relatively low cost option with limited adverse impacts, it is recommended that this option is progressed as a supplementary option (i.e. included as part of the short list options).
Option 4 Wingatui Hall car park (short term) and Wingatui Hall car park OR Wingatui Racecourse long term	Not progressed to short list	Site has low walking and cycling catchment and therefore unlikely to achieve mode shift aspirations. This site is also operationally difficult for the bus service and would require considerably increasing the travel times for others joining the service before this stop, thus reducing uptake.
Option 5 Do Minimum (short term) then Mosgiel Station site long term	Progress to short list	Identified as a promising long term site with strong scoring due to catchment area and likely low impact on existing users.
Option 5A Peter Johnstone Park car park (short term) then Mosgiel Station long term	Progress to short list	Considering impact on others and ease of ability to implement a site short term, this site is considered the most favourable short-term parking option whilst work is done on long term site.
Option 6 Use of private site in Central Mosgiel	Not progressed to short list	Site capacity is limited to approximately 40 spaces which is considered unlikely to realise the scale of uptake envisioned for this project. Future use of site is also uncertain as owned by third party. The bus would also require difficult routing to service this site.

Overall, four long list options are to be carried forward to the short list for further investigation. These are:

– Do Minimum
– Option 1 plus 3
– Option 5 plus 3 (*preferred way forward*), and
– Option 5A plus 3.

5. Short list assessment

5.1 Short list option descriptions

In total, three options including the do minimum were carried forward from the long list assessment. On the basis of this analysis, the shortlist for further assessment is as follows:

– Do minimum
– Option 1 plus 3, and
– Option 5 plus 3.

The short listed options are shown in Figure 53. On the following pages, further detail is provided about each of the sites in Figure 54, Figure 55 and Figure 56.

Note: At the long list workshop there was discussion regarding combining Option 1 as a short-term solution combined with Option 5. This option was named Option 5A and recommended to be progressed to the short list. Following the long list workshop, the team investigated this option with DCC but it was determined that a short term option (of using Peter Johnstone Park) would not have a sufficient economic return and that the short list options should be focused on a long term solution, with an aim to commence opening as soon as possible.

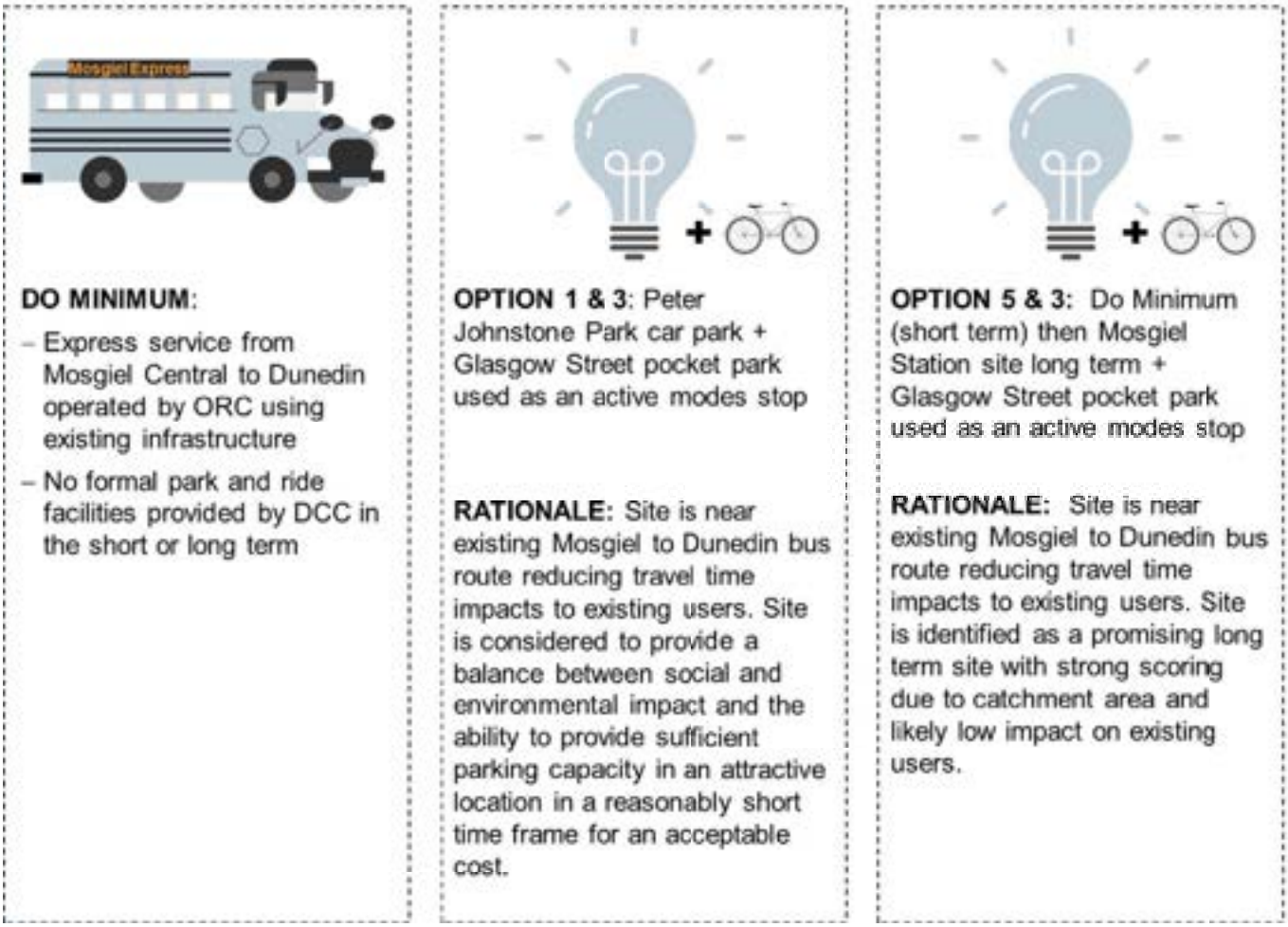


Figure 53 Mosgiel Park and Ride short list (GHD 2022)

Peter Johnstone Park

Option 1

Figure 54 Short list option description, Peter Johnstone Park (GHD 2022)

Mosgiel Station

Option 5

Figure 55 Short list option description, Mosgiel Station (GHD 2022)

Glasgow Street Pocket Park

Option 3 - included in both short list options as an active modes stop

OVERVIEW:

- Option does not fulfil the brief of providing Park and Ride car parking facilities.
- However, in recognition that this site provides benefits for those able to travel by active modes and is a relatively low cost option with limited adverse impacts, it was agreed with project partners that this option is progressed as a supplementary option (i.e. included as part of the short list options).

DETAIL:

- Existing use: Pedestrians visiting the Mosgiel town centre use the area.
- Existing infrastructure: Recently upgraded by DCC including landscaping, new seating, decorative screens, water fountain with a dog bubbler, and bike and scooter parking. Adjacent to existing bus stop 339.
- Required infrastructure: Will require sheltered waiting areas and increased number of bike storage facilities.

- Low cost
- Good walking catchment
- Existing bus stop

- No parking provided
- Risk of ad hoc parking in residential streets
- Parking enforcement may be required

RESIDENTIAL CATCHMENT:

Figure 56 Short list option description, Glasgow Street Pocket Park (GHD 2022)

5.2 Short list workshop

The short list workshop was held on Thursday 29 September 2022 with Project Partners and invited stakeholders as shown in Figure 57. The purpose of this workshop was to present the short list options and seek broad agreement of a preferred option that would best address the issues and opportunities, achieve the vision and objectives. The Community Insights feedback was also used to understand the community's stated needs for a Park and Ride facility, and confirm the preferred option reflected community aspirations if it was consistent with stakeholder feedback.

Workshop attendees were provided pre- and post-workshop reports that gave a concise overview of the workshop discussion points. Attendees provided feedback on these reports to confirm an accurate documentation of what was developed and agreed in the workshop. The report contents have been incorporated into this SSBC.

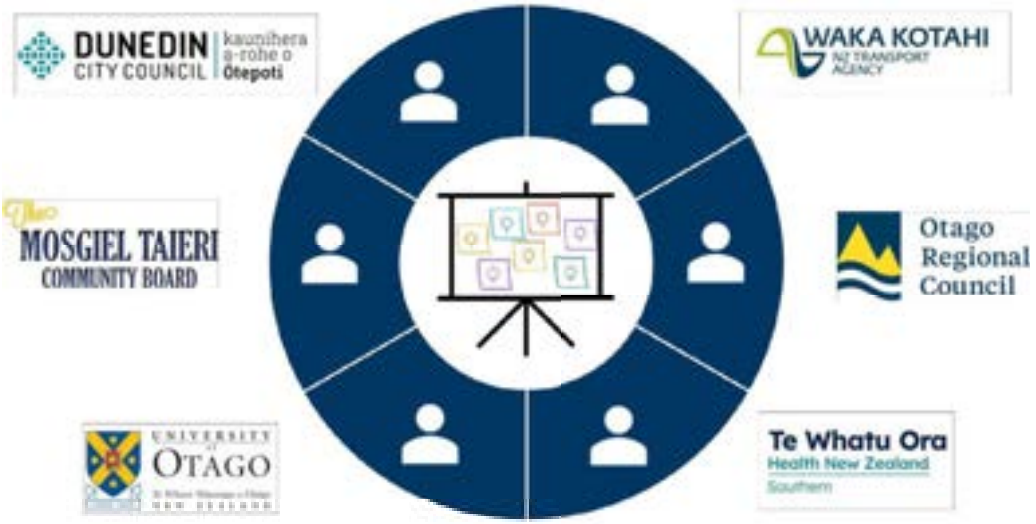


Figure 57 Mosgiel short list workshop attendees (GHD 2022)

Key workshop discussion points include:

An additional short list option was raised for consideration that included developing Park and Ride facilities at three locations, being Peter Johnstone Park, Glasgow Street pocket park and Mosgiel Station (i.e. Option 1 + 3 + 5). This option was **discounted** by workshop attendees as there is a preference to "*protect the express",* noting that each additional stop the bus makes reduces the travel time competitiveness compared to private vehicle travel, and ultimately will reduce project's success.

It was clarified by ORC that the express service will have three stops in Mosgiel when it begins operation, indicatively: Factory Road, central Mosgiel, and SH87 near Gladstone Road North. The bus route will then need to be amended as required depending on the Park and Ride location.

Discussion was had regarding potential RMA risks including objections from neighbouring property owners. In the early stages of detailed design, a consent scoping document will be prepared that sets out the resource consenting requirements based on the preliminary design. This will be complemented by a DCC engagement plan.

A risk was noted that the Dunedin $2 fare is only a trial despite being in in place for approximately 2.5 years. A new regional council following the local elections (October 2022) could end the trial and change pricing (e.g. raise fares) which could change the success of the Park and Ride (i.e. lower patronage and impact on economic viability).

A question was raised regarding if there is a plan to incentivise ride sharing to the park and ride site as part of a view to reduce VKT and manage demand for parking. This will be reviewed during detailed design phase but indicatively could include allocating priority parking to people who carpool, although noting this could have monitoring and compliance challenges.

5.3 Short list assessment

The short list options were tested at the workshop with Project Partners and invited stakeholders to determine the option's performance against the investment objectives and critical success factors as outlined in section 3.2 – Options assessment criteria. The results of the short list programme options assessment are summarised in Table 15), and scoring rationale is described in the text that follows. The scores were finalised following the workshop, based on the discussion at the workshop.

Table 15 Mosgiel Park and Ride short list assessment results

	Criteria	Do Minimum	Option 1 + 3	Option 5 + 3
Investment Objective 1: Increase public transport patronage through reducing the barriers to uptake and improving the attractiveness of travelling by bus	Mode share	-	✓✓	✓✓✓
	Travel time	-	x	x
	Frequency and reliability of public transport	Not scored at short list stage, as not considered a differentiator between options		
Investment Objective 2: Decrease the number of single occupancy vehicles travelling from Mosgiel to Dunedin in the morning peak to reduce parking demand and traffic in the central city	Number of single occupancy vehicles	-	✓✓	✓✓✓
	Deaths and serious injuries	-	✓✓	✓✓✓
	People per vehicle (throughput)	-	✓✓	✓✓✓
Investment Objective 3: Reduce the environmental and social impact of land transport whilst maintaining efficient movement of people and products	CO_2 emissions	-	✓✓	✓✓✓
	Residents' survey		✓	✓✓✓
	Access threshold[127]	-	✓✓	✓✓
Critical Success Factor: Mana whenua	Mana whenua	Not scored at short list stage		
Critical Success Factor: Social and Environmental Impacts	Climate change mitigation / adaptation	-	✓✓	✓✓✓
	Heritage[128] and archaeology[129]	-	x	x
	Noise and vibration	-	xx	xx
	Contaminated land[130]	-	-	xx
	Social and economic	-	xx	-
	Landscape and visual	-	✓✓	✓✓✓
Critical Success Factor: Design, Delivery and Operation	Engineering (technical) difficulty	-	x	xx
	Safety and design	-	✓✓	✓
	Network impacts	-	xx	xx
	Property impacts	-	x	xx
	Scalability of facility and services	-	xx	✓✓✓
	Timing (programming)	-	✓✓✓	xx

[127] Assessed using residential catchment sizes as a proxy

[128] Data sourced from Heritage New Zealand Pouhere Taonga, 2022. *Search the List Rārangi Kōrero.* Retrieved 5 July 2022 from **Search the List | Heritage New Zealand**

[129] Data sourced from New Zealand Archaeological Association, n.d. *ArchSite, Archaeological site recording scheme.* Retrieved 5 July from **NZAA Site Viewer (eaglegis.co.nz)**

[130] Data sourced from Otago Regional Council, n.d. *Otago Regional Council – Mapping Resource: Hazardous Activities, Industries and Bores Search.* Retrieved 5 July 2022 from **https://maps.orc.govt.nz/portal/apps/MapSeries/index.html?appid=052ba04547d74dc4bf070e8d97fd6819**

5.3.1 Investment Objective assessment

The short list assessment against the project investment objectives produced varied but mostly positive results. These are summarised as being:

– Both (non Do-minimum) options were considered likely to encourage mode shift from private vehicle use to public transport. Option 5 + 3 scored higher due to having greater residential catchment population for the 800 m and 3 km distance which was used as a proxy to estimate the likely demand.
– Both (non Do-minimum) options would have a minor adverse impact on 'travel time' because diverting the existing bus route to the Park and Ride stop has the unintended consequence of increasing the journey time for bus patrons already on the bus and may make the bus option less attractive for them.
– Option 5 + 3 scored better than Option 1 + 3 with regard to the 'residents' survey' criteria as more than 30 percent of respondents to the Customer Insights survey identified a preferred location of near SH1 (where Mosgiel Station is). This compares to 15 percent of respondents identifying north-east Mosgiel (the general area where Peter Johnstone Park is located) as their preferred location for a Park and Ride facility.[131]
– Both (non Do-minimum) options received a +2 score for the 'travel threshold' criteria, with Option 1 + 3 considered to provide better access for people from Outram whereas Option 5 + 3 considered to provide better access for people from Allanton / Clutha.

5.3.2 Mana whenua assessment

The short list assessment did not score against the 'mana whenua' criteria. Both (non Do-minimum) options are within the 2GP Wāhi Tupuna Mapped Area – Kokika o Te Matamata.[132] To provide assurance that the site selected is appropriate, following the short list assessment Aukaha undertook an initial desktop assessment of the preferred site. It was confirmed by Aukaha that there are no concerns with developing the preferred option.

5.3.3 Social and Environmental impacts assessment

The short list assessment resulted in a mixture of both positive and negative social and environmental impacts for the options when compared to the baseline Do Minimum. These results are summarised as being:

– Both (non Do-minimum) options are expected to have positive impact with regard to the 'climate change mitigation / adaptation' criteria as they encourage mode shift to public transport. Similar to the assessment against the Investment Objectives, Option 5 + 3 scored higher due to having greater residential catchment population for the 800 m and 3 km distance which was used as a proxy to estimate the likely demand in increased bus use (and therefore the likely reduction in carbon emissions). Option 5 + 3 would however have a greater level of embodied carbon due to the upgrades required to be an operational Park and Ride.
– Both (non Do-minimum) options may have negative impacts on 'heritage and archaeology' as Option 3 (pocket park) is located within the 2GP Archaeological Alert Layer.
– Both (non Do-minimum) options will have negative 'noise and vibration' impacts due to increasing traffic volumes on residential streets. Option 5 + 3 will have greater impacts during construction than Option 1 + 3 as Peter Johnstone Park is already sealed, however this is offset with consideration that the land zoning of Option 5 + 3 is industrial (and the site is adjacent to an operational train line).
– Option 5 + 3 scored negatively against the 'contaminated land' criteria as the rail yard is identified on the HAIL register, whereas Option 1 + 3 is not.
– Option 1 + 3 was scored as having a moderate adverse impact for the 'social and economic' criteria as Peter Johnstone Park is currently used by the Rugby Club during evenings. There is a likely adverse impact to local sporting communities from co-locating the Park and Ride with a non-complementary community sporting function. The specific concern was the overlap during afternoons where there will be still a high volume of commuter cars parked at the site when afternoon (training) commences and the conflict of users and limited car parking space.. Similarly, this site will act as overflow parking for the Mosgiel Pool (due to open mid-2023)

[131] GHD, 2022. *Customer Insights; Mosgiel Park and Ride*
[132] Dunedin City Council, 2022. *Planning Map (Appeals Version).* Retrieved 7 December 2022 from **Planning Map (Appeals Version) (arcgis.com)**

which could conflict with parking demand associated with the Park and Ride. In contrast, there are no existing users of the rail yard (other than KiwiRail who use the site on an ad-hoc basis) that would be impacted.

– Both (non Do-minimum) options were considered to result in positive impacts for 'landscape and visual' as the upgrade would include improvements to the site and planting. Option 5 + 3 was scored higher as, due to its location, it could also provide the ability to improve the visual impression visitors and residents see on entrance to Mosgiel.

5.3.4 Design, Delivery and Operation assessment

The short list assessment detailed the design, delivery and operation impacts due to the required upgrade works and costs when compared to the baseline Do Minimum. These impacts are summarise as being:

– Both (non Do Minimum) options scored negatively with regard to 'engineering (technical) difficulty' as both locations require upgrades, however the scale of work required at Option 5 + 3 is greater than what is required at Option 1 + 3 and this is reflected in the scoring.

– Both (non Do-minimum) options will have positive impact on 'safety and design' through improved active mode facilities and reducing the number of private vehicles on the wider network. Option 1 + 3 was scored higher due to the benefits to be gained from formalising the parking layout at the existing unmarked car park.

– Both (non Do-minimum) options will impact on the existing network through changing traffic movements. This impact will be investigated further for the preferred option in the detailed design stage with traffic modelling to determine if mitigation is required.

– Both (non Do-minimum) options will require approval to use the respective sites. Option 5 + 3 requires a lease agreement whereas Option 1 + 3 uses land owned by DCC.

– Option 1 + 3 scored negatively for 'scalability' as the car park area at Peter Johnstone Park cannot be expanded without taking Parks and Reserves land, which was determined to be unachievable or highly undesirable) and is not proposed as part of the option. By contrast, there is a large area of undeveloped land at the site of Option 5+3, (adjacent to Mosgiel Station) which could be included in future stages of development of the Park and Ride facility. In addition, the location of Option 5 + 3 would complement the potential re-introduction of passenger rail services using Mosgiel Station (i.e. a Park and Ride site for train passengers).

– Option 1 + 3 scored highly for 'timing' as a trial could be implemented relatively quickly with limited additional works required. Option 5 + 3 scored negatively against this criteria as the site is not able to be used until upgrades have been completed which will require an approximate 1-3 year detailed design and implementation period.

5.3.5 Assessment summary

There was a consensus reached at the short list workshop amongst Project Partners and invited stakeholders to progress Option 5 + 3 as the preferred option. This consists of developing a Park and Ride at the rail yard at Mosgiel Station, accessed off Burns Street, supported by minor improvements at Glasgow Street pocket park to provide improved active mode waiting facilities.

Option 5 + 3 was agreed as the preferred option because it has the best medium to longer term ability to increase public transport patronage between Mosgiel and Dunedin. This option best balances the outcome sought by the investment objectives with the critical success factors.

Note: this will require changes to the existing bus route, to access the Park and Ride site, which will be agreed with Otago Regional Council.

6. Preferred option

6.1 Description of preferred option

6.1.1 Demand and new ridership estimation

An estimate of the potential public transport demand (i.e. the number of new users as a result of implementing a Park and Ride facility at Mosgiel Station) was undertaken using a first principles approach. The results of this estimation are summarised below with a full description provided as a Technical Memorandum in Appendix E.

A high-level flow diagram summarising the demand estimation process is shown in Figure 58.

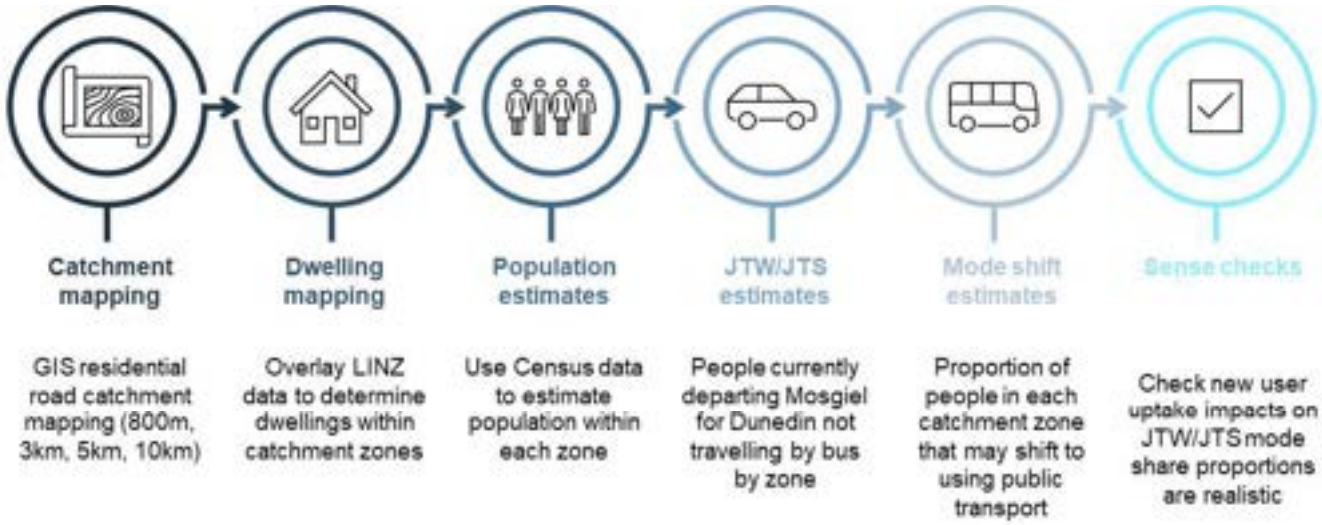


Figure 58 Preferred option demand estimation process (GHD 2022)

The estimated demand generated by the proposed Park and Ride facility at Mosgiel Station is shown by Catchment Zones in Figure 59. The total number of new / additional public transport users based on this analysis is **104** users at the opening year of the Park and Ride in 2024.

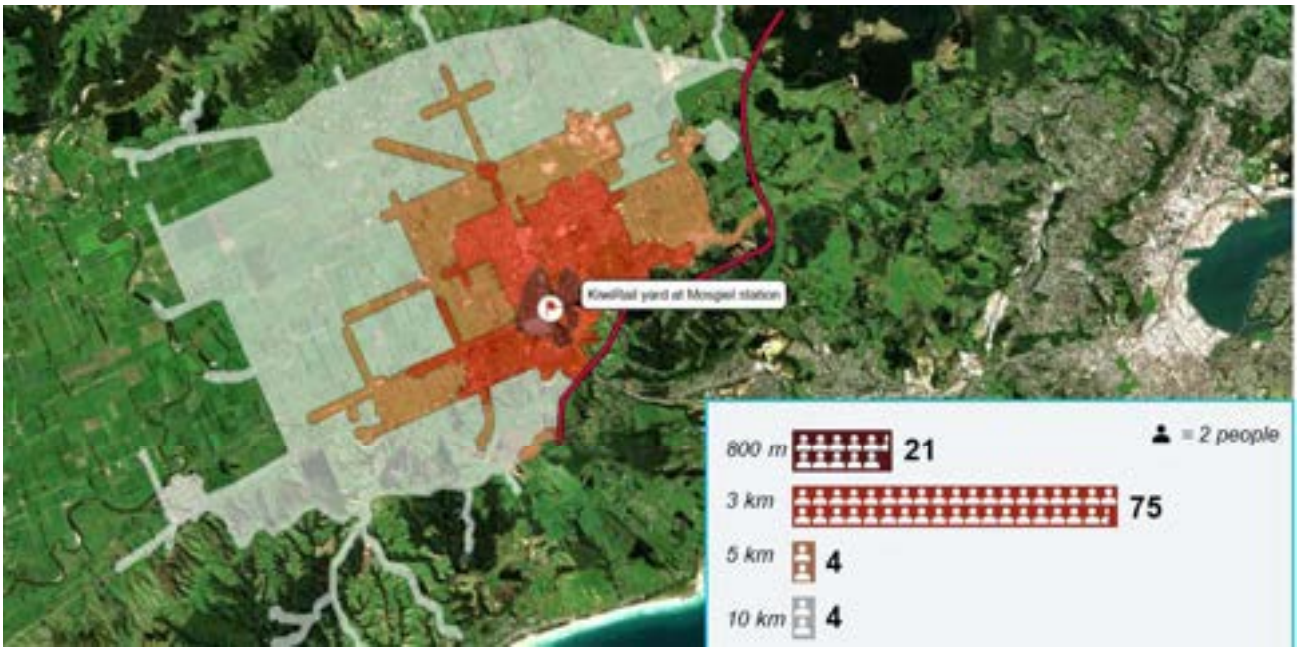


Figure 59 Mosgiel Station estimated new public transport users by catchment in 2024 (GHD 2022)[133]

[133] Note, this analysis does not include the Glasgow Street pocket park as agreed with DCC. This analysis was primarily used to inform the number of facilities (e.g. parking bays) that may be required at the Mosgiel Station site.

6.1.2 Capital works

The preferred option of the Mosgiel Park and Ride SSBC is a Park and Ride facility Ride at the rail yard at Mosgiel Station, accessed off Burns Street (refer to Figure 60), supported by minor improvements at Glasgow Street pocket park to provide improved active mode and waiting facilities.

Figure 60 Preferred option location[134]

Mosgiel Station

A concept layout has been prepared based on aerial photography and refined based on a site visit undertaken with DCC on Wednesday 28 September 2022. The concept design will be further refined once the site has been surveyed in the next stage. The concept design is provided in Figure 61 and Figure 62. Key features of the preferred option concept design include:

- Access to the site via inclusion of a fourth leg onto the Burns Street / Kings Street intersection formed over Owhiro Stream
- New raised table with pedestrian mid-block islands at the intersection of Burns Street / Kings Street.
- Parking bays as outlined in Figure 63. These parking bays will be provided without charge to users so as to not introduce a cost barrier to uptake. This decision will be reviewed by DCC periodically in line with DCC parking policy.
- Pedestrian access provided from Burns Street and SH87
- Allowance for landscaping areas and a hardstand area to accommodate bicycle parking, bus shelter and toilet facilities. The form and location of these items will be confirmed in detailed design, and
- A fence offset 5 m from the rail line to prevent accidental public access into the rail corridor.

The concept designs provide indication of the long-term intention for the Park and Ride facility based on the community insights and the literature review. It is anticipated that some elements will not be constructed in the short term (for example, toilet facilities) in order to achieve a balance between providing a high-quality facility to entice mode shift, and remaining within funding constraints.

[134] Base map sourced from: **Google Earth**

Figure 61 Mosgiel Park and Ride carpark layout plan sheet 1

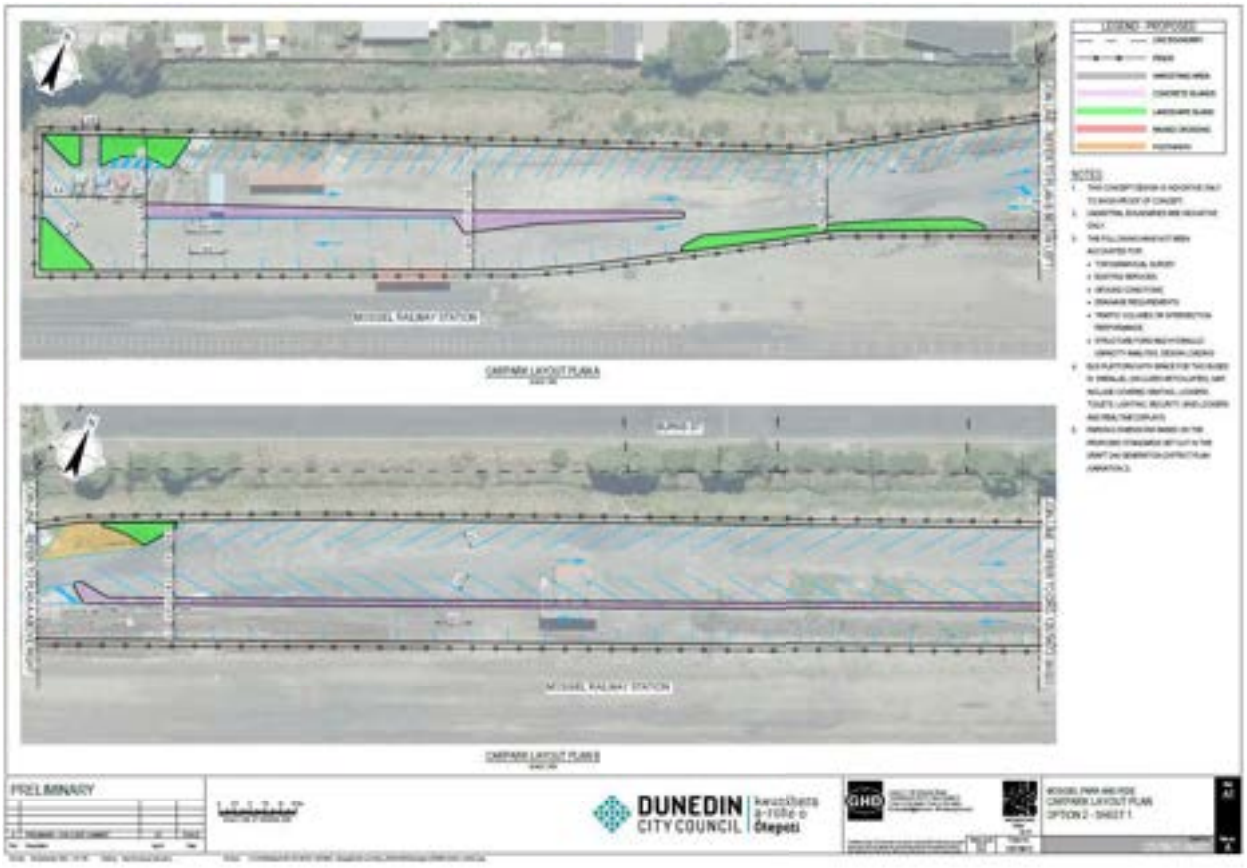


Figure 62 *Mosgiel Park and Ride carpark layout plan sheet 2*

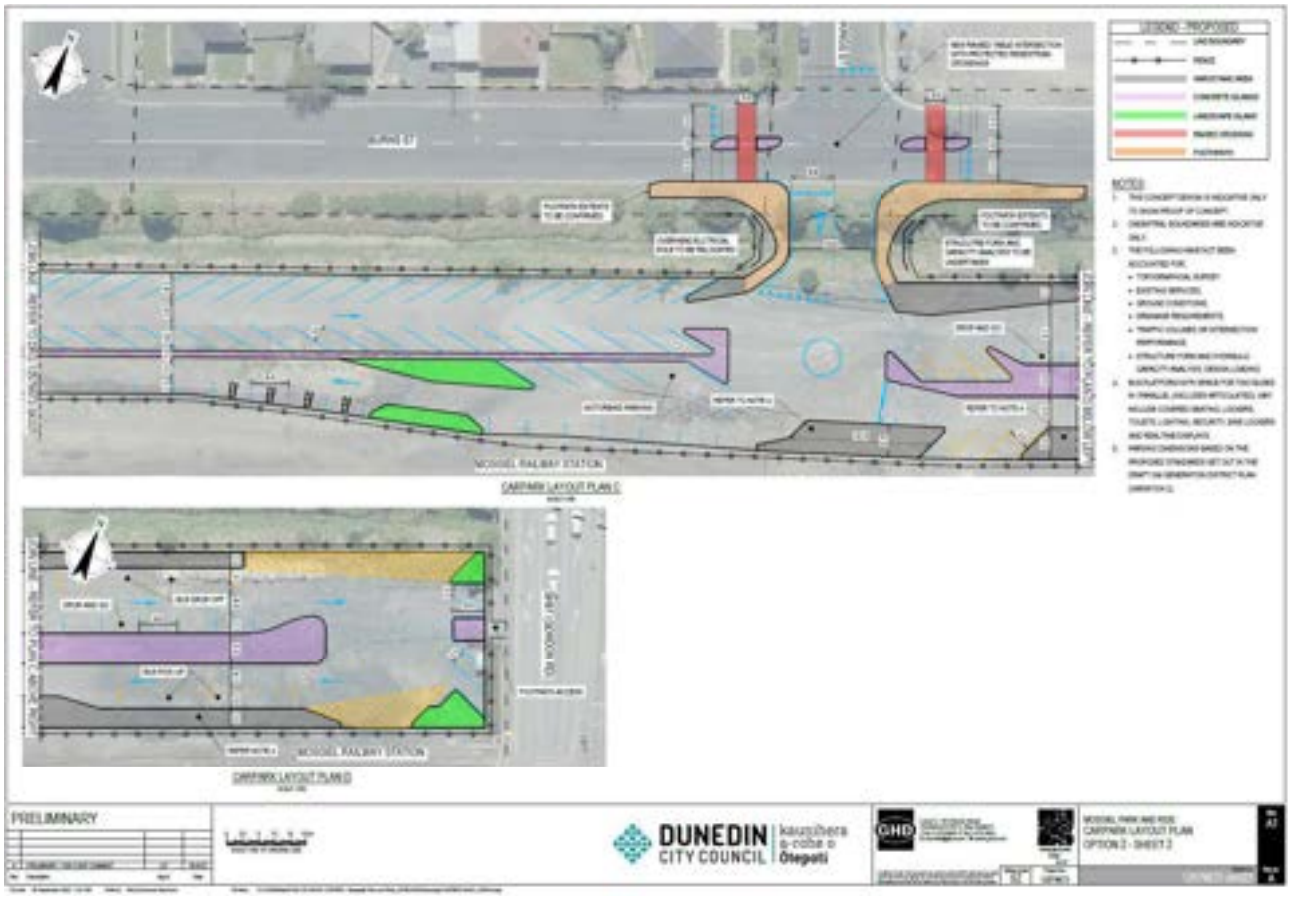


Figure 63 *Mosgiel Park and Ride preferred option parking bays (indicative)*

Site constraints and design considerations

The preferred site has been selected due to the location, ability to meet long term demand and catchment for future ridership. However, there are some constraints associated with this site that will have to be considered during the design and delivery stages. These are:

- **Ownership and access:**
  - The site identified is a minimally used KiwiRail yard, immediately north of the existing shunting line which is used occasionally. Council have commenced discussions with KiwiRail to enter into a lease agreement for the use of the land. The initial discussion has revealed that a nine year lease may be considered and would be similar to the recently agreed lease between DCC and KiwiRail for the St Andrews Street carpark in central Dunedin. These discussions are ongoing.
- **Layout:**
  - The site selected for development is approximately 550 m long with varying widths between 21.5 m and 28 m. The site is long and slender and generally flat with minimal earthworks required.
  - A KiwiRail requirement is to have a fence erected on the southern edge of the park and ride facility (between the rail line and the proposed park and ride facility), with a required clear zone of 5 m from the centre of the rail line, to prevent accidental public access into the rail corridor.
  - The internal parking configuration has provisionally catered for angled parking with alternate arrangements to be considered in the refinement process. The internal circulation for the bus tracking has been undertaken for the current layout with further refinements to the bus drop off and pick up locations to be confirmed once the topographical survey has been completed.
  - Initial safety reviews were completed on the preferred option internally by both GHD and DCC. Key items raised to be addressed in detailed design stage are: safe pedestrian pathways, configuration of parking for different user types (e.g. mobility impaired, electric vehicles), and intersection layout.
- **Access:**
  - Access to the site has been provisionally planned via the inclusion of a fourth leg onto the Burns Street / Kings Street intersection in Mosgiel. The configuration of this intersection needs to be confirmed with traffic modelling prior to developing the design further.
  - The Owhiro Stream is located between Burns Street and the KiwiRail yard that will require a structure to accommodate the new intersection crossing. Early indications are that the form of this structure could be pre-cast concrete units with the sizing to be confirmed with hydraulic modelling.
- **Consenting:**
  - The new structure in the Owhiro Stream will require a consent approval for the initial foundation investigations as well as the final structural form. These statutory approvals will be required from ORC.
  - Similarly, a building consent will be required from DCC for the new structures.
  - The site is located outside the DCC road corridor and leased from KiwiRail, therefore a land use consent will be required from DCC.
  - Due to the close proximity of the Owhiro Stream, there may be an additional approval required from ORC for the stormwater run-off from the site into the stream. There may be other treatment opportunities to be explored during the design stage e.g. to attenuate the stormwater flow or similar.
- **Utility Services:**
  - An overhead power pole has been identified to be relocated where the new access is positioned along Burns Street.
- **Ground conditions:**
  - Unknown ground conditions on KiwiRail site could cause delay to the programme, require design changes and resultant cost increases. The site has been assumed HAIL for the purposes of preparing the programme and cost estimate.
  - Detailed site investigation to be undertaken to assess the contaminated land status including identification of potential contaminants of concern.
  - A 40% contingency was included in the cost estimate to allow for poor ground conditions.

Glasgow Street Pocket Park

The Glasgow Street Pocket Park was improved concurrently with, but separate to, this SSBC by DCC and the Mosgiel-Taieri Community Board. The concept plan is shown in Figure 64.

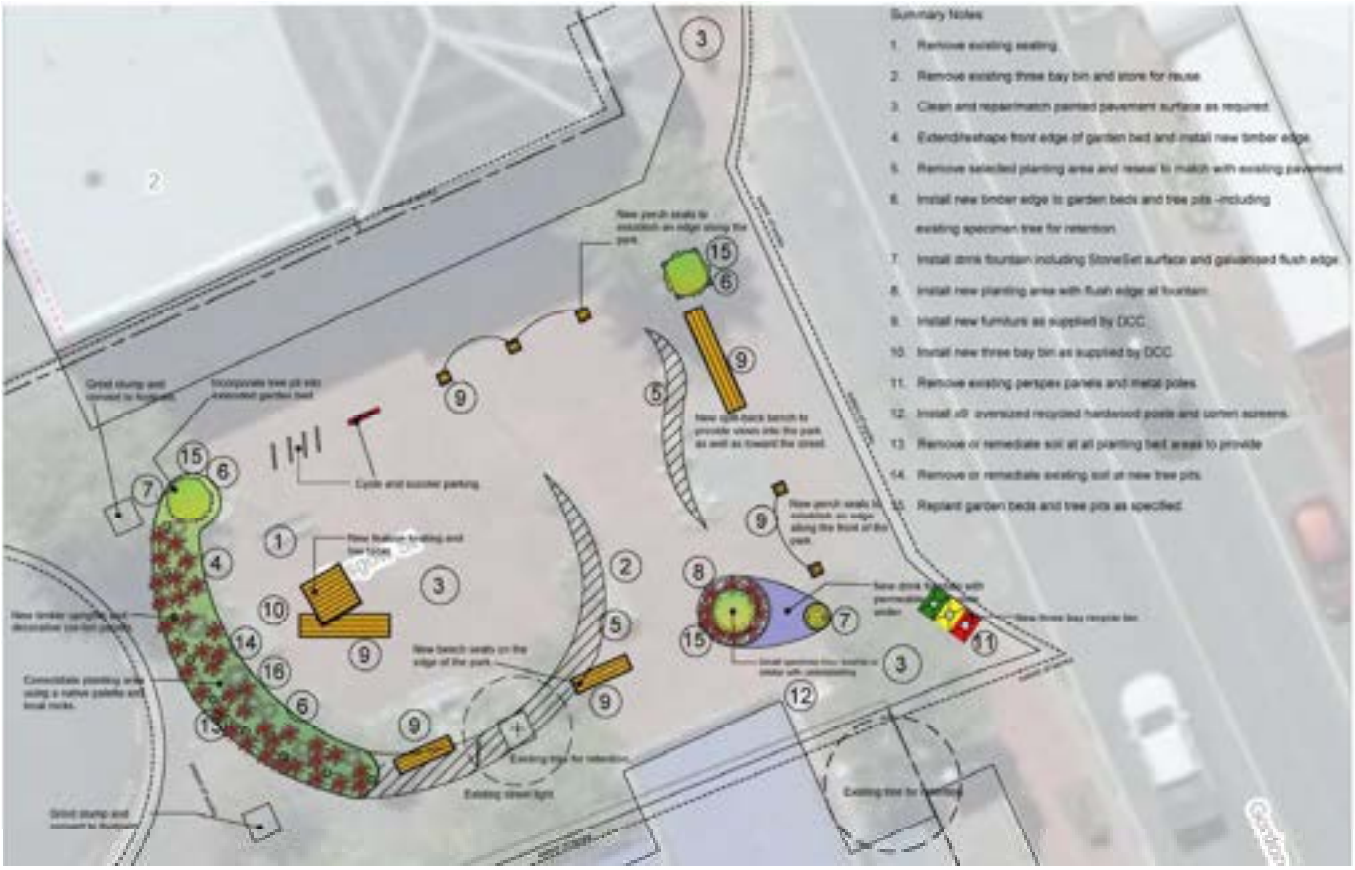


Figure 64 Concept plan for Glasgow Street Pocket Park [135]

The Glasgow Street Pocket Park is an existing bus stop for outbound route 77 services (Dunedin to Mosgiel). As passengers are more likely to require facilities at the inbound stop (as they wait for the bus to arrive), there are two options for investment:

1. Improve waiting facilities at Glasgow Street Pocket Park and work with ORC to provide a bus stop in the inbound direction opposite Glasgow Street. It is likely that this will require removal of on-street parking and may encourage additional pedestrian crossing movements across SH87.
2. Improve waiting facilities at the nearest existing stop for inbound services (approximately 150 m south at the Clocktower).

For both options, the minor additional improvements proposed as part of this SSBC are:

– Installation of formal bus shelter. There is currently no formal shelter with passengers using the adjacent building verandas for shelter.
– An increased number of cycle stands. There are currently stands for eight bicycles at Glasgow Street and none at the Clocktower. It is recommended that additional stands are added in line with demand once the express service is operating. It is noted that these stands will be used by both bus passengers and visitors to Mosgiel town centre.
– Additional signage / marketing to promote use of public transport.

[135] Dunedin City Council, 2022. *Upgrade for pocket parks on Mosgiel's main street.* Retrieved 30 January 2023 from **Upgrade for pocket parks on Mosgiel's main street - Dunedin City Council**

6.1.3 Travel demand measures

In addition to the capital works, supplementary travel demand measures (TDM) are included in the preferred option that align the Waka Kotahi mode shift lever:

– **Influencing travel demand and transport choices –** *Changing behaviour may also require a mix of incentives and disincentives (or 'push' and 'pull' factors) to either discourage use of private vehicles (by making them less attractive relative to other options) or making people more aware of their options and incentivising them to try something new. This may include parking policies, road pricing, travel planning and education.*[136]

Figure 65 shows a behaviour change framework for the adoption of new travel behaviours. The partners are seeking to move customers along the scale of willingness to consider alternative travel choices. Specific to the Mosgiel Park and Ride, TDM initiatives will be targeted toward promoting awareness and use of the Park and Ride facility, potentially including:

– Increasing awareness of existing public transport infrastructure and facilities within Mosgiel (e.g. Glasgow Street) through working with local schools and businesses to instil sustainable travel behaviours
– Targeted marketing, promotion and education of the availability and advantages of public transport, predominantly focused on 'interested but concerned' users through a "give it a go" mode shift campaign
– Delivery of a wayfinding programme and install signage along core routes to the Park and Ride facility, and
– Explore opportunities to use technology to promote carpooling / car sharing that link communities with similar transport movements.

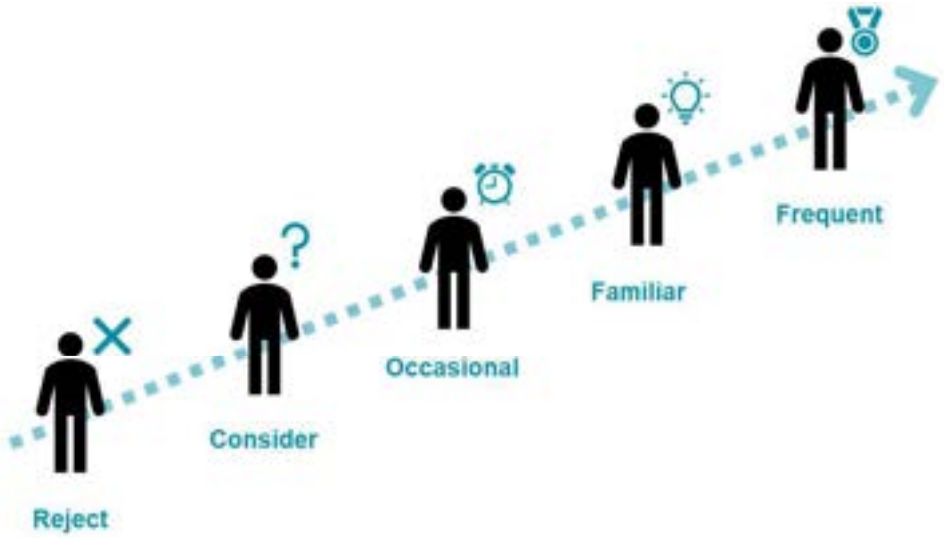


Figure 65 Framework for behaviour change (GHD 2022)[137]

6.1.4 Operational improvements

The additional investment of the Park and Ride facility also presents the opportunity to increase the service offerings of the planned Express Service, thereby supporting a public transport system that offers convenient and competitive travel choice for Mosgiel and the wider Taieri.

Additional bus services have been costed in this business case to increase the offering from three inbound morning express services and six outbound evening express services to eight services in both peaks. The additional services will be focused around meeting the travel needs of people commuting to main activity centres in Dunedin, such as the University of Otago and the Hospital (in particular, services to accommodate shift patterns which was raised as a key barrier to using public transport for many in the Customer Insights survey).

[136] Waka Kotahi NZ Transport Agency, 2019. *Keeping cities moving.* Pp 9. Retrieved 8 December 2022 from **Keeping cities moving: Increasing the wellbeing of New Zealand's cities by growing (nzta.govt.nz)**
[137] Based on Auckland Transport model, source: Auckland Transport, 2018. *Measuring and growing active modes of transport in Auckland.* Retrieved 8 December 2022 from **tra_at_activemodes_publicrelease-1.pdf**

*Note: The associated cost of increasing the number of bus services has been included in the economic analysis. However, the service requirements of these additional services (e.g. timetabling) have not been determined and are outside of the scope of this SSBC.

6.1.5 Burnside Park and Ride facility

As part of the Mosgiel Park and Ride SSBC, the project team also investigated the viability of a second Park and Ride facility being provided in Burnside, Dunedin, to support existing bus services. This investigation involved estimating the potential uptake in public transport demand (i.e., the number of new bus users) that would be generated by constructing the new Burnside Park and Ride facility.

The analysis found the potential uptake in public transport demand as a result of the new facility at Burnside was expected to be minimal (approximately 32 users). This result was confirmed by subsequent Stantec investigations documented in the Burnside Park and Ride – Technical Memorandum (16 February 2023)[138]. The key restraints to uptake are access by walking, biking or driving, poor perception of safety and likelihood those driving would continue through to Dunedin by car.

Further details of the Burnside Park and Ride (public transport) demand assessment undertaken as part of this project can be found in the technical memorandum provided in Appendix J.

[138] Stantec, 16 Feb 2023. *Burnside Park and Ride – Technical Memorandum.* Dunedin City Council.

6.2 Preferred option evaluation

6.2.1 Investment Objectives

Table 16 provides a summary of how the preferred option achieves the investment objectives for this SSBC.

Table 16 Preferred option assessment against the Investment Objectives

Investment Objective		Preferred option performance / rationale
	Increase public transport patronage through reducing the barriers to uptake and improving the attractiveness of travelling by bus	The preferred option develops an accessible park and ride facility at the Mosgiel rail yard and makes active modes improvements to the Glasgow Street pocket park. In the opening year (2024), the Park and Ride facility is estimated to attract at least 104 new public transport users (refer to section 6.1.1). The preferred option 'extends' the reach of the public transport service and provides users with a high quality facility. Improvements are also made for people using active modes to access the bus stop. The investment proposal results in eight express services in both the morning and afternoon/evening peak reducing the travel time 'penalty' compared to travel by private vehicle. The increased frequency of services also reduces the wait time for passengers.
	Decrease the number of single occupancy vehicles travelling from Mosgiel to Dunedin in the morning peak to reduce parking demand and traffic in the central city and improve safety	The Waka Kotahi MBCM guidance which was used in the economic assessment of the preferred option assumes an estimated diversion rate of 50% of new users (52 people in 2024) shift from trips by private vehicles to bus as a result of the Park and Ride facility.[139]
	Reduce the environmental and social impact of land transport whilst maintaining efficient movement of people and products	The new public transport users as a results of the Do Minimum and the preferred option is expected to increase public transport mode share for journey to work / education in Mosgiel from the current 4 percent to 9 percent using a conservative first principles approach (refer to Appendix E). This mode shift is expected to result in an estimated reduction of 350,000 total vehicle kilometres travelled (VKT) on State Highways in Dunedin City.[140]

[139] As per Waka Kotahi monetised benefits and costs manual (MBCM) Table 85: Prior modes of new public transport passengers resulting from urban public transport initiatives (p.161)

[140] Note: New AM Peak period user numbers sourced from *GHD, Nov 2022. Preferred Option – Demand Estimation Technical Memorandum.* A diversion rate of 50% is assumed from existing private vehicle users.

6.2.2 Appraisal Summary Table evaluation

Table 17 provides an overview of the monetised, quantitative and qualitative benefits and costs of the preferred option in the form of an Appraisal Summary Table.

Table 17 Preferred option Appraisal Summary Table – Transport Outcomes Assessment

Transport Outcomes	Non-Monetised Impact				Monetised Impact	
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	4.6 average annual injury crashes per year reported between 6 am and 9 am in the five year period 2017-2021 (CAS database)[141]	Not available	An estimated reduction of 0.05 average annual injury crashes per year due to mode shift and a reduction in private vehicles (and potential conflicts).	N/A	N/A
Resilience and security						
N/A						
Economic prosperity						
N/A						
Environmental sustainability						
8.1 Impact on greenhouse gas emissions	8.1.1 CO_2 emissions	425,011,071 total vehicle kilometres travelled on State Highways in Dunedin City (TA)[142]	Not available	An estimated reduction of 350,000 total vehicle kilometres travelled on State Highways in Dunedin City due to mode shift from private vehicles to public transport as a result of a Park and Ride[143]	N/A	N/A

[141] Waka Kotahi, 2022. *CAS Database.*
[142] Waka Kotahi, 2022. *Data and tools, Vehicle use (VKT) 'Vehicle Kilometres Travelled' within Road Controlling Authority areas.* Retrieved 30 November 2022, from https://www.nzta.govt.nz/planning-and-investment/learning-and-resources/transport-data/data-and-tools/
[143] Note: New AM Peak period user numbers sourced from *GHD, Nov 2022. Preferred Option – Demand Estimation Technical Memorandum.* A diversion rate of 50% is assumed from existing private vehicle users.

Transport Outcomes	Non-Monetised Impact				Monetised Impact	
Name of Benefit	**Name of Measure**	**Baseline**	**Do Minimum Impact**	**Option Impact**	**Do Minimum Impact**	**Option Impact**
	8.1.2 Mode shift from single occupancy private vehicle	4% of journey to work / education trips departures from Mosgiel to Dunedin are made by bus (258 daily users)[144]	117 estimated new public transport daily users in 2024[145]	104 estimated new public transport daily users in 2024 (in addition to the new users associated with the Do Minimum)[146]	N/A	N/A
Inclusive access						
10.1 Impact on user experience of the transport system	10.1.1 People – throughput of pedestrians, cyclists and public transport boardings	Refer to 8.1.2			Not available	2024 PV benefits $30M from road traffic reduction benefits and public transport users benefits[147] (assessed for new users associated with Park and Ride facility only)
10.2 Impact on mode choice	10.2.2 Accessibility – public transport facilities	No bus stops in Mosgiel are considered fully accessible	No change to baseline	Two fully accessible bus stops (Glasgow Street and Park and Ride)	N/A	N/A
	10.2.7 Temporal availability – public transport	Services at half hourly intervals in peak period[148]	Three additional services in morning peak and six additional services in the afternoon/evening peak to increase frequency to 15 minutes[149]	A further five additional services in the morning peak and two additional services in the afternoon/evening peak	N/A	N/A

[144] Source: Stats NZ Commuter Waka Departures from Statistical areas: Bush Road, East Taieri, Mosgiel Central, Mosgiel East, Seddon Park and Wingatui. Retrieved 17 May 2022 from, Bush Road & 5 other areas - Commuter - Waka

[145] Refer Appendix E

[146] Refer Appendix E

[147] Refer Appendix G

[148] ORC, 2022. Route 77 Mosgiel, Fairfield, Green Island – City. Bus Schedule Nov 2022. Retrieved 24 Nov 2022, from https://www.orc.govt.nz/public-transport/dunedin-buses/check-your-timetables/77-mosgiel-fairfield-green-island-city

Note: Reduced timetable from 19 July 2022.

[149] Phillips, J., email to [redacted] November 01, 2022.

Transport Outcomes	Non-Monetised Impact				Monetised Impact	
Name of Benefit	**Name of Measure**	**Baseline**	**Do Minimum Impact**	**Option Impact**	**Do Minimum Impact**	**Option Impact**
10.3 Impact on access to opportunities	10.3.1 Access to key social destinations (by public transport)	*To be updated with data from next strategic transport model iteration*	*To be updated with data from next strategic transport model iteration*	*To be updated with data from next strategic transport model iteration*	N/A	N/A
12.1 Impact on Te Ao Māori	12.1.1 Te Ao Māori	Not applicable	The Express Service improves access for Māori economy and employment, impacting social connectedness and access to better, environmentally friendly travel options.	The preferred option extends the impacts of the Do Minimum option to more people. It also provides opportunity for cultural expression through the design of the urban realm recognising the whakapapa (genealogy) and ancestors of the area.	N/A	N/A

6.2.3 Additional considerations

Project partnering

Te Rūnanga o Ōtākou are represented by Aukaha in this project. Aukaha have undertaken an initial desktop assessment on the preferred option and have confirmed that there are no concerns with developing the preferred option. Mana whenua will be involved during the detailed design phase.[150]

Strategic fit

The preferred option aligns with the objectives of the Connecting Dunedin programme to provide better travel choices and supporting mode shift for people travelling into Dunedin City. This is considered a critical piece of the Connecting Dunedin 'puzzle' to retain a functioning transport system during the construction period of the new Dunedin hospital.

Cost and affordability

The P50 cost estimate is higher than the initial cost estimate in the Shaping Future Dunedin Transport PBC. Through the design development process DCC will investigate options to deliver a park and ride facility that meets demand (and car parking requirements) for the early years which is estimated to be approximately 100 car bays at the Park and Ride. This could be achieved through a mix of formal (higher level of service) car parking and informal car parking within the site capacity.

There is also potential to stage the implementation of the Park and Ride site, rather than a single investment and implementation approach if funding is constrained. There are various options to provide a similar sized facility with part of the car parking at a lower level of service, recognising that uptake in the early years is expected to be less than the car parking capacity. Affordability is discussed further in the Financial Case.

Risk assessment

The site-specific risks have been identified above and included in the project risk register in Appendix C. Risks are also outlined in relevant sections in the Financial Case and Management Case. The key risks of note that are likely to have a higher impact are: **Site ownership; Consenting**; and **Ground conditions.**

Supplier capacity

The site will be serviced by the existing route 77 and the new Express service that are operated by ORC. This will require a change to route 77 (refer to Figure 66). Changes to route 80 and 81 (Mosgiel circuit) have also been discussed so that these services can act as a feeder service to the park and ride. Otago Regional Council are aware of this project and discussions regarding route changes are ongoing.

Figure 66 Location of preferred option with respect to existing bus routes[151]

[150] Ward, C., email to [redacted] April 07, 2022.
[151] Base map sourced from: Otago Regional Council, 2022. *Dunedin Bus Map.* Retrieved 8 December 2022 from **orbus-dunedin-map-0722.pdf (orc.govt.nz)**

In 2021 ORC undertook a trial of an electric bus in Dunedin including on route 77.[152] With a commitment to transition their fleet to zero-carbon emission vehicles, the Park and Ride site could be considered a logical location to install bus charging facilities. Inclusion of electric bus charging infrastructure has not been included in the scope of this SSBC other than the concept design does not preclude this being installed at a later date.

Statutory requirements

The following statutory approvals are required for the construction of the preferred option:

- Resource consent for the initial foundation investigations as well as the final structural form to erect a structure over Owhiro Stream and resulting disturbance of river and discharge of contaminants to water (ORC)
- Land use consent to disturb a HAIL site (DCC)
- If the land is confirmed as contaminated (via a detailed site investigation) then a land use consent to disturb contaminated land will also be required (ORC)
- Land use consent for earthworks outside of the road reserve (DCC)
- Building consent for the new structures (DCC)
- Stormwater discharge consent (ORC)
- KiwiRail License to Occupy, and
- Heritage New Zealand Pouhere Taonga Authority (to be confirmed during detailed design stage).

Travel behaviour change

It is expected that the number of people choosing to use public transport will increase as a result of this project as summarised in section 6.1.1. The estimate of the number of new users based on a first principles approach is described fully in Appendix E.

Land acquisition

No land acquisition is anticipated to be required to construct the preferred option of the Mosgiel Park and Ride SSBC. A lease agreement is required as outlined in section 6.1.2.

Property impacts

All works that impact property are anticipated to be within the KiwiRail land parcel. Council have commenced discussions with KiwiRail to enter into a lease agreement for the use of the land, with existing dis-used structures on the KiwiRail site likely to be relocated or removed. The initial discussion has revealed that a nine year lease may be considered. These discussions are ongoing.

No physical impact is anticipated to adjacent properties during construction of the project. An engagement plan for potentially affected landowners will be completed in the detailed design stage of the project.

Environmental impact

The preferred option will create disturbance to Owhiro Stream. During the detailed design phase, a detailed mitigation plan will be prepared as part of the consent application.

The preferred option will impact approximately two trees and some shrubs that are planted along Burns Street where the new site access is proposed (access design to be confirmed in next stage). These are not designated or protected trees. These plants may be replanted in an alternative location.

Parking impacts

The preferred option will result in the loss of approximately four unmarked and unrestricted parking spaces on Burns Street where the new site access is proposed (access design to be confirmed in next stage). Existing demand for parking on Burns Street is low based on observations made during site visits and from aerial

[152] Otago Regional Council, 2021. *Dunedin's first e-Bus.* Retrieved 30 January 2023 from **Dunedin's first e-Bus trial | Otago Regional Council (orc.govt.nz)**

photography. As there is currently approximately 380 m of available on-street parking on the southern side of Burns Street, the loss of four spaces to create the park and ride facility is considered to be a minor impact.

This area is not known to have an on-street car parking capacity issue. However, it is recognised that due to the proximity to the Park and Ride, Burns Street will act as overflow parking if the success of the Park and Ride is greater than the available supply of parking, with approximately 50 car spaces along Burns Street which has no houses on this frontage. Overflow parking onto residential streets from Park and Ride sites has been seen in both Auckland and Wellington with mitigation measures put in place to reduce the impact on local residents. Similar mitigations can be implemented in Mosgiel, including parking time restrictions, no-stopping restrictions to retain sight distance at intersections, and low cost traffic calming measures to reduce likelihood and severity of conflicts, particularly for active modes.

Social impact

The project has positive social impacts, in that it provides bus, walking, cycling and amenity improvements for the local residents and for people travelling to Dunedin. Improving access to public transport presents people with more sustainable and affordable transport choices. This directly aligns with current GPS goals, and the Connecting Dunedin partnership objectives for the city.

There may be temporary impacts during construction associated with noise and vibration from earthworks. Further public engagement and public participation in the consenting process will assist DCC in determining how any adverse effects could be mitigated or managed.

Public participation

Wide-ranging public engagement has been completed for the Mosgiel Park and Ride project that has raised awareness of the project and gathered feedback on the proposal. Refer to Section 1.5 (and the Customer Insights report in Appendix A) for details of these stakeholder and community engagement activities.

Urban design

Urban design elements are currently being considered as part of the preferred option detailed design. Consultation has been undertaken with Aukaha to inform this process.

Safety Audits and Safe System Assessment

Initial safety reviews have been undertaken on the concept design internally by GHD and DCC. Key items raised to be addressed in detailed design stage are:

– Safe pedestrian pathways,
– Configuration of parking for different user types (e.g. mobility impaired, electric vehicles), and
– Intersection layout.

A minimum of three independent safety audits will be completed during the next stages of the project:

1. 50% detailed design during pre-implementation
2. 100% detailed design during pre-implementation, and
3. Post-construction audit to be completed following implementation.

All audits will be completed in accordance with the Waka Kotahi Safe System audit procedures for transport projects (2022).

Traffic modelling

Traffic modelling has not been completed as part of this SSBC. During the detailed design phase, a third party will use the Paramics model to undertake traffic modelling for the Burns Street / Kings Street and Burns Street / SH87 intersections.

6.3 Preferred option economic analysis

In accordance with Waka Kotahi guidance, the preferred option has been economically evaluated using Simplified Procedures for Public Transport (SP-10) and the guidance provided in the 2021 edition of the Waka Kotahi Monetised Benefits and Cost Manual (MBCM). [153]

Simplified procedures have been utilised for this economic evaluation, as agreed with DCC and Waka Kotahi, as the estimated project cost is within tolerance of the simplified procedures $15 M indicated limit. [154]

A summary of the economic evaluation results for the preferred option is shown in Table 21. Core economic evaluation assumptions include:

- A four percent discount rate
- A 40 years appraisal period
- Time zero of 1 July 2023
- Construction start year of 2023 with a duration of 12 months, and
- General update factor of 1.28 (for passenger transport user benefits) used to uplift benefits between July 2008 and July 2021 per Waka Kotahi MBCM Appendix 12.3 *Update factors for benefits.*

A full list of the economic assumptions, including the programme specific assumptions can be found in the Preferred Option Economic Evaluation and Assumptions Memorandum in Appendix G. The capital cost estimates completed by Alta Consulting in October 2022 are provided in Appendix H and were calculated using the Waka Kotahi Cost Estimation Manual (SM014).

Table 18 Preferred option economic evaluation summary

Timing	
Earliest implementation start date	Construction start July 2023
Expected duration of implementation	12 months
Economic efficiency	
Time zero	1 July 2023
Base date for Costs and Benefits	1 July 2022
Present Value of Funding Assistance	$17.7 M
Present Value net Total Project Cost of preferred option	$23.3 M
Present Value net capital cost	*$14.4M*
Present Value net operation and maintenance cost	*$8.9M*
Present Value net Benefit of preferred option (excluding WEBs)[155]	$38.4 M
BCR[156] national	1.6
BCR government	2.2
First Year Rate of Return (FYRR)	5.4 percent

Sensitivity analysis on the economic evaluation results has been undertaken to demonstrate how the preferred option performs if economic parameters vary. The results are provided in Table 19.

Sensitivity testing was also undertaken to demonstrate the impact of staging the Park and Ride implementation, with half of the cost incurred at time zero and half in year 10. This found the BCR would increase to 1.8 under this staged scenario. This assessment is summarised in a technical memorandum provided in Appendix I.

[153] For clarity, the economic analysis was undertaken for the long term intention which is a fully developed Park and Ride site. Due to funding constraints this has been revised to a staged approach, the exact number of parking spaces to be constructed in stage one will be confirmed in detailed design.
[154] Croft, D., email to [redacted], November 10, 2022.
[155] WEBs = Wider Economic Benefits
[156] BCR = Benefit Cost ratio

Table 19 Preferred option economic evaluation sensitivity testing

Scenario	BCR
Discount rate of 3 percent	1.9
Discount rate of 6 percent	1.3
Patronage estimates +20 percent	1.7
Patronage estimates -20 percent	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, or patronage estimates are decreased.

6.4 Preferred option assessment profile

The preferred option of the Mosgiel Park and Ride SSBC has been assessed against the Waka Kotahi 2021-24 NLTP Investment Prioritisation Method. This assessment framework reflects the Government Policy Statement (GPS) 2021-24 for land transport priorities of safety, better travel options, improved freight connections and climate change.

The Investment Prioritisation Method for 2021–24 NLTP has three factors:

- GPS Alignment
- Scheduling, and
- Efficiency.

The preliminary scoring assessment included in the 2021-24 NLTP for the Implementation stage of Park and Ride Facilities in Mosgiel and Burnside gave the following profile: **VHML**

The preliminary scoring assessment in the Point of Entry for this business case gave the following profile: **HHL**

This profile has been reassessed for the preferred option as outlined in Table 20 with rationale.

Table 20 Preferred option Investment Prioritisation Method profile

Factor	Rating
GPS alignment (better travel options and climate change)	**Very High** – Project demand estimation using a first principles approach (refer to Appendix E) indicated a mode share increase for public transport from 4 percent to 9 percent. External factors not incorporated in the demand estimation such as petrol prices, central city parking prices and increased employment within Dunedin City (i.e. associated with the New Dunedin Hospital) are likely to increase the percentage change in share of private passenger vehicle-based trips to other modes by more than 6 percent and would then achieve the very high rating.
Scheduling	**High** – The project is part of the Connecting Dunedin programme. Non-delivery of the Park and Ride in the 2021-24 NLTP period will have a significant impact on realising the estimated benefits of the implementation of the Express Service. By consequence there will be significant impact on realising the estimated benefits of the Connecting Dunedin programme. At the short-list workshop, ORC confirmed their intention to have the Express Service in operation in 2023. The contract for operating these services was signed in mid-2022, however constraints on driver availability has meant these service changes have not yet been implemented at the time of writing. [157]
Efficiency	**Low** – The project has a Benefit Cost Ratio of 1.6.

The preferred option of the Mosgiel Park and Ride SSBC assessment profile is **HHL**, and therefore has been assigned an overall investment priority score of **5**.

[157] Phillips, J., email to [redacted], February 09, 2023

Commercial Case

Chapter Seven

7. Commercial Case

The Commercial Case describes how the project will be procured and implemented to enable the delivery of the project to a fully operational Park and Ride facility. This includes:

– Implementation strategy
– Procurement strategy, and
– Consenting strategy.

7.1 Implementation strategy

It is anticipated the project be delivered using a staged traditional approach over the next two years as follows:

– **Pre-implementation phase**: design consultancy services contract to undertake the professional services for delivering the designs into preliminary design, detailed design, and procurement for the works contract stage, and
– **Implementation phase**: construction works contract and the consultancy services contract for monitoring and supervision services.

Implementation timeframes

The indicative implementation timeframes are shown in Figure 67 for delivery of the project in a single implementation stage. Due to funding availability there is consideration of staging the implementation, this would likely involve as 2023/24 construction period as per the figure and then a second construction period in 2025/26.

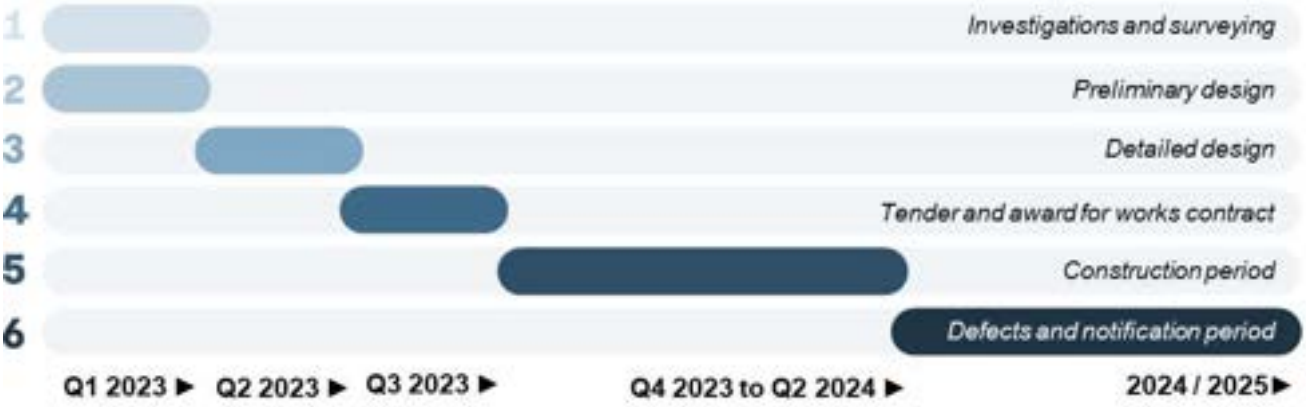


Figure 67 Indicative implementation timeframes (GHD 2022)

7.1.1 Pre-implementation phase

The preferred location requires a robust pre-implementation phase to obtain the necessary statutory approvals that can facilitate the construction activities.

The consultant will develop the approved concept layout and provide design submissions at preliminary and detailed design stages for DCC review and approval. It is anticipated that the design scope of services will include but not limited to the following:

– Surveying and site investigations
– Preliminary design
– Detailed design, and
– Tender documentation.

More detail about these tasks is provided below.

Surveying and site investigations

Dunedin City Council will need to sign a land use agreement with KiwiRail to provide access to their yard to enable the investigative works. Services to be provided for the pre-implementation phase will include:

– Topographical survey
– Obtaining existing utility services data
– Geotechnical ground investigations
– Hydrological / hydraulics investigations
– Environmental and safeguard investigations, and
– Traffic data analysis.

Preliminary design

The preliminary design activities to be completed for the pre-implementation phase are:

– Refine concept design layout
– Options analysis for Burns Street / Kings Street and Burns Street / SH87 intersections
– Preliminary design layout development, considering:
    - Architecture of waiting shelter(s), cyclist facilities, and amenity facilities
    - Roading geometrics of the new Burns Street / King Street intersection
    - Pavement designs of the park and ride site and new Burns Street / King Street intersection
    - Pedestrian and cycling access facilities
    - Stream crossing structure (with provision of utility ducts across stream)
    - Earthworks design
    - Utilities services
    - Street lighting
    - Pavement markings and delineations, and
    - Landscaping and signage.

Dunedin City Council will procure an independent 50% design road safety audit (RSA).

Detailed design

The detailed design activities to be completed for the pre-implementation phase are:

– Complete and submit ORC consent application (s)
– Complete and submit DCC consent applications(s), and
– Prepare the Works Contract documentation.

Dunedin City Council will procure an independent 100% design road safety audit (RSA).

Tender documentation

To assist DCC in procuring a contractor to undertake the implementation phase of the project, it is envisaged that for the pre-implementation phase requirements / documentation will include:

– Tender drawings (100% detailed design completion)
– Technical Specifications
– Schedule of Quantities, and
– Basis of Payment.

7.1.2 Implementation phase

The implementation phase will proceed upon the awarding of the works contract and issuance of the possession of the site to the works contractor. It is recommended the implementation phase will also require consultancy services to monitor and supervise the construction works.

A conventional single works contract with the main contractor likely overseeing a multitude of sub-contractors is preferred. The works may require a multi-disciplinary composition of sub-contractors (e.g. bus stop shelters, CCTV) which supports the growth of smaller entities but does require careful planning and management of the main contractor. The envisaged work packages are shown in Figure 68.

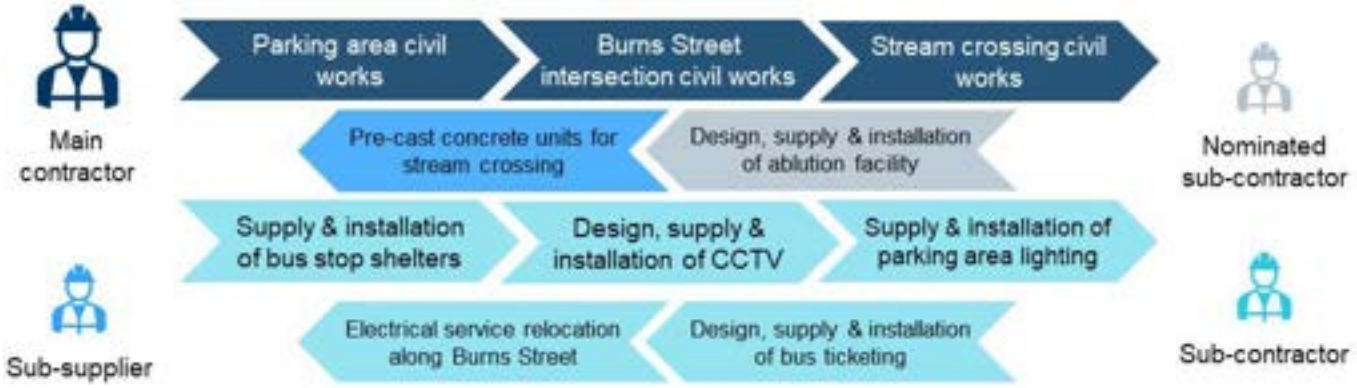


Figure 68 Implementation phase activities (GHD 2022)

The extent of the site to be developed is yet to be determined, based on the ridership uptake. The opportunity exists to develop the site in stages as the ridership increases, for example:

– Stage 1: Construct Burns Street Intersection, stream crossing and bus drop off / pick up area with asphalt paving. Parking area could remain as gravel.
– Stage 2: Construct bus terminal facilities. Improvements to Glasgow Street / Clocktower stops.
– Stage 3 onwards: add surfacing (seal) to the parking area.

These stages can be workshopped further during the design stage as the staging extents are likely to be influenced by other factors such as capex budgets etc.

7.2 Procurement strategy

7.2.1 Commercial analysis

The Mosgiel Park and Ride project works are considered to be commercially viable and achievable as outlined below.

The delivery of a low risk civil infrastructure project of this magnitude is not unique to the local or regional infrastructure and construction industry. Therefore, the largely routine and simple characteristics of this project are not expected to present any significant new or bespoke commercial risks to the partners involved.

In the current market it is expected multiple contractors will be interested in contracts of this nature. Key factors in the construction scope that may impact a contractor's ability to deliver the work are:

– Working close to, or within, the KiwiRail corridor and near an active train line and requiring the necessary authorisations to work within the rail corridor, and
– Undertaking earthworks on contaminated land.

There are some structures included in the preferred option project design, but nothing considered overly complex that would require resource from outside of the region to deliver.

It is envisaged that the some of the works may be carried out by DCC preferred suppliers to confirm that the network interface is maintained for maintenance purposes

7.2.2 Procurement approach

Dunedin City Council will be responsible for the procurement of services to deliver the preferred option identified in this SSBC and will follow their Procurement and Contract Management Policy (revised June 2020)[158]. This Policy is reviewed and audited regularly to confirm good practice for spending public money and consistency with statutory obligations. Therefore, partners can have confidence in DCC procurement methods and their ability to source suitable service providers that produce the desired outcomes.

Note, the Waka Kotahi endorsement of the Procurement and Contract Management Policy expires in February 2023. The procurement approach for this SSBC has been written to align with the current endorsed policy. DCC have submitted a revised policy to Waka Kotahi for endorsement.

Professional services will be procured through the DCC Long Term Engineering Services (LTES) Panel. The Council will oversee the performance and delivery of these elements using internal and/or external resources.

- Detailed design work has been sole sourced to GHD. Dunedin City Council made this decision in December 2022. It was primarily based on the relatively small scale and complexity of the project and maintaining continuity through the design phase (from the SSBC which has been undertaken by GHD including conceptual design)
- Independent peer review services will also be procured through LTES as required, and likely as direct appoint given the low value, and
- An external Engineer to the Contract (EtC) will be appointed by DCC through the LTES panel.

It is anticipated that procurement of construction services for the implementation phase will commence in the latter half of 2023 and will follow a traditional approach where the entire project will be procured and delivered as a single package of work. The project does not have the scale or complexity that would require a more comprehensive procurement approach.

It is likely that the evaluation method will be Price Quality to confirm that a balanced outcome is achieved through tendering. In line with S6.2 Sustainable Procurement of the DCC Procurement and Contract Management Policy, additional weighted attributes will likely include:[159]

- *Think Local*
- *Think Environmental, and*
- *Think Sustainable.*

Due to the scale of the project, procurement for the implementation phase will go to the open market for tender through the Government Electronic Tenders Service (GETS) in accordance with the DCC Procurement and Contract Management Policy. This Policy requires that all procurement of works, goods or services part-funded by Waka Kotahi with a cumulative value over $200,000 will be subject to an open and competitive procurement process and Tender Board approval.[160]

7.2.3 Risk allocation and transfer

Risk will be allocated in accordance with a traditional client/consultant/contractor model and will be transferred in accordance with relevant standard conditions of contract (CCCS and NZ3910:2013). However, the end-to-end responsibility for timing, cost and quality risk will remain with DCC as the project owner.

Risk Management is further discussed in the Management and Financial Cases.

[158] Dunedin City Council, 2020. *Procurement and Contract Management Policy.* Retrieved 30 November 2022 from **Procurement and Contract Management Policy - Dunedin City Council**
[159] Dunedin City Council, 2020. *Procurement and Contract Management Policy.* Pp 5. Retrieved 30 November 2022 from **Procurement and Contract Management Policy - Dunedin City Council**
[160] Dunedin City Council, 2020. *Procurement and Contract Management Policy.* Pp 7. Retrieved 30 November 2022 from **Procurement and Contract Management Policy - Dunedin City Council**

7.2.4 Payment allocations (mechanisms)

The basis of payment shall be in accordance with the DCC standard basis of payment. It is unlikely for this project that contractual incentives will be used to encourage exceptional outcomes such as completing construction in an unusually short timeframe. The alternative is a payment for late delivery (liquidated damages). These are generally only considered for large scale construction projects and therefore may be unlikely to be necessary for this project. Should the project be fast-tracked, then the potential for bonus payments and liquidated damages for non-delivery could be considered in the pre-implementation stage of the project.

7.2.5 Contractual and other issues

The contracts for pre-implementation and implementation shall be managed in accordance with S6.6 Contract Management of the DCC Procurement and Contract Management Policy. The DCC project manager will be responsible for administering the contract and being the key point of contact for the supplier. Any significant contractual issues will be elevated through the governance structure (refer to Management Case). Supplier performance against the obligations of the contract should be regularly assessed by the project manager following a standardised procedure.

7.3 Consenting strategy

An initial constraints analysis has been undertaken to identify any significant risks associated with consenting:

- The site is zoned industrial by the district plan (2GP)
- Part of the site is within the Wāhi Tupuna Mapped Area - Kokika o Te Matamata (area surrounding Mosgiel)
- The site is within Flood Hazard Area 20
- The site is within Designation D419 KiwiRail Holdings Limited
- There are no designated or protected trees within the identified site area, and
- Owhiro Stream has Schedule 1D Kāi Tahu values.

In recognition of the second bullet point (location being within the Wāhi Tupuna Mapped Area), ongoing detailed design discussions with Aukaha will continue to create opportunities to integrate mana whenua values into design aspects of the park and ride facility. Note, Aukaha have confirmed via an initial desktop that there are no concerns with the proposed location.[161]

In the early stages of detailed design, a consent scoping document will be prepared that sets out the resource consenting requirements based on the preliminary design. This will include a review of the proposed design, relevant district and regional plans, national environmental standards and policy statements. It will also set out any additional technical inputs that are required to support the consenting process.

The Assessment of Environmental Effects would need to cover:[162]

From a contaminated land perspective:

- Effects on Human Health
- Effects on Groundwater
- Effects on Surface Water
- Effects on Air Quality, and
- Effects on Cultural Values.

From an Instream works/place structures/disturb the bed perspective:

- Effects on the Hydraulic Capacity and Flow Characteristics of the Stream
- Effects on Aquatic Ecosystems
- Effects on River Values
- Effects on Natural Character, and
- Effects on Heritage and Cultural Values.

[161] Timms-Dean, K., email to [redacted] October 18, 2022.
[162] Christmas-Oliver, R., email to Steenkamp, R., August 22, 2022

It is expected that a conventional consenting process will be followed. Key consents and approvals required are:

	ORC resource consent for the initial foundation investigations as well as a resource consent to erect a structure over Owhiro Stream and resulting disturbance of river and discharge of contaminants to water (instream works). ***Note: Dunedin City Council have a permitted activity rule for building a single-span bridge, however the proposed stream crossing does not fulfil the permitted activity criteria due to being within 250 m of another bridge, therefore resource consent may be required.***[163]
	DCC land use consent to disturb a HAIL[164] site. If the land is confirmed as contaminated (via a detailed site investigation) then ORC consent to disturb contaminated land will also be required.
	DCC land use consent for earthworks outside of the road reserve.
	DCC building consent for structure over Owhiro Stream.
	ORC stormwater discharge consent.
	KiwiRail License to occupy KiwiRail corridor.
	Heritage New Zealand Pouhere Taonga Authority (to be confirmed during detailed design stage).

Further public engagement and public participation in the consenting process will assist DCC in determining how any adverse environmental effects could be mitigated or managed.

[163] Kennedy-Perkins, B., email to [redacted] July 20, 2022.
[164] HAIL = Hazardous Activities and Industries List

Financial Case

Chapter Eight

8. Financial Case

The Financial Case demonstrates the affordability of the preferred option. This includes:

- Project delivery costs forecast
- Maintenance and operations costs
- Funding sources, and
- Financial risk.

8.1 Project delivery costs forecast

A cost estimate for the preferred option was prepared by a third party QS based on the preliminary design using a mix of first principles and rates used on similar projects. A breakdown of the estimated costs for the Mosgiel Station site is provided in Table 21 showing the project base, expected (P50), and 95th percentile (P95) estimates. This includes design and construction, but excludes property related costs and operation costs (refer to section 8.2). The cost estimate is provided in full detail in Appendix H.

The costs for upgrading Glasgow Street Pocket Park are not included in this estimate. The estimate for this component of work is $30,000 based on rates used on minor bus stop improvement projects in Dunedin and confirmed with local suppliers by DCC.

Construction costs are expected to be incurred in the 2023/24 financial year.

Table 21 Mosgiel Park and Ride indicative business case estimate

Description	Base estimate	P50 estimate	P95 estimate
Pre-implementation phase - *Consultancy and DCC fees*	$1,226,710	$368,013	$318,945
Implementation fees - *Consultancy and DCC fees*	$754,898	$226,470	$196,274
Physical works	$9,436,231	$2,896,397	$2,466,526
Project base estimate	**$11,417,839**		
Contingency		$3,490,880	
Project expected estimate (P50)		**$14,908,719**	
Funding risk contingency			$2,981,744
95th percentile project estimate (P95)			**$17,890,463**

Contingency

A 30 percent contingency was applied by Alta to the base estimate to derive the P50 estimate. To reflect the unconfirmed ground conditions, the contingency applied to the Earthworks component was increased to 40 percent. A further 20 percent contingency was added to the P50 estimate to determine the P95 estimate.

8.1.1 Affordability

The affordability of the programme will be reviewed and refined through the pre-implementation phase.

- There will be opportunities to optimise costs of the programme through revising designs
- The contingency of between 30 and 40 percent applied across the estimate physical works types can be investigated further and varied as appropriate by cost type
- Assumptions made about the design, including drainage, pavement and surfacing, and landscaping & urban design will be refined during detailed design and value engineered as appropriate, and
- There is also potential to stage the implementation of the Park and Ride site, rather than a single investment and implementation approach if funding is constrained. There are various options to provide a similar sized facility with part of the car parking at a lower level of service, recognising that uptake in the early years is expected to be less than the car parking capacity.

8.2 Maintenance and operational costs

8.2.1 Maintenance costs

The preferred option will result in maintenance and operational activities, and respective annual maintenance costs for the site and facilities. It has been assumed that Dunedin City Council will be responsible for these costs as part of the lease agreement with KiwiRail and are expected to include:

Car park surface and footpaths: will require maintenance. Cost and frequency will be determined by the surface chosen (e.g. gravel, chipseal, or asphalt) which will be confirmed during detailed design.

Line marking: will require repainting to confirm it remains visible to users. The frequency will depend on usage, weather and wear from vehicle tracking.

Structure over stream: will require maintenance as per the Transit NZ Bridge Inspection and Maintenance Manual (2001) at a minimum.

Water supply and wastewater assets: will incur maintenance costs associated with supply and treatment infrastructure.

Bus stop structures: less frequent maintenance compared to other items, however, costs may be incurred due to weather and vandalism events.

Stormwater assets / drainage: will require clearing of debris and maintenance to confirm water drains suitably and is treated as intended.

Signage: will require cleaning to confirm visibility for users, and replacement if damaged.

Public toilet (ablution facilities): will require regular cleaning and servicing.

Lighting: will require maintenance as per AS/NZS 1158 Lighting Standards at a minimum.

Rubbish collection: if bins are provided (to be determined in detailed design), the site will need to be added to the Council's Waste Management.

Landscaping: will require vegetation maintenance including trimming and replanting as required.

The economic analysis has assumed annual operation and maintenance costs of the Park and Ride site to be 0.5 percent of the total P50 capital cost.

8.2.2 Operational costs

The anticipated annual operational costs associated with the Park and Ride are shown in Table 22.

Table 22 Mosgiel Park and Ride indicative operational costs

Item	Description	Cost estimate
Lease agreement	The preferred option is located on a KiwiRail yard and will incur an annual fee.	**$129,250**[165]
Travel demand management (TDM)	Supporting elements (e.g. promotion / marketing, ride share schemes, rewards) to attract users to the Park and Ride and incentivise mode shift.	**$15,000** (year one) **$5,000** (years two to four)
Additional express services*	Additional services above the services planned by ORC to increase level of service, focused around University of Otago and hospital shift patterns.	**$265,000**[166]

*Note: in addition to the Park and Ride, DCC intend to increase the frequency of the express service above that proposed by ORC. The associated cost has been included in the economic analysis but the service requirements (e.g. timetabling) have not been determined and are outside of the scope of this SSBC.

8.2.3 Project revenues

There are revenues generated from the increased patronage of the bus services, this increased revenue will be collected by ORC and will be used to offset costs of providing public transport across the Otago region.

There is potential for the site to generate revenue by allowing space within the site for potential retail (i.e. coffee shop) opportunities, however this would be subject to agreement with KiwiRail. This has not been included in the financial assessment as any revenue is considered likely to be of trivial amount.

The site could also generate revenue for DCC through requiring people to pay to park at the site. This was discounted during the business case as charging would deter people from using the site as a Park and Ride. Charging could be considered in the long term if required to manage demand. This would require changes to the parking charges in Dunedin CBD to ensure economic advantage to using the Park and Ride compared to parking in the central city.

8.3 Funding sources

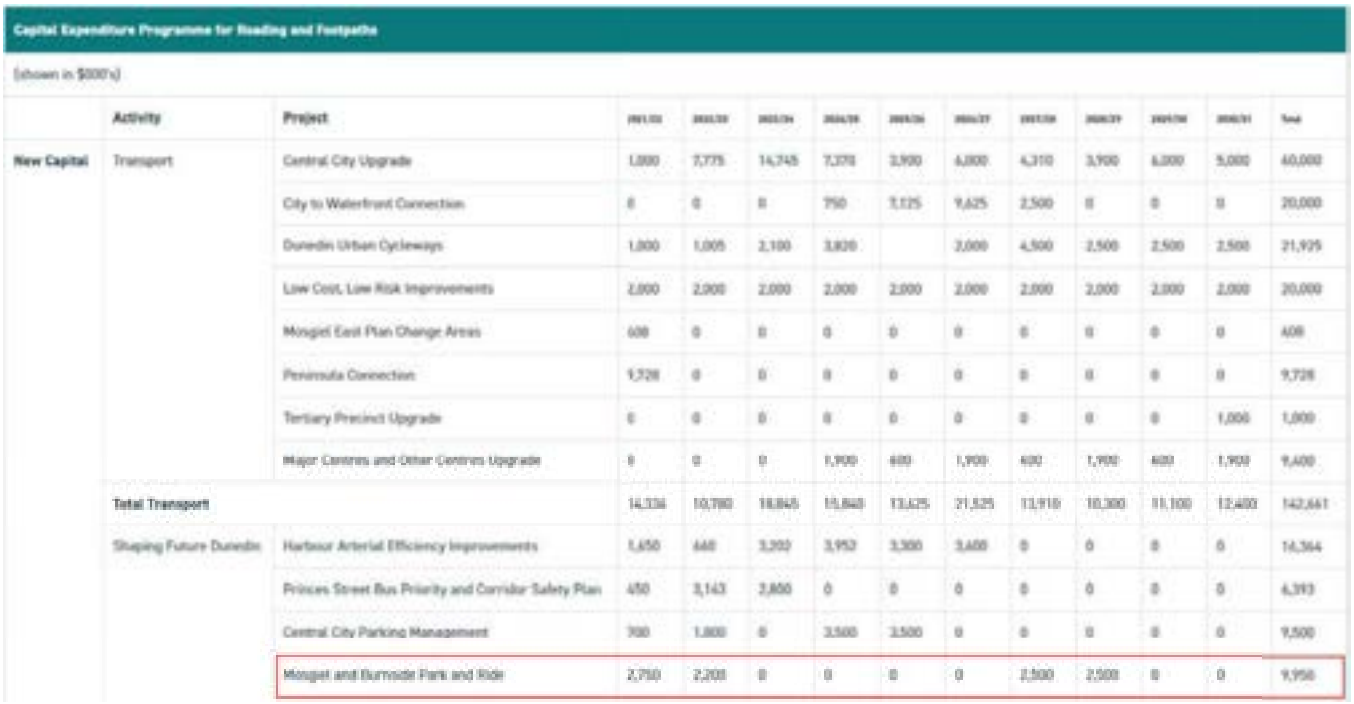
Funding of the preferred option is expected to be shared between Dunedin City Council and Waka Kotahi with a Funding Assistance Rate (FAR) of 51 percent.

Local share funding has been allocated to the programme in Dunedin City Council's 10 year plan 2021-2031 *Tō tātou eke whakamuri | the future of us*. As shown in Figure 69, $9.95M has been allocated for the programme, with $4.95M assigned to the first two years. The 2022/23 Annual Plan Update is shown in Figure 70. This increased the funding allocation for the first three years to $5.45M.

The project is included in the Waka Kotahi National Land Transport Programme 2021-24 as shown in Figure 71. The funding priority is 'Probable' - ***New activities that are expected to proceed during this NLTP period, subject to a successful business case and funding being available when the application is received.***

The current project estimate exceeds the available funding. Through the design development process DCC will investigate options to deliver a park and ride facility that meets demand (and car parking requirements) for the early years which is estimated to be approximately 100 car bays at the park and ride. This could be achieved through a mix of formal (higher level of service) car parking and informal car parking within the site (approximate 200 car park) capacity. It is anticipated that some elements will not be constructed in the short term in order to achieve a balance between providing a high quality facility to entice mode shift, and remaining within funding constraints.

[165] As per email Subject: Mosgiel Park N Ride - Rental Estimate received Friday, 16 December 2022 10:52 am. Note 30% discounted leasing scenario assumed as per email.
[166] Rounded to three significant figures, based on ORC estimates



Capital Expenditure Programme for Roading and Footpaths

(shown in $000's)

	Activity	Project											
New Capital	Transport	Central City Upgrade	1,000	7,775	14,745	7,370	3,900	6,800	4,310	3,900	6,000	5,000	60,000
		City to Waterfront Connection	0	0	0	750	7,125	9,625	2,500	0	0	0	20,000
		Dunedin Urban Cycleways	1,000	1,005	2,100	3,820		2,000	4,500	2,500	2,500	2,500	21,925
		Low Cost, Low Risk Improvements	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	20,000
		Mosgiel East Plan Change Areas	608	0	0	0	0	0	0	0	0	0	608
		Peninsula Connection	9,728	0	0	0	0	0	0	0	0	0	9,728
		Tertiary Precinct Upgrade	0	0	0	0	0	0	0	0	0	1,000	1,000
		Major Centres and Other Centres Upgrade	0	0	0	1,900	600	1,900	600	1,900	600	1,900	9,400
	Total Transport		14,336	10,780	18,845	15,840	13,625	21,325	13,910	10,300	11,100	12,400	142,661
	Shaping Future Dunedin	Harbour Arterial Efficiency Improvements	1,650	660	3,202	3,952	3,300	3,400	0	0	0	0	14,364
		Princes Street Bus Priority and Corridor Safety Plan	450	3,143	2,800	0	0	0	0	0	0	0	6,393
		Central City Parking Management	700	1,800	0	3,500	3,500	0	0	0	0	0	9,500
		Mosgiel and Burnside Park and Ride	2,750	2,200	0	0	0	0	2,500	2,500	0	0	9,950

Figure 69 Dunedin City Council 10 year plan 2021-2031 extract[167]

Activity Group	2021/22			2022/23			2023/24			Three Year Total		
	Forecast	Budget 10 Yr Plan	Increase/ (Decrease)	Annual Plan 2022/23	Budget 10 Yr Plan	Increase/ (Decrease)	Forecast	Budget 10 Yr Plan	Increase/ (Decrease)	Forecast	Budget 10 Yr Plan	Increase/ (Decrease)
New Capital												
TRANSPORT												
Central City Upgrade	4,239	1,000	3,239	9,849	7,775	2,094	12,421	14,745	(2,324)	26,529	23,520	3,009
Dunedin Urban Cycleways	1,935	1,000	935	4,200	1,005	3,195	10,588	2,100	8,488	16,723	4,105	12,618
Mosgiel East Plan Change Areas	608	608	-	-	-	-	-	-	-	608	608	-
Peninsula Connection	4,679	9,728	(5,049)	5,049	-	5,049	-	-	-	9,728	9,728	-
Low Cost, Low Risk Improvements	2,000	2,000	-	2,000	2,000	-	2,000	2,000	-	6,000	6,000	-
Sub-Total	13,461	14,336	(875)	21,118	10,780	10,338	25,009	18,845	6,164	59,588	43,961	15,627
SHAPING FUTURE DUNEDIN												
Harbour Arterial Efficiency Improvements	1,650	1,650	-	660	660	-	3,202	3,202	-	5,512	5,512	-
Princes St Bus Priority & Corridor Safety Plan	-	450	(450)	2,143	3,143	(1,000)	4,250	2,800	1,450	6,393	6,393	-
Central City Parking Management	-	700	(700)	1,800	1,800	-	700	-	700	2,500	2,500	-
Mosgiel and Burnside Park and Ride	1,600	2,750	(1,150)	1,500	2,200	(700)	2,350	-	2,350	5,450	4,950	500

Figure 70 Dunedin City Council Annual Plan 2022/23 extract[168]

	Phase type	RP*	Profile	WC*	FAR*	Total phase cost ($000)	2021/22 NLTF ($000)	2022/23 NLTF ($000)	2023/24 NLTF ($000)	Funding priority	Funding source
SPDT - Park and Ride Facilities - Mosgiel and Burnside	Implementation	1	YYML	583	53	9,700.0	1,325.0	1,144.0	0.0	Probable	N
Subtotal for Otago - Dunedin City Council - Public transport infrastructure - Probable						*9,700.0*	*1,325.0*	*1,144.0*	*0.0*		

Figure 71 NLTP 2021-24 extract[169]

[167] Dunedin City Council, 2022. *10 year capital expenditure programme* **|** *Hōtaka whakapauka pūtea haupū rawa 10 tau*. Retrieved 3 February 2023 from **10 year capital expenditure programme | Hōtaka whakapauka pūtea haupū rawa 10 tau - Dunedin City Council**

[168] Dunedin City Council, 2022. *Annual Plan 2022/23.* Pp 44. Retrieved 29 November 2022 from **Annual-Plan-2022-23.pdf (dunedin.govt.nz)**

[169] Waka Kotahi NZ Transport Agency, 2022. *Regional and activity tables.* Retrieved 29 November 2022 from **Regional and activity tables | Waka Kotahi NZ Transport Agency (nzta.govt.nz)**

For clarity, the cost of the Do Minimum option (i.e. the provision of the Express Service with three inbound services in the morning peak and six outbound services in the evening peak) will be funded through a separate funding application led by Otago Regional Council.[170]

8.4 Financial risk

The known financial risks for the implementation of the Mosgiel Park and Ride are shown in Table 23.

Table 23 Mosgiel Park and Ride financial risks

Risk	Description	Mitigation
Risk that available funds in the NLTF are allocated to other projects within the 561 activity class (passenger facilities and infrastructure improvements – bus).	This project has a "N" funding source meaning it will compete with other projects nationally for funding.	Demonstrate a strong investment case with regular reviews by Waka Kotahi so there are no surprises.
Risk that the costs associated with the lease agreement and access rights are higher than anticipated and are unaffordable.	The preferred option is located on a KiwiRail yard and will require agreement with KiwiRail to use the site.	Lease agreement to be signed between DCC and KiwiRail prior to pre-implementation to reduce risk of sunk costs.
Risk of capital investment on a site not owned by DCC.	The future use of the site as a Park and Ride site is not confirmed as DCC do not have ownership of the site, resulting in sunk infrastructure costs on a site with unguaranteed future. Waka Kotahi have funding obligations when providing funding from the NLTF, this includes ensuring "*that the use of the facility for transport purposes will endure and that our right to compensation, should the purpose or ownership of the facility change, is protected*".[171]	Lease agreement to be signed between DCC and KiwiRail, anticipated to be similar to the lease agreement between DCC and KiwiRail for the St Andrews Street carpark. It has been indicated that a nine year lease term with a right to renew is likely. Detailed design to consider use of transportable vertical build elements, for example shelters and EV chargers that are able to be removed and reused elsewhere.
Risk of maintenance costs increasing over time.	It is assumed that maintenance of the site will be the responsibility of DCC. Maintenance costs are likely to increase with time as the asset ages, requiring greater investment to retain acceptable level of service.	Maintenance in Design review to be completed during detailed design stage to mitigate maintenance costs where possible. Potential to charge users to offset some of the maintenance costs, however this have been discounted in the short term by DCC.
Risk that the funding for the Express Service and the additional route 77 services for increased frequency is not obtained by ORC.	The success of the Park and Ride is linked to the public perception of public transport including: frequency, reliability, and journey time.	The service changes to be implemented by ORC as outlined in section 2.3.3 have confirmed funding under the ORC low cost low risk programme.[172]

[170] Phillips, J., email to [redacted] November 01, 2022
[171] Waka Kotahi NZ Transport Agency, 2023. *National Land Transport Fund investment claims and obligations policy*. Retrieved 30 January 2023 from **National Land Transport Fund investment claims and obligations policy | Waka Kotahi NZ Transport Agency (nzta.govt.nz)**
[172] Phillips, J., email to Hitchcock, S., February 09, 2023

Management Case

Chapter Nine

9. Management Case

The Management Case identifies the roles and responsibilities for the next phases of the project to successfully deliver the outcomes sought from investment. This includes:

– Project governance
– Project planning
– Project milestones
– Stakeholder engagement
– Risk mitigation, and
– Benefits realisation.

The Mosgiel Park and Ride project is considered achievable and can be successfully delivered by DCC. The management and delivery of intersection and roading improvement projects is not new for the Council. The recent upgrade of the St Andrew Street car park in Central Dunedin (also on KiwiRail land) is evidence of this.

9.1 Project governance

The Mosgiel Park and Ride project is part of the Shaping Future Dunedin Transport programme. The SFDT programme focuses on the opportunity presented by the New Dunedin Hospital to transform the transport network and the way people travel both now and into the future.

Oversight of this partnership is provided by the Connecting Dunedin Governance Group which acts to ensure well-aligned delivery of the Shaping Future Dunedin Transport programme. The programme governance and reporting structure is shown in Figure 72.

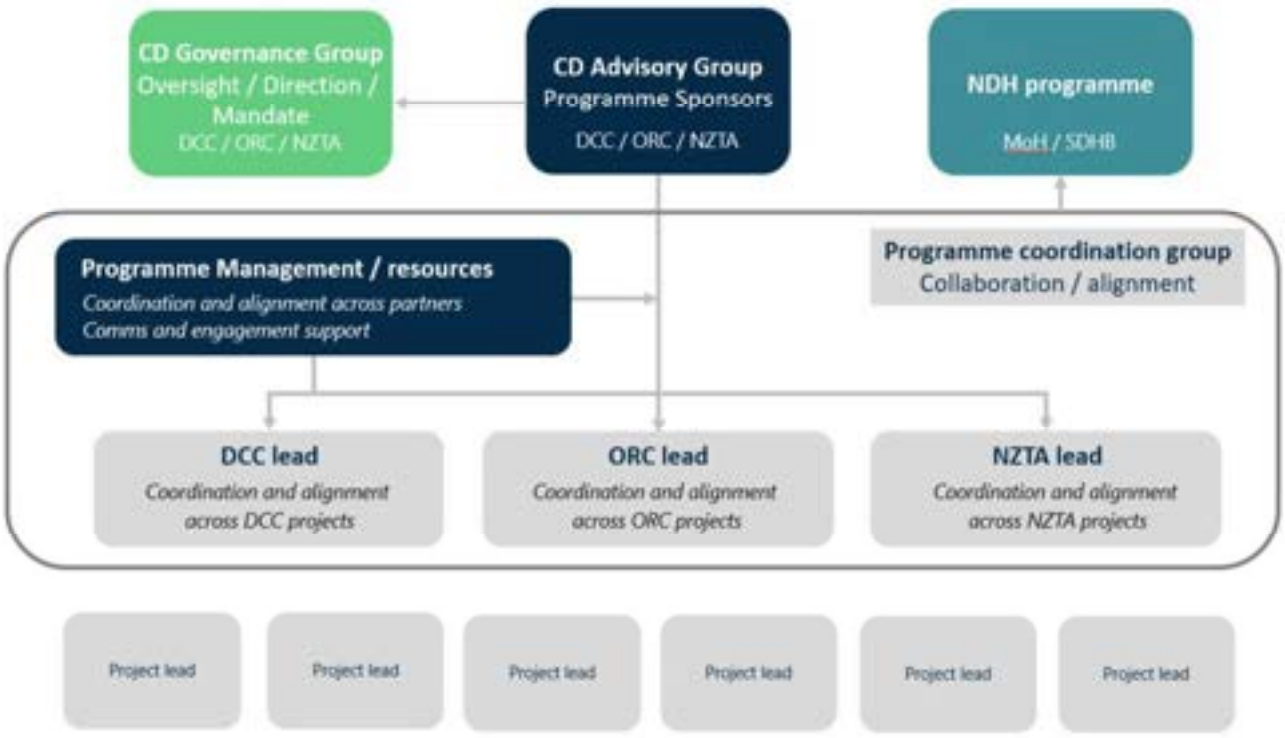


Figure 72 Connecting Dunedin programme governance and reporting [173]

[173] Stantec, 2021. *Shaping Future Dunedin Transport – Programme Business Case.* Figure 21-1. Retrieved 21 November 2022 from **https://nzta.govt.nz/assets/projects/shaping-future-dunedin-transport/SFDT-programme-business-case.pdf**

9.2 Project planning

As outlined in the Shaping Future Dunedin Transport PBC, Dunedin City Council are the project sponsor for the Mosgiel Park and Ride SSBC and will be responsible for:[174]

- Project leadership and governance
- Planning and design
- Consenting
- Land acquisition
- Pre-implementation
- Implementation
- Maintenance and operation, and
- Monitoring.

Dunedin City Council will retain responsibility for the operation of the local road network, Otago Regional Council will retain responsibility for the public transport network, KiwiRail for the rail corridor, and Waka Kotahi for the state highway network. Further considerations include:

- All works within the KiwiRail yard will be managed and delivered by DCC with KiwiRail approval
- The implementation and operation of the Express Service is the responsibility of Otago Regional Council. Dunedin City Council will facilitate collaboration and alignment between the two projects. Dunedin City Council will work in partnership with ORC to manage delivery of any additional Express Services and potential routes changes. The costs of these additional services are included in this business case funding application, and
- Should the traffic modelling undertaken in the detailed design stage identify any required works at the SH87 / Burns Street intersection, discussion will be undertaken with Waka Kotahi accordingly.

9.2.1 Project delivery team

The delivery of the Mosgiel Park and Ride works will be managed by DCC. The project delivery team roles are shown in Figure 73.

Figure 73 Mosgiel Park and Ride delivery team (GHD 2022)

9.2.2 Assurance and acceptance

Oversight of the project will be through the already established Council procedures for infrastructure projects. The Council has comprehensive financial and project management controls and systems in place that report to Executive Management and Council. The Council has an internal audit programme and is also checked annually by Audit New Zealand, and by regular Waka Kotahi procedural and technical audits.

Interim internal reviews of this business case have been undertaken by DCC and Waka Kotahi. Assurance deliverables for the next project stages are summarised in Table 24.

[174] Stantec, 2021. *Shaping Future Dunedin Transport – Programme Business Case.* Section 21.2. Retrieved 21 November 2022 from **https://nzta.govt.nz/assets/projects/shaping-future-dunedin-transport/SFDT-programme-business-case.pdf**.

Table 24 Mosgiel Park and Ride investment assurance deliverables

Deliverable	Description
Funding review	Funding approvals from DCC and Waka Kotahi
Road Safety Audit	Initial safety reviews were completed on the preferred option internally by GHD and DCC. Key items raised to be addressed in detailed design stage are safe pedestrian pathways, configuration of parking for different user types (e.g. mobility impaired, electric vehicles) and intersection layout. A minimum of three independent audits will be completed. 1. 50% detailed design during pre-implementation 2. 100% detailed design during pre-implementation 3. Post-construction audit to be completed following implementation. All audits will be completed in accordance with the Waka Kotahi Safe System audit procedures for transport projects (2022).
Detailed design	Internal DCC approval of design standards used
Construction	DCC procurement procedures to be followed with appropriate approvals
MSQA[175]	Independent external provider to provide assurance throughout construction (Engineer to Contract)

9.2.3 Lessons learned

Lessons learnt from the project will be fed back into the DCC project development and delivery lifecycle. It will be the responsibility of the DCC Project Manager to complete these reviews with the respective suppliers.

9.3 Project milestones

Key milestones for the Mosgiel Park and Ride are shown in Figure 74.

Figure 74 Mosgiel Park and Ride key milestones (GHD 2022)

[175] MSQA = Management, Surveillance and Quality Assurance

9.4 Engagement and communications plan

The intention to provide Park and Ride facilities in Mosgiel has been communicated by the Council, and others, through:

– Public consultation on preferred programme for the Shaping Future Dunedin Transport PBC
– Public consultation on the Dunedin City Council 2021-31 10 Year Plan
– Public consultation on the Otago Southland Regional Land Transport Plan 2021-31
– Public consultation on the Otago Regional Public Transport Plan 2021
– Public survey as part of this business case (Customer Insights Study), and
– Optioneering workshops as part of this business case (invited stakeholders).

The above will provide the basis for co-ordinating ongoing consultation and communications with potentially affected landowners and stakeholders. The consultation for the next stage should be developed in tandem with the project Property Officer to enable effective integration of any property matters within the RMA consenting.

The consenting approach will be confirmed in the next stage and is likely to include the following engagement and communications activities:

– Engagement with potentially affected parties
– Engagement with engaging with key stakeholders, and
– Communication with the wider Mosgiel community about proposed construction activities.

The key actions for the next phase of the project are:

– Following funding approval, update the DCC website with project information (refer to Figure 75)
– Inform key stakeholders and the public through media release
– Produce regular e-newsletters as project progresses
– Engage with potentially affected landowners, and
– Community opening day.

To date, Dunedin City Council have combined communications for their SFDT projects currently underway.[176] The intention is to continue this approach if the individual programmes align.

Figure 75 Dunedin City Council webpage for Mosgiel Park and Ride[177]

[176] Mosgiel Park and Ride, Princes Street Connections, Central City B ke Hubs, Albany Street Connection, Harbour Arterial project
[177] Dunedin City Council, 2022. *Mosgiel Park and Ride.* Retrieved 29 November 2022 from **Mosgiel Park and Ride - Dunedin City Council**

9.5 Risk assessment and mitigation

Key project risks identified for the Mosgiel Park and Ride project are outlined in Table 25 and have been discussed within the project team throughout the course of this SSBC. These risks are not considered significant and will be able to be reasonably managed within the project by the DCC Project Manager.

These risks will need to continue to be managed and assessed during the subsequent pre-implementation and implementation phases of this programme. The Project Manager will be responsible for maintaining a project risk register and report any changes in risk to the Project Control Group.

Risk will be managed using DCC Risk Management Policy and Guidelines.

Table 25 Mosgiel Park and Ride key project risks

Description	Likelihood	Consequence	Mitigation
Maintaining relationship with KiwiRail Risk that KiwiRail do not agree to the lease and development of their yard. Alternate site may then have to be explored which will have potential programme and cost risks, as well as being a less favoured site.	Possible	Moderate	Discussions with KiwiRail started in July 2022 to understand constraints on using the site. Maintain frequent and transparent communication.
Maintaining relationship with ORC Risk that current working relationship with ORC is not maintained, resulting in risk that Park and Ride project is not delivered in parallel with express service.	Unlikely	Moderate	Maintain frequent and transparent communication. DCC and ORC are both partners in the Connecting Dunedin programme which this project falls under. Oversight of this partnership is provided by the Connecting Dunedin Governance Group which acts to ensure well-aligned delivery of the Shaping Future Dunedin Transport programme.
Financial Funding not obtained from Waka Kotahi leading to project costing the Council more than budgeted.	Unlikely	Moderate	Early and regular conversations about project with Waka Kotahi. Project intentions signalled through SFDT PBC and included in 2021-24 NLTP.
Consenting The new stream crossing to access the site (a KiwiRail requirement) requires consent. If this consent is not granted, alternative access to the site will need to be determined which may have re-design implications or make the site unfeasible. Other anticipated consents requirements include land use, earthworks outside of road reserve, building consent, stormwater.	Unlikely	Significant	Discussions with ORC in July 2022, followed by a pre-application meeting in August 2022 to understand the likely consent requirements.
Political support Local elections in 2022, followed by the national election in 2023, may result in changed funding priorities and level of political support for the project.	Possible	Moderate	Demonstrate a strong case for investment, both economical and community support. Dunedin City Council to keep Councillors informed about the project and the expected benefits.
Ground conditions Unknown ground conditions on KiwiRail site could cause delay to programme / significant design changes / cost increases.	Likely	Significant	Site has been assumed HAIL for the purposes of preparing the programme and cost estimate. Detailed site investigation to be undertaken to assess the contaminated land status including identification of potential contaminants of concern. A 40% contingency was included in the cost estimate to allow for poor ground conditions.

Description	Likelihood	Consequence	Mitigation
Economic appraisal Value for money not obtained through either construction cost increases over the cost estimate, or reduced benefits realisation from completed project.	Possible	Moderate	The cost estimate was undertaken by a QS with contingencies applied to account for forecast cost escalation. Construction is anticipated to being within 12 months of the cost estimate. Benefits have been estimated in-line with the Waka Kotahi Monetised cost and benefit manual with a conversative approach to population increase in Mosgiel. Monitoring and reporting of costs will be undertaken throughout the project life cycle.

9.5.1 Change control

At the outset of each phase of the project, it is critical that the scope of work is clearly defined and agreed between the project partners and consultant/contractor. This will enable the clear identification of change during the project development, ideally before it has an impact.

The DCC Project Manager will be responsible for maintaining a change control register and managing change requests. Any change in the scope of the project is to be managed by the Project Manager on a case-by-case basis within an understanding of the tolerances of the project related to funding, scope, risk, quality, and benefits.

Changes that result in adjustment of cost, programme or quality that will be subject to approval by DCC, and reported through to Connecting Dunedin project governance if it is at a significant level. This level of significance will be determined by the governance group.

The change control register will sit alongside the risk register.

9.5.2 Cost management

A cost estimate has been developed by a QS based on the preliminary design. It is likely that costs will change as the project progresses through detailed design and external market factors change.

The Project Manager will be responsible for cost management and is to seek guidance from the Project Control Group for any significant decisions that may impact the project's ability to deliver to the desired project outcomes.

In the event of the design or implementation phase budget being forecast to exceed the approved budget, the Project Manager will initiate the variation to the budget process for consideration by the Project Sponsor. Upon Project Sponsor review and approval of this request, a Cost Scope Adjustment (CSA) form will be completed and provided to the Waka Kotahi Funding Team for approval to help offset the additional cost of the project.

The Project Manager will realistically reforecast the total expected cost of the project on a monthly basis within DCC project management systems so that any potential budget overruns are identified as early as possible and communicated to the Project Sponsor and the Funding Team. The Project Manager cannot commit additional budget until it is approved by the appropriate financial delegation.

9.6 Benefits realisation

Dunedin City Council will monitor benefit realisation and the effectiveness of the project against the Investment Objectives. The key performance indicators identified in section 2.4 of this SSBC will be used as the quantitative indicators to measure the benefits derived from implementation of the Mosgiel Park and Ride.

Monitoring on an annual basis for key indicators is considered appropriate as longer intervals may not identify issues to be remedied in a timely manner, whilst briefer intervals may be too short for travel behaviour change to manifest.

A proposed post-implementation monitoring plan shown in on the following pages.

	KPI	MEASURE	BASELINE	ESTIMATED OUTCOME (target)
INVESTMENT OBJECTIVE Increase public transport patronage through reducing the barriers to uptake and improving the attractiveness of travelling by bus	Mode share for journey to work / education trips from Mosgiel to Dunedin	Census journey to work and education data	2018 4% of journeys to work / education made by bus[178]	2033 9% of journeys to work / education made by bus[179]
	Interim measure: number of people travelling by bus from Mosgiel to Dunedin	*Bee Card data (number of people who tag on)*	*2022* *7,098 passengers tagged on to Route 77 in March 2022[180]*	*2025* *14,000 passengers tagged on to Route 77 and Express service in March 2025[179]*
	Average difference in travel time of public transport compared to private vehicle from Mosgiel to Dunedin CBD in morning peak *Measured from approximately 1 Quarry Road Mosgiel to Dunedin Bus Hub*	ORC timetabled travel times DCC travel time traffic count data recorded at common origin and destination points	2022 Route 77 travel time: 29 mins[181] Private vehicle travel time: 18.7 mins[182] Difference: 10.3 mins	2024 Express service travel time: 24 mins[183] Private vehicle travel time: 18.7 mins[184] Difference: 5.3 mins
	Frequency and reliability of public transport services from Mosgiel to Dunedin	Public bus timetable	2022 Route 77 - 26 weekday bus services at half hourly intervals[185]	2024 Route 77 – 34 weekday bus services at half hourly intervals (off-peak) and at 15 min intervals (peak) Express service – 3 morning peak services[183]

[178] Source: Stats NZ Commuter Waka Departures from Statistical areas: Bush Road, East Taieri, Mosgiel Central, Mosgiel East, Seddon Park and Wingatui. Retrieved 17 May 2022 from, **Bush Road & 5 other areas - Commuter - Waka**

[179] GHD, 2022. *Preferred Option – Demand Estimation Technical Memorandum*

[180] Source: ORC, 2022. Route 77 – Stop Data March 2022. Wilson, G., email to [redacted] May 04, 2022. *Passengers boarding Route 77 inbound between Mosgiel Terminus and 1 Quarry Road*.

	KPI	MEASURE	BASELINE	ESTIMATED OUTCOME (target)
INVESTMENT OBJECTIVE Decrease the number of single occupancy vehicles travelling from Mosgiel to Dunedin in the morning peak to reduce parking demand and traffic in the central city	Average number of vehicles driving to Dunedin from Mosgiel in the morning peak	Waka Kotahi TMS hourly count for Southern Mway Mosgiel On Ramp (Site ref: 01S50720)	2022 2,367 average number of vehicles per day recorded between 6 am and 9 am[186]	2024 2,420 average number of vehicles per day recorded between 6 am and 9 am[187]
	Five-year average annual number of death and serious injury crashes between Mosgiel and Dunedin CBD in the morning peak	Waka Kotahi Crash Analysis System (CAS) database *Reported injury crashes on SH87 (Factory Road to SH1) and SH1 (Mosgiel overbridge to Great King Street North)*	2017-2021 4.6 average annual injury crashes per year reported between 6 am and 9 am[188]	2024-2028 An estimated reduction of 0.05 average annual injury crashes per year due to mode shift and a reduc ion in private vehicles (and potential conflicts) generated from a Park and Ride facility
	Number of parking spaces occupied at Park and Ride at 9 am on a weekday#	DCC count *(method to be agreed)*	2022 N/A	2024 104[189]

Note: initially the KPI was '*Throughput – people per vehicle from Mosgiel to Dunedin in the morning peak* as reported in the Strategic Case and Economic Case. This has been changed to '*Number of parking spaces occupied at Park and Ride at 9 am on a weekday*' as this is considered to be more directly attributable to the Park and Ride investment.

[181] Source: ORC, 2022. Route 77 Mosgiel, Fairfield, Green Island – City. Scheduled travel time from 1 Quarry Road to Dunedin Bus Hub.
Note: ORC timetable for services departing 7 30-9 30 am weekdays
[182] Source: Travel Times – Mosgiel (Gordon/ Quarry Rd intersection) to Andersons Bay Road and Andersons Bay Road to Bus Hub 08112021 to 14112021 Data provided by DCC. Note: Average median vehicle travel times observed 08/11/21 – 14/11/21 for trips commencing at origin between 7 30 am and 9 30 am (travel via SH1)
[183] Phillips, J., email to [redacted] November 01, 2022.
[184] Note: Assume same average private vehicle travel time as 2022.
[185] ORC, 2022. Route 77 Mosgiel, Fairfield, Green Island – City. Bus Schedule Nov 2022. Retrieved 24 Nov 2022, from **https //www.orc.govt.nz/public-transport/dunedin-buses/check-your-timetables/77-mosgiel-fairfield-green-island-city** Note: Reduced timetable from 19 July 2022.
[186] Waka Kotahi, 2022. *NZTA Traffic Monitoring System Portal. Southern Mway Mosgiel On Ramp TMS Site Reference 01S50720.* Retrieved 8 November 2022, from **https //tms.nzta.govt.nz/**
[187] Note: Assumes a 2.16% per annum traffic growth rate from 2022 based on historical population growth for the area and an estimated reduction of 50 vehicles due to mode shift from private vehicle use to using the Park and Ride
[188] Waka Kotahi, 2022. *CAS Database.*
[189] GHD, 2022. *Preferred Option – Demand Estimation Technical Memorandum*

	KPI	MEASURE	BASELINE	ESTIMATED OUTCOME (target)
INVESTMENT OBJECTIVE Reduce the environmental and social impact of land transport whilst maintaining efficient movement of people and products	Carbon dioxide (CO_2) emissions from land transport from Mosgiel to Dunedin	Waka Kotahi VKT within road controlling authority areas	2021/22 425,011,071 total annual vehicle kilometres travelled on State Highways in Dunedin City (TA)[190]	2024 An estimated reduction of 350,000 total annual vehicle kilometres travelled on State Highways in Dunedin City due to mode shift from private vehicles to public transport[191]
	Mosgiel residents' responses around social determinants in Dunedin Quality of Life survey	Net agree score for 'public transport is easy to access' and 'public transport is safe from crime and harassment'	2022 58% net agree score that public transport is easy to access 42% net agree score that public transport is safe from crime and harassment[192]	2026 Five percent increase in both metrics
	Proportion of Mosgiel population living within 30 minutes travel threshold of key economic opportunities in the morning peak by public transport as the primary mode of travel	Stats NZ meshblock data	2022 *To be updated with data from next strategic transport model iteration*	2024 Proportion expected to increase due to Park and Ride extending reach of public transport, and reduced travel time of Express Service compared to existing route 77

[190] Waka Kotahi, 2022. *Data and tools, Vehicle use (VKT) 'Vehicle Kilometres Travelled within Road Controlling Authority areas.* Retrieved 30 November 2022, from **https //www.nzta.govt.nz/planning-and-investment/learning-and-resources/transport-data/data-and-tools/**

[191] Note: New AM Peak period user numbers sourced from *GHD, Nov 2022. Preferred Option – Demand Estimation Technical Memorandum.* A diversion rate of 50% is assumed from existing private vehicle users.

[192] Nielsen IQ, 2022. *Rangahau te Korou o te Ora / Quality of Life Survey 2022 Dunedin Report.* Retrieved 5 December 2022 from **Dunedin QoL report Oct 2022**

10. Next steps

This SSBC has documented the strategic case for change and the investment proposal to provide better travel choices between Mosgiel and Dunedin. It has identified a need for upgrades to public transport infrastructure provided by DCC in Mosgiel and assessed a range of options to identify a preferred option, as shown in Figure 76.

Following Waka Kotahi approval of this business case, the next step is to proceed to pre-implementation. This will see the preferred option developed to detailed design and ready for tender/construction, including site investigations, consent applications and property lease negotiations.

It is anticipated that implementation will take place during the 2023 / 24 construction season. The project is already included in the DCC LTP and the Waka Kotahi NLTP.

Figure 76 Next steps, Mosgiel Park and Ride (GHD 2022)