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Albany Street Cycleway

Single Stage Business Case Lite

01-Jun-2022

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Client: Dunedin City Council

Co No.: N/A

Prepared by

AECOM New Zealand Limited
Level 2, 88 Cashel Street, Christchurch 8024, P O Box 710, Christchurch MC, Christchurch 8140, New Zealand
T +64 3 966 6000 F +64 3 966 6001 www.aecom.com

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Prepared by Benjamin Zmijewski, Torin Smith

Reviewed by Marcus Williams

Revision History

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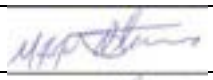
			Name/Position	Signature
0	29 April 2022	Draft for client review	Marcus Williams Technical Director	
1	01 June 2022	Final following client feedback	Marcus Williams Technical Director	

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Executive Summary

A Single Stage Business Case (SSBC) Lite has been developed for Dunedin City Council (DCC) and presents a case for investment in cycling infrastructure to support better access and mode shift within Dunedin.

The Albany Street Cycleway is a **critical link** in Dunedin's Strategic Cycle Network. It will form a key link between the Harbour Link shared path/cycleway, tertiary precinct, and the city centre. The project will support Dunedin in becoming a more sustainable, accessible, and liveable city.

Project problem statements were defined under the three core themes

1. **Corridor mismanagement** – the current design and operation of Albany Street does not support adjacent land use
2. **Poor accessibility and level of service** – there is a gap in the Dunedin cycle network between the central city, tertiary precinct, and harbour walk/cycleway
3. **Safety and amenity** – there are no cycle facilities on Albany Street with lots of on-street parking coupled with high pedestrian and cycle demand from surrounding land-use.

The Do Minimum and five different options were assessed using multi-criteria analysis in a workshop involving DCC and AECOM. The preferred option is a bi-directional separated cycleway on the northern side of Albany Street.

There is strong support from key stakeholders to implement this design. Input has been received from Otago Museum, University of Otago, and the Otago Polytechnic during targeted consultation. Mana whenua have been engaged and have indicated a preference to provide urban design input during the detailed design stage. Further targeted engagement will be carried out with other key stakeholders during the detailed design phase following completion of this business case.

Investment Prioritisation Method Assessment

The proposal achieves an investment **Priority Order of 2**. This is primarily due to:

- a **very high** alignment with the Government Policy Statement factor
- a **high degree of scheduling and criticality** is needed to realise outcomes sought by the wider Shaping Future Dunedin Transport Programme Business Case
- a **low efficiency rating** as the BCR falls between 1.0-2.9

Funding requirements

The preferred option has a total P50 cost estimate of **$1,471,00**. The total P95 cost estimate is **$1,841,000**. The preferred option has **$4,115,000** monetised benefits. The benefit cost ratio has been calculated as **2.2** with a sensitivity tested range between 1.5 and 2.7.

Capital funding for the project will be shared between Council (48%) and Waka Kotahi (52%).

The project has funding committed within the Dunedin City Council Long Term Plan 2021-2031. This project falls under the wider Shaping Future Dunedin Transport Programme Business Case.

Next steps

Once Waka Kotahi funding is confirmed, the Council will commence detailed design and procurement activities. Public consultation on the preferred option is planned for May/June 2022.

Construction is likely to begin during the 2022/2023 summer construction season if funding is approved in a timely manner.

1.0 Purpose

This Single Stage Business Case (SSBC) Lite has been prepared by AECOM for Dunedin City Council (DCC). The document identifies a recommended option to improve the safety and accessibility of cycling along Albany Street. The Albany Street walking and cycling connection will form a key link from the Harbour Walk/Cycleway to the city centre and tertiary precinct. The project will support mode shift to public transport, walking, and cycling.

Albany Street has been recognised as a key missing link within the central city and Tertiary Precinct cycle network. The current street layout does not provide a safe and attractive environment for active modes and is characterised by wide traffic lanes, no cycle provision, parallel parking on both sides of the road and high vehicle volumes and speeds. Consequently, mode shift is supressed in the area, with flow on impacts to active mode uptake on the wider Dunedin transport network.

This work is part of the larger Shaping Future Dunedin Transport Programme. The purpose of the Shaping Future Dunedin Transport programme is to:

- Support and manage the impacts of the development of the New Dunedin Hospital, a project that has been the catalyst for a review of how people move throughout the city
- Implement a sustainable, accessible transport system that achieves liveability outcomes for Dunedin

The individual projects of the Shaping Future Dunedin Transport programme are dependent on each other. All projects must be implemented to achieve the full range of desired outcomes.

The following SSBC lite presents a series of possible options for the cycleway, tests these options against investment criteria, and recommends a preferred option for detailed design and delivery.

2.0 Strategic case

2.1 Work completed to date

A considerable amount of work investigating and considering future aspirations for Albany Street and the wider Tertiary Precinct has been completed to date. Such work either directly relates to the implementation of a cycleway on Albany Street or will be required to integrate with this project. A summary of the most pertinent projects are outlined below.

Shaping Future Dunedin Transport Programme Business Case 2020

The Programme Business Case outlined the need for investment to:

- Support and manage the impacts of construction of the New Dunedin Hospital
- Implement a sustainable, accessible transport system that achieves liveability outcomes for the city

Within the Shaping Future Dunedin Transport Programme is the Central City Walking and Cycling Improvements project. The Albany Street cycleway is included within this Central City Walking and Cycling Improvements programme of works. This project is the approved Point of Entry for the Albany Street Cycleway Single Stage Business Case Lite. Refer to Appendix A for more details.

Tertiary Precinct Single Stage Business Case 2020

A draft SSBC was partially developed in 2020 up to the IBC stage but has not progressed further due to a funding reallocation. Throughout this process, strong partnerships were developed with the University, Polytechnic, student associations, Aukaha and Otago Regional Council (ORC). While no options were formalised, it was agreed that Albany Street would continue to serve a strong movement function and the implementation of a cycling link was supported by key stakeholders during targeted engagement.

Innovating Streets funding application 2020

A funding application was developed by DCC with the support of the University, Polytechnic and ORC and submitted to the Waka Kotahi innovating streets for People fund. The application sought co-funding

for a cycleway along Albany St, parts of Anzac Ave and Minerva St to connect the Harbour walking and cycleway with the SH1 separated cycle lanes. The funding application was declined on the basis that it should have been a permanent intervention. There was a clear case for intervention and a trial period would have been unnecessary.

Dunedin City Centre Access Mobility and Safety Strategic Case 2013

This strategic case focussed on how improvements in road safety and travel demand can enable a more liveable central city. It aimed to reduce severance created by SH1, and the rail line.

Tertiary Precinct Development Plan 2008

A plan for the future of the Tertiary Precinct was developed in partnership with DCC, the University of Otago and Otago Polytechnic. It outlined a vision to create a sustainable campus environment and a vibrant tertiary precinct. This included the key objective to create a walking and cycling oriented precinct. A Tertiary Sector Steering Group and Tertiary Precinct Planning Group were established as part of this work.

2.2 Strategic context

The Albany Street Cycleway project is well aligned with several strategic documents at a national, regional, and local level. A summary of alignment with key strategic documents is presented below in Table 1.

Table 1 Project alignment with key strategic documents

Strategy	Alignment	Explanation
Government Policy Statement on Land Transport 2021	Very Strong	Gives effect to the following strategic directions: • **Safety** – improved comfort and accessibility for cyclists on Albany Street. Reduced risk of Deaths and Serious Injuries through dedicated cycling infrastructure. The design is also expected to improve safety for people walking. There will be improved crossing points, reduced crossing distances, and traffic calming measures. • **Better Travel Options** – Making Albany Street safer for cyclists will address both perceived and actual safety risks, making cycling a more appealing option. Severance issues will be addressed by providing a continuous cycle connection from the harbour to the central city and surrounding cycle network. • **Climate Change** – the continued promotion of safe and efficient walking and cycling networks will encourage mode shift from vehicles to more sustainable forms of transport.
Waka Kotahi Road to Zero 2020-30	Very Strong	Aligns strongly with the 'infrastructure improvements and speed management' focus area. Providing dedicated cycling infrastructure will reduce the risk of future harm. Improving safety for people walking and cycling will also improve the safety for drivers.
Dunedin City Integrated Transport Strategy	Strong	Aligns strongly with the objective to transform Dunedin to create better accessibility to key destinations. Project will deliver on 'Safety', 'Travel Choices' and 'Centres' focus areas. The strategy includes a target of 40% active and public transport for journey to work trips.
DCC Central City Plan	Strong	Aligns with aims to improve liveability, placemaking and streetscape. This project will support a reduction in vehicle volumes.
DCC Long Term Plan 2021-31	Strong	The plan allocates funding to implement the Central City Walking and Cycling improvements project in the first five years with funding of $6.5m available. The Albany Street Cycleway is one of the first projects to be implemented.
DCC Second Generation Plan 2017	Very Strong	Alignment with Objective 2.2.2 Energy Resilience b) Reduced reliance on private motor cars for transport.

Strategy	Alignment	Explanation
Otago Regional Council Regional Land Transport Plan 2021-31	Strong	Strong alignment with the following objectives: • Objective 1 – Prioritise high risk areas to provide a safe transport system free of death and serious injury – Tertiary Precinct upgrades were specifically listed as giving effect to this objective • Objective 3 – Develop a range of travel choices that are used by communities and businesses to connect • Objective 4 – Facilitate understanding and support responses that help meet environmental and emissions targets The Shaping Future Dunedin Transport programme, along with the Albany St Cycleway project are included in the Regional Land Transport Plan with a regional priority of 10.
Otago Regional Public Transport Plan 2021-31	Strong	Aligns with objectives of the plan, including integration with the proposed bus super stop.

2.3 The case for change

2.3.1 Project scope

The Albany Street Cycleway is a **critical link** in the Dunedin cycle network. It provides a continuous connection between the Harbour Link shared path and the city centre. It joins major destinations such as the city centre, Museum, Library, University, and Forsyth Barr Stadium. There are no other east-west road corridors that contain dedicated and separated cycling infrastructure. Furthermore, there are no other planned works to provide for cyclists within the Shaping Future Dunedin Transport PBC programme of works.

The physical scope of the project extends approximately 1.2 km along Albany Street, Anzac Avenue, and Minerva Street as shown in Figure 1. The extent of works is from the George Street-Albany Street intersection to the beginning of the Harbour Link cycleway. Several intersecting side streets are also included in scope with layout and parking changes proposed on Leith Street and Clyde Street.

Figure 1: Albany Street cycleway project corridor

2.3.2 Problem or opportunity to be addressed

Albany Street does not provide a safe or attractive environment for people walking and cycling. It has been recognised by DCC as a key missing link within the central city and tertiary precinct cycle network. This results in compromised safety and amenity for active modes and suppressed mode shift across the transport network.

The main issues with the current layout on Albany Street are:

- Wide traffic lanes
- No cycle provisions
- Parallel parking on both sides of the road
- High vehicle volumes and speeds

Road layout causes severance for people accessing major trip generators such as the Otago University campus and the Otago University Students' Association Clubs and Societies building. Several bus routes run along Albany Street with high demand bus stops at these destinations, however the high-speed environment and lack of safe crossing points limits accessibility.

Crossing points do not align with desire lines and pedestrians compete with high volumes of traffic to cross the road. For example, high pedestrian flows are typical from the university campus to residential areas south of Albany Street. However, the current street environment limits accessibility for these desire lines.

The following problem statements have been developed for this project as shown in Figure 2. The problem statements build upon problem statements used for the Shaping Future Dunedin Transport and the Tertiary Precinct Upgrade SSBC. Key themes summarise each problem statement and will be used in later sections of this business case to demonstrate the alignment of problems with their corresponding benefits.

Additionally, this project presents the following opportunities:

- Improve crossing facilities and safety for pedestrians
- Unlock cycle network effects through connecting key routes and providing an east/west connection to the current disconnected cycle network.
- Improve public transport infrastructure and performance on Albany Street
- Increase place value on Albany Street by lowering vehicle speeds
- Reduce traffic volume by encouraging general traffic to use SH88 and Frederick Street
- Greater integration of the Tertiary Precinct with key University facilities on the southern side of Albany Street

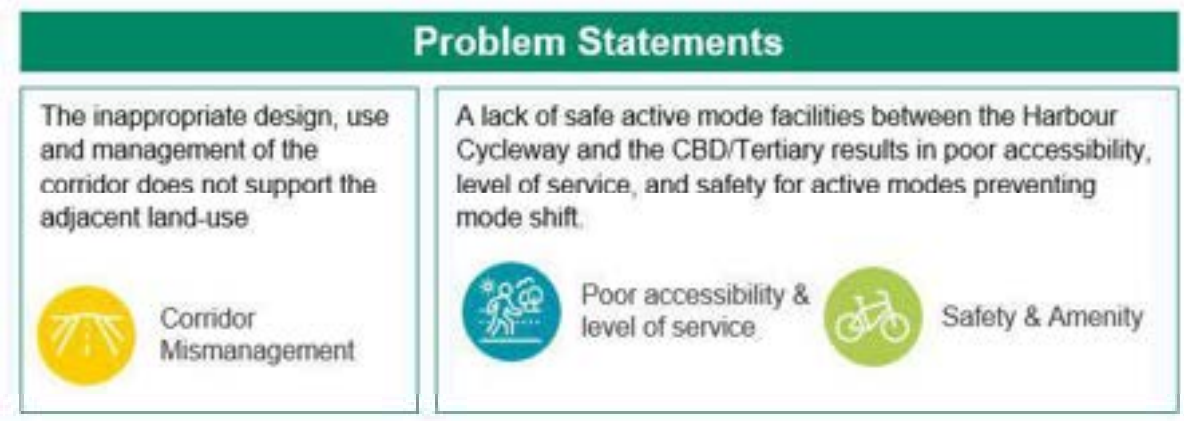


Figure 2: Albany Street cycleway problem statements

2.3.3 Scheduling and programming

This cycle link was identified within both the Tertiary Precinct Upgrade single stage business case and the Shaping Future Dunedin Transport programme business case. The Tertiary Precinct Upgrade Single Stage Business Case project area is shown in Figure 3.

The Albany Street transport corridor is a critical network link that aims to deliver improved safety outcomes and increase the share of active mode transport. Delivering this missing link in the wider Dunedin Cycle network is a priority for DCC.

This Single Stage Business Case Lite presents a case for investment to accelerate the delivery of a cycle facility on Albany Street. This project will be the first upgrade within the Tertiary Precinct area ahead of a suite of related transport and urban realm upgrades. This project will be permanent and offer long term improvements, complimented by future Tertiary Precinct Upgrade and Shaping Future Dunedin Transport projects.

Figure 3: Dunedin's tertiary precinct upgrade project area[1]

[1] https://www.dunedin.govt.nz/services/roads-and-footpaths/projects/tertiary-precinct-project

2.3.4 Evidence to demonstrate problems and need for investment

Table 2 and Table 4 highlight the evidence according to key themes of corridor mismanagement, poor accessibility and level of service and safety and amenity respectively.

Table 2: Corridor mismanagement - Evidence to demonstrate problems and need for investment

Corridor mismanagement	
Lack of infrastructure for walking and cycling	Wide traffic lanes, no cycle facilities, and ample on-street parking mean that there is little space for walking and cycling provision as shown in Figure 4.  **Figure 4: Standard view of Albany Street looking south from 111 Albany Street**
Competing user demands	Albany Street is heavily used by people walking. People use Albany Street to access major destinations such as the University of Otago. Current cycling demand is relatively low. Albany Street is well used by vehicles travelling east-west. Information about the user surveys conducted on Albany Street are shown in Table 3. **Table 3: Albany Street survey information and average volumes**

Data collection method and Location of count	Start and end date	Data collection duration	Average daily volume (7am-6pm)
MioVision Cameras – Peds Tertiary Precinct - Albany St (RP400)	17/03/2020 to 20/03/2020	Average traffic over 4 days (Tuesday - Thursday) between 7am - 6pm	6,359
MioVision Cameras – Cyclists Tertiary Precinct - Albany St (RP400)	17/03/2020 to 20/03/2020	Average traffic over 4 days (Tuesday - Thursday) between 7am - 6pm	251
Traffic Tube near 84 Albany St	19/09/2019 to 26/09/2019	Average daily traffic over 7 days (Mo - Su) 24h a day. Proportioned to match 7am-6pm time period.	7,958

High vehicle speeds	The current operational speed on Albany Street is 54 km/hr (85th percentile) in March 2021. The current posted speed limit is 50km. This is above safe system thresholds for an environment with many people walking and cycling and potential for right angle conflicts.
Street character	The current road layout allocates a large proportion of the space to vehicle through movements and parking.  **Figure 5: Current layout of Albany Street south of Clyde Street**

Table 4: Poor accessibility and level of service - Evidence to demonstrate problems and need for investment

Poor accessibility and level of service	
High trip generators There are multiple major trip generators located on either side of Albany Street as shown in Figure 6. This results in strong pedestrian crossing desire lines that are not currently catered for.	 **Figure 6: Major trip generators on either side of Albany Street**
Growth in cycle mode share	The implementation of a cycle facility along Albany Street is likely to lead to increased volumes of cyclists in the general area. This is evidenced through recent cycle projects in Dunedin which have seen an increase in cyclist numbers following infrastructure improvements. The southern end of Wharf Street connects to Portsmouth Drive, which had cycle facilities upgraded in 2015. The Council's fixed cycle counts on Portsmouth Drive

show an increase from 96,000 trips by cyclists in 2015 to 102,000 in 2016 and 109,000 in 2017.[2]

Figure 7 shows the local cycling network around Albany Street. The new connection will provide a dedicated cycle facility that connects the Dunedin city, the Tertiary precinct, SH1 northbound and southbound separated cycleways and the Harbour Link Cycleway.

The Shaping Future Dunedin Transport programme business case has identified a range of other active mode projects for prioritised investment. An image of planned investment via the Partner Preferred Programme is shown in Figure 8.

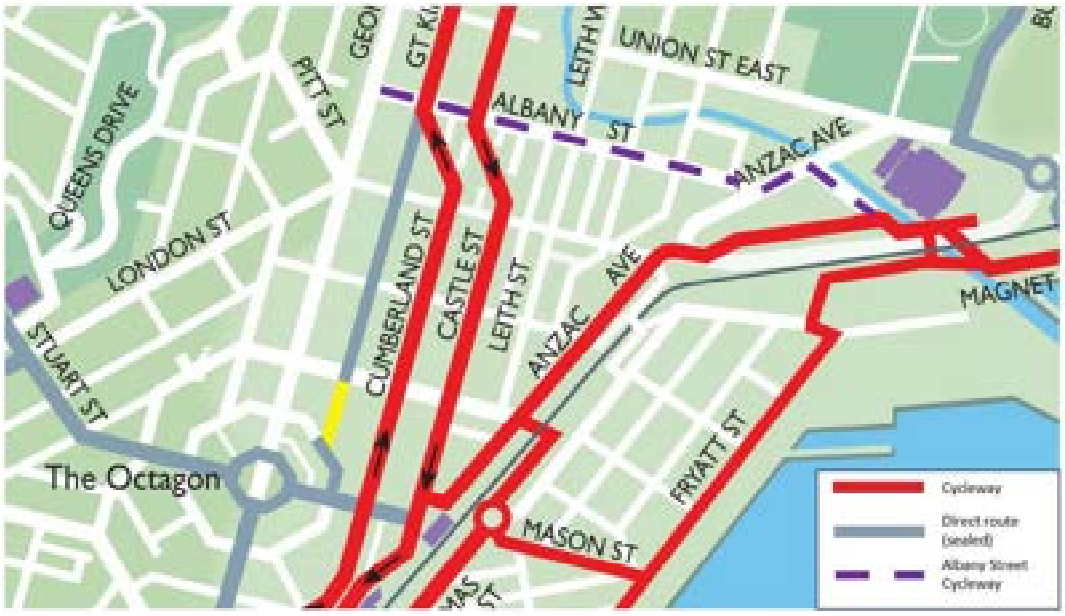
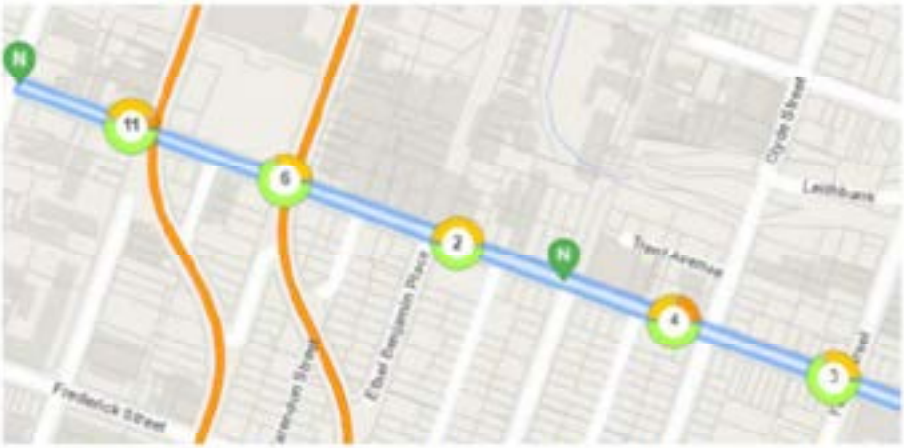


Figure 7: Dunedin cycle network highlighting Albany Street cycleway

Figure 8: Shaping Future Dunedin Transport PBC Partner Preferred Programme

[2] https://www.dunedin.govt.nz/__data/assets/pdf_file/0018/714312/Response-for-LGOIMA-for-cyclecounts-around-Dunedin.pdf

Table 5: Safety and amenity - Evidence to demonstrate problems and need for investment

Safety and amenity	
Road safety risk on Albany Street	There has been one serious incident involving a cyclist, and four minor incidents involving vulnerable users over the last five years. All recorded crashes on Albany Street are shown in Figure 9. Based on cycle only crash analysis, drivers reported not noticing cyclists travelling along Albany Street.  **Figure 9: Crash analysis system image of crashes on Albany Street from 2017-2021**
Minimal traffic calming measures	Safe hit bollards have been installed on all four corners of the Albany St/Clyde St intersection as shown in Figure 10. Current kerb alignments are inadequate for large vehicle movements  **Figure 10: Temporary roundabout at the Albany Street/Clyde Street intersection**

Reduced amenity	Street amenity is low along the majority of Albany Street as there few design features that contribute to the aesthetic, functional, or ecological value of the street. Figure 11 shows large trees on Albany Street which help to minimise the negative visual impact of vehicles. Such features also create side friction, which typically result in a calming effect on operational traffic speeds.  **Figure 11: Large trees outside the University provide amenity to the street**

2.3.5 Benefits delivered from addressing the problem or opportunity

Figure 12 shows the non-monetised benefits identified for Albany Street cycleway project. Figure 13 shows how the benefits identified link to Albany Street outcomes and the problem statements. Note, a formal Investment Logic Map (ILM) process was not carried out as part of this project, however problem statements were derived from Shaping Future Dunedin Transport and Tertiary Precinct business case ILMs with agreement from DCC and Waka Kotahi.

Figure 12: Benefits and measures to be targeted for the Albany Street cycleway project

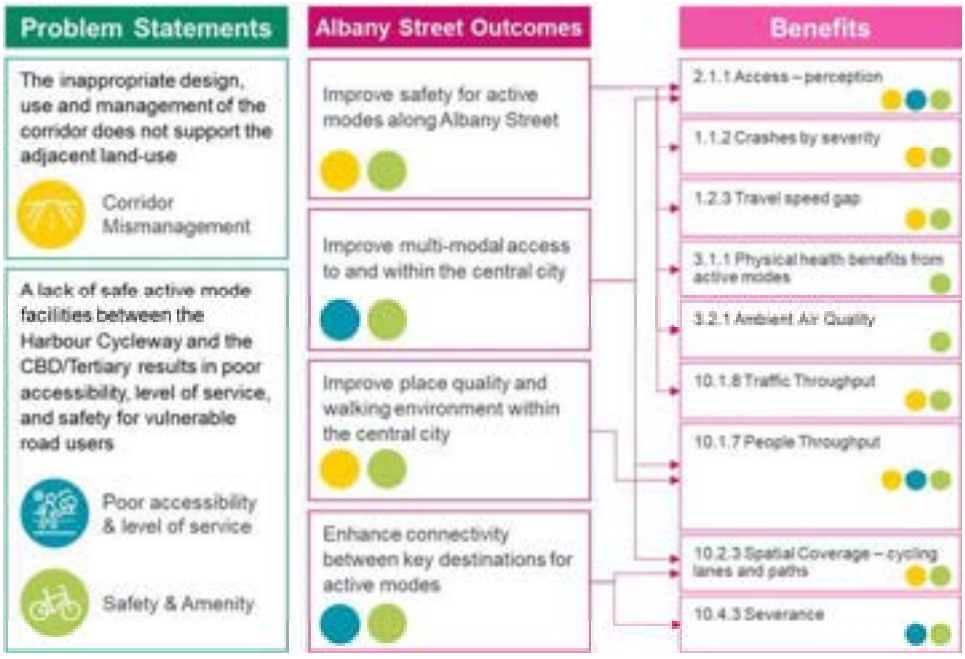


Figure 13: Mapping of problem statements, investment outcomes sought by the projects and the applicable benefits

2.4 Stakeholder engagement

Albany Street and the wider Tertiary Precinct have been the subject of extensive planning in the hope of creating a future vision for the area.

This work involved multiple elements of stakeholder engagement driven by the following groups and/or projects:

1. Tertiary Sector Steering and Planning Groups
2. Tertiary Precinct Upgrade Single Stage Business Case
3. Innovating Streets for People project

The Tertiary Precinct Upgrade Single Stage Business Case had a large amount of co-planning from its initiation prior to it being placed on hold. Partner organisations included:

- Dunedin City Council
- Otago Regional Council
- Aukaha
- Waka Kotahi NZ Transport Agency
- University of Otago
- Otago Polytechnic
- Student representative bodies – Otago University Students' Association, Otago Polytechnic Students' Association, Generation Zero New Zealand

All stakeholders, as well as the wider public were able to share their vision and ideas for the Tertiary Precinct. It was widely agreed that accessibility and safety for walking and cycling are major issues along Albany Street. There was also a strong desire for sustainability to be a driving principal for Tertiary Precinct development.

As this project progresses, DCC will continue to engage and provide information to partners and key stakeholders. Public consultation on the proposed design is scheduled to be undertaken by DCC in May and June following completion of the Single Stage Business Case lite and partners, key stakeholders, and Albany Street businesses will provide input into the preferred option. Outcomes from public consultation are not expected to fundamentally change the preferred option and will be captured and incorporated in the detailed design phase.

3.0 Economic case

3.1 Options assessment

Five options were explored, plus the Do Minimum, for the Albany Street cycleway project. The project has been evaluated in accordance with Waka Kotahi's monetised benefits and costs manual and the non-monetised benefits manual. Key design elements and a brief analysis are shown in Table 6.

A previous Innovating Streets for People application provided the base for options to be assessed within the SSBC Lite. The options were agreed during a scoping meeting with Waka Kotahi, DCC, and AECOM.

The Do-Minimum option is the existing street layout with the speed limit reduced to 30 km/h. DCC's interim Speed Management Plan will include all roads within the Tertiary Precinct area and is being progressed independently of this project.

The options were evaluated collaboratively with DCC using a multi-criteria analysis. The multi-criteria analysis is available in Appendix B.

Option 4 and Option 5 had the highest strategic alignment and are most likely to deliver the benefits and outcomes sought by the proposed investment.

An appraisal summary table has been completed for the preferred option, available in Appendix C. Reasons for omitting an appraisal summary table from all options assessed are outlined below.

- Many of the non-monetised benefits are covered within the multi-criteria analysis
- Differences between the options are relatively minor in terms of transport benefits and outcomes

Table 6 Option exploration summary for Albany Street Cycleway project

Option	Key design elements	Analysis	Cost
Do Minimum	Reduce speed limit to 30km/h	Speed reduction will align better with the activity environment and reduce the severity of any incidents. Limited improvement for cycling.	$
Option 1	Reduce speed limit to 30 km/h, provision of on street cycling using **'sharrow'** markings and traffic calming	Cycle sharrow markings help to raise the awareness of cyclists. Traffic calming treatments will also help to reinforce the reduced speed limit.	$
Option 2	Reduce speed limit to 30km/h, provide **on-street dedicated cycle lanes** on both sides of the road	2m of dedicated space allocated to cyclists will improve safety and provide a fast direct link to the central city.	$$
Option 3	Reduce speed limit to 30km/h, provision of **off-street shared path**	Off street so protected from vehicle conflict, but the large volumes of pedestrians at certain times of the day on Albany Street will create conflict between pedestrian and cyclists and slow cycle journey times. LOS for pedestrians and mobility or vision impaired will be reduced.	$$$
Option 4	Reduce speed limit to 30km/h, provision of a **bi-directional separated cycle path** on the northern side of Albany Street.	High degree of separation from vehicles. High perceived safety for interested but concerned cyclists. Good cycle connectivity and reduced number of conflict points such as driveways and intersections. Parking relocation required for the northern side of Albany Street.	$$
Option 5	Reduce speed limit to 30km/h **separated cycle lanes of both sides** of Albany Street.	High degree of separation from vehicles. High perceived safety. Good cycle connectivity. High cost due to kerb and median work. Some parking relocation required as well as additional maintenance costs due to small width of cycleway	$$$

3.2 Benefit-cost ratio calculations

The SP-11 Walking and Cycling Facilities methodology was used to derive the benefits and costs for all options. The activity satisfies the criteria for use, namely:

- The facility is a walking or cycling facility, with an undiscounted whole-of-life cost less than or equal to $15,000,000
- The procedures assume that the activity does not include signalised crossings over roads
- The procedures assume that funded projects will be completed in the first year and will be in service by the start of the year 2

Key assumptions made for the economic assessment of the Albany Street options are as follows:

- The base date for the evaluation is 01 July 2022
- The evaluation period is 40 years
- The discount rate is 4%
- Construction of the project is planned for the summer of 2022/2023

Summary results are shown in Table 7. All final numbers have been rounded up to the nearest thousand.

Table 7: Present value benefits and costs of Albany Street cycleway options

	Do-Minimum	Option 1	Option 2	Option 3	Option 4	Option 5
Benefits						
Present value Travel Time Cost Savings	$-	$-	$74,000	$78,000	$83,000	$83,000
Health and Environment Savings	$905,000	$905,000	$905,000	$905,000	$1,464,000	$1,464,000
Present value Crash Cost Savings	$447,000	$1,316,000	$1,733,000	$2,150,000	$2,568,000	$2,568,000
Present value **Total benefits**	$1,352,000	$2,221,000	$2,712,000	$3,133,000	$4,115,000	$4,115,000
Costs						
Present value P50 Capital & Maintenance Costs	$817,000	$901,000	$1,058,000	$1,917,000	$1,612,000	$2,112,000
BCR	1.7	2.5	2.6	1.6	2.6	1.9

3.3 Details of preferred option

Option 4, a separated bi-directional cycleway along the northern side of Albany Street, was selected as the preferred option. The option spans approximately 1.2km of road corridor, with varying levels of cycle infrastructure such as painted sharrow markings, separated facilities, and shared path treatments.

There was a **minor change in scope** during the business case process. The scope was varied to include a higher level of treatment at both ends of the cycleway as shown in Figure 14. On-road sharrow markings were deemed unacceptable for these two sections of road corridor for the following reasons:

- The cycleway must provide a similar form service along the entire extent of the cycleway. This will reduce rider confusion and make the journey as seamless as possible from start to end
- Increasing the level of service for the entire cycleway. This will encourage greater uptake and increase the level of useability for a larger spectrum of people such as school aged children.

The core part of the cycleway between SH1 southbound and Anzac Avenue, as well as the overall cross-section, remains the same as for Option 4. Table 9 outlines the scope of work to be progressed with this option. The preferred option economics have been calculated explicitly to capture the change in capital and operational costs. This has reduced the BCR of the preferred option to 2.2. Summary benefits and costs are shown in Table 8.

The effect of these changes on other optioneering documents, such as the multi-criteria analysis, is considered minor and has not been revised. The preferred option concept design is available in Appendix E.

Table 8: Present value benefits and costs of Albany Street cycleway preferred option

Benefits and Costs	Preferred option
Present value Travel Time Cost Savings	$83,000
Health and Environment Savings	$1,464,000
Present value Crash Cost Savings	$2,568,000
Present value **Total benefits**	**$4,115,000**
Present value - P50 Capital & Maintenance Costs	**$1,905,000**
BCR	**2.2**

Figure 14: Change in scope to Minerva Street and museum block sections

Table 9 Summary of the preferred option for the Albany Street cycleway project

Scope of the preferred option	**In scope** All infrastructure listed below is essential to achieve a safe, slow speed environment that encourages walking and cycling along Albany Street. **Intersection - George Street/Albany Street** • Cycle advanced stop boxes on all approaches • 30 km/h speed threshold markings **Midblock – between George Street and Great King Street (SH1 northbound)** • Cycle sharrow markings • Change in speed limit to 30km/h **Midblock – between Great King Street (SH1 northbound) and Cumberland Street (SH1 southbound)** • 1m cycleway concrete separator to accommodate bi-directional cycleway on the south side of Albany Street • Slight realignment of all traffic lanes • Consolidation of the straight and right turn traffic lanes for vehicles heading toward the city centre • Remove kerb buildout on the south-east corner of Albany St-Walsh St • Coloured surfacing of cycleway across Walsh St intersection • Removal of on-street parking and any associated infrastructure such as parking meters • Change in speed limit to 30km/h **Intersection – Cumberland Street/Gowland Street/Albany Street** • Realignment of the south-west kerb and traffic signal pole to facilitate bi-directional cycleway • Removal of central traffic island on Albany Street **Midblock – between Cumberland Street/Gowland Street and Anzac Avenue** • 1.5m cycleway concrete separator to accommodate bi-directional cycleway on the north side of Albany Street • Coloured surfacing of cycleway across side-street intersections and accessways • Relocation and/or replacement of trees that conflict with the cycleway alignment where possible • Removal of parking along the northern side of Albany Street • Two in-line bus stops with raised platform – access to university parking area to be maintained • Relocated mobility parks to appropriate locations • Change in speed limit to 30km/h **Intersection - Ethel Benjamin Place/Albany Street** • Raised intersection with kerb realignment works to slow vehicle speeds and provide a safer crossing environment for pedestrians • Relocation of two mobility parks to Ethel Benjamin Place • Intersection priority changed to stop control • Stormwater modifications as necessary to accommodate the change gradients **Intersection – Grange Street/Albany Street** • Consolidation of left and right turning traffic lanes to one exit lane • Kerb realignment works to facilitate Grange St exit to a single lane • Addition of parallel parking on Grange Street due to removal of right turn lane • Intersection priority changed to stop control

	Intersection – Leith Street/Albany Street • Kerb build out on south-east corner of intersection to facilitate Leith Street conversion to one-way northbound **Intersection – Clyde Street/Albany Street** • Raised intersection with kerb realignment works to slow vehicle speeds and provide a safer crossing environment for pedestrians • Kerb build out on south-west corner of intersection to facilitate Clyde Street conversion to one-way southbound • Intersection priority changed to stop control • Stormwater modifications as necessary to accommodate the change gradients **Intersection – Forth Street/Albany Street** • Raised intersection with kerb realignment works to slow vehicle speeds and provide a safer crossing environment for pedestrians • Stormwater modifications as necessary to accommodate the change gradients **Intersection – Regio Street/Albany Street** • Kerb realignment works to facilitate Regio Street conversion to one-way northbound **Intersection – Anzac Avenue/Albany Street** • Removal of central traffic island on approach to intersection • Kerb realignment works on the northern side of intersection to reduce crossing distances and reduce vehicle speeds **Midblock – Anzac Avenue** • Minor widening of existing northern footpath to create 3.6m wide shared path • Shared path markings **Intersection – Anzac Avenue/Minerva Street/Otago Polytech access** • Removal of off-street parking spaces near Otago polytech access • Kerb build outs to define vehicle entrance and help provide a safer crossing area for cyclists • Raised dual cycle priority zebra crossing on Anzac Avenue east of Minerva Street with kerb build outs to reduce crossing distance • Slight realignment of traffic lanes on Anzac Avenue • Stormwater modifications as necessary to accommodate the change gradients **Midblock – Minerva Street** • Minor widening of existing northern kerb to create 3.6m wide shared path • Shared path markings • Stormwater modifications as necessary to accommodate proposed kerb alignment **Leith Street** • Conversion to one-way northbound including traffic calming • Conversion of parallel parking on the eastern side of Leith Street to 60-degree angle parking • Kerb builds/raised platform at southern end of Leith Street **Clyde Street** • Conversion to one-way southbound including traffic calming • Conversion of parallel parking on the western side of Leith Street to 60-degree angle parking • Kerb builds/raised platform at southern end of Clyde Street

Riego Street

- Conversion to one-way northbound
- Conversion of parallel parking on the western side of Regio Street to 60-degree angle parking
- Change the angle parking on the eastern side of Regio Street to match the one-way northbound

Out of scope

DCC and ORC have proposed several changes to existing bus routes that use Albany Street and surrounding side streets. Existing bus routes are shown in Figure 15.

The changes include rerouting of existing routes to help support wider land use changes in the area. This generates the need for removal, relocation, and installation of bus stops and associated infrastructure. These changes are going out for public consultation at the same time as the Albany Street cycleway project with the concept designs also available in Appendix E.

Design, and funding for the following set of bus stop works will be completed under the Low-Cost Low-Risk programme and is outside the scope of this SSBC Lite. Construction of this work is likely to be completed at the same time and by the same contractor to minimise disruption to the public.

Bus stop changes in the surrounding area are shown in Figure 16 and include:

- Removal of northbound and southbound bus stops on Clyde Street including associated infrastructure
- Removal of bus stops on Forth Street
- Addition of two bus stops on Union St East for the westbound direction plus the three raised zebra crossings nearby
- A change of priority at the Forth Street/Union Street East intersection will also facilitate bus movements through this area.
- Removal of the westbound bus stop out the front of the University of Otago College of Education

Figure 15: ORC current bus routes near the Tertiary precinct[3]

[3] https://www.orc.govt.nz/media/9921/orbus_dn-map_a2-forprint_210311.pdf

	 **Figure 16: Proposed ORC bus route changes**
Overview of preferred option	The preferred option has a present value capital & maintenance costs of $1,905,000 with $4,115,000 monetised benefits. The benefit cost ratio has been calculated as **2.2.** An independent traffic modelling assessment was commissioned by DCC to understand the likely impacts of the preferred option on the Dunedin transport network. It was subsequently determined that the implementation of a segregated bi-directional cycleway along with proposed changes to adjacent side roads would have a negligible impact on network operation. The full technical note from this assessment is included in Appendix H

3.4 Sensitivity analysis

A sensitivity analysis has been undertaken to test the assumptions made in the economic analyses. Total implementation costs, discount rate, commute share, cyclist benefit per new user, and reduced crash cost saving scenarios have been assessed.

The base BCR is 2.2 with a range between 1.5-2.7. The outputs for each sensitivity test are documented in Table 10.

Table 10: Sensitivity analysis for Albany Street cycleway project

Sensitivity scenario	Sensitivity test	Preferred option BCR	Sensitivity value BCR
Total implementation cost	Total implementation costs through to completion increase by 25%	2.2	1.8
	Total implementation costs through to completion decrease by 25%	2.2	2.7
Discount rate	The discount rate is decreased to 3%	2.2	2.1
	The discount rate is increased to 6%	2.2	2.4
Commute share of cyclists	Apply Shaping Future Dunedin Transport commute share value of 4% (Base uses 2.6% from Monetised Costs and Benefits Manual)	2.2	2.0
	Commute share decreases to 1.5%	2.2	1.9
Cyclist benefit per new user	Number of days the facility is used reduced to 245 days per year from 365 days per year	2.2	1.5
Crash cost savings	Crash cost savings are reduced by 30%	2.2	1.8

4.0 Commercial Case

The implementation of a cycle link on Albany Street is not considered to present any significant risk or complexities to the other major investment partners involved.

DCC's procurement strategy was formally endorsed by Waka Kotahi on 21 February 2021. DCC will follow this strategy for all professional and construction services for this project.

Detailed design work has been sole sourced to AECOM. DCC made this decision in April 2022. It was primarily based on the relatively small scale and complexity of the project, continuity through the design phase, and programme constraints to start construction at the end of the 2022 calendar year.

It is anticipated that procurement construction services will commence in the latter half of 2022. The cost estimate is based on open market competitive tender with a minimum of three conforming tenders.

5.0 Financial Case

5.1 Funding sources and implementation period

Indicative high-level costs for the Albany Street Cycleway preferred option are shown in Table 11. The summary cost estimate for all options assessed is provided in Appendix D.

These costs will be fully incurred during the 2022/2023 financial year. All construction work is programmed during the 2022/2023 summer period. The concept design produced will reduce ongoing maintenance costs for pavement renewal by narrowing the road corridor and redistributing this width to the separated cycleway. This change in operating costs has been accounted for in the benefit-cost ratio calculations.

Capital funding for the project will be shared between Council (48%) and Waka Kotahi (52%). Cost share has been based on the 2022/2023 funding assistance rate (FAR) for the Council[4]. Funding from the Regional Land Transport Plan has been allocated to the project via the Shaping Future Dunedin Transport Programme.[5] This funding will be used to implement the cycleway and associated changes to parking on side streets in the 2022/2023 financial year.

Additional urban design items such as planter boxes, cycle parking, and seating will be funded by the appropriate department within Dunedin City Council. These items will help realise the full suite of benefits sought by the transport design.

Planting and removal of trees has been allowed for in the cost estimate available in Appendix D. This will ensure the transport project enhances the urban amenity of Albany Street for all users.

Table 11 Summary cost estimate breakdown

	Item	Component costs (rounded to nearest thousand)				Project cost
		Albany Street preferred option	Connecting streets (Leith, Clyde, Regio)	Museum block extension	Minerva Street extension	
A1	Pre-implementation consultancy (Design & Consents) @ 10%	$59,000	$26,000	$11,000	$11,000	$107,000
A2	Pre-implementation DCC costs @ 1.5%	$9,000	$4,000	$2,000	$2,000	$17,000
B1	Implementation consultancy (MSQA) @ 5%	$29,000	$12,000	$5,000	$5,000	$51,000
B2	Implementation DCC costs @ 1%	$6,000	$3,000	$1,000	$1,000	$11,000
C	Physical works estimate	$581,000	$252,000	$102,000	$103,000	$1,038,000
D	**Base Estimate**	**$684,000**	**$297,000**	**$121,000**	**$122,000**	**$1,224,000**
E	P50 contingency @ 20%	$137,000	$60,000	$25,000	$25,000	$247,000
F	**P50 Expected Estimate**	**$821,000**	**$357,000**	**$146,000**	**$147,000**	**$1,471,000**
G	P95 Funding Risk @ 25%	$206,000	$90,000	$37,000	$37,000	$370,000
H	**P95 Project Estimate**	**$1,027,000**	**$447,000**	**$183,000**	**$184,000**	**$1,841,000**

[4] https://www.nzta.govt.nz/planning-and-investment/planning-and-investment-knowledge-base/202124-nltp/202124-nltp-funding-assistance-rates/funding-assistance-rates-for-the-2021-24-national-land-transport-programme/normal-funding-assistance-rates/

[5] https://www.orc.govt.nz/media/10143/rltp-2021-2031-rtc-adopted-11-june-2021.pdf

5.2 Investment prioritisation method results

5.2.1 GPS alignment factor

Investment by Waka Kotahi for the Albany Street Cycleway project is proposed to be considered for inclusion in the National Land Transport Programme as a walking and cycling improvement activity

Waka Kotahi's Investment Prioritisation Method for the 2021 – 2024 National Land Transport Programme was used to assess the preferred option against GPS alignment, scheduling, and efficiency.

This proposal achieves a **Priority Order of 2** according to the Investment Prioritisation three-factor matrix.[6] Alignment with GPS, scheduling, and efficiency factors are outlined in further detail below.

Table 12: GPS alignment assessment for the preferred option

GPS alignment factors	Criteria assessment	Rating
Safety Benefit: Impact on social cost and incidences of crashes	The proposal does involve lowering the speed limit on Albany Street by more than 10km/h (from 50km/h to 30km/h)	Very high
	The proposal also addresses deaths and serious injuries in an area of medium concern. Dunedin City is of medium concern (Communities at risk register – All deaths and serious casualties table)	Medium
	The corridor has a low/medium collective risk. The preferred option assumes a 20% crash reduction across the extent of the project over a 5-year period.	High
	Overall	Very High
Better travel options Benefit: Impact on access to opportunities	6–7% change in number of jobs accessed within 45 minutes by a given mode or modes (public transport, walking, cycling, driving) in the morning peak	High
	New walking/cycling link is a key part of the Dunedin cycling network. It will link with major walking and cycling projects such as the Port Chalmers cycleway.	High
	Improving connections to regionally significant tourism destinations/attractions such as the Forsyth Barr Stadium, the Harbour Cycleway, the Otago Museum, and Dunedin city centre	Medium
	Better travel options alignment	High
	Overall	Very High

[6] https://www.nzta.govt.nz/assets/planning-and-investment/docs/draft-investment-prioritisation-method-for-2021-24-nltp.pdf

5.2.2 Scheduling factors

Scheduling indicates the criticality or interdependency of the proposed activity and its role within the network of related projects and programmes of work.

Table 13: Scheduling alignment assessment for the preferred option

Scheduling criteria	Reason	Rating
Interdependency	The Albany Street cycleway is a part of the Central City Walking and Cycling Improvements project which is part of the wider Shaping Future Dunedin Transport programme. The projects within the programme are dependent on each other to achieve the desired outcomes. This project will also support, and manage the impacts of construction of, the New Dunedin Hospital which is a key part of the Shaping Future Dunedin Transport programme. A new university college is also currently being constructed at the eastern end of Albany Street. Providing a safe walking and cycling connection to the tertiary precinct is important for students living at the college.	High
Criticality	The Albany Street cycleway is a key project with the Central City Walking and Cycling Improvements project. It is one of the earliest projects to be implemented and is key to enabling further implementation of other parts of the programme and construction of the New Dunedin Hospital. DCC aim to deliver this programme of works with the current National Land Transport Programme funding period. The Albany Street cycleway will also add resilience to the Dunedin cycling network.	High
	Overall	High

5.2.3 Efficiency factors

A cost benefit analysis has been carried out based on with Waka Kotahi NZ Transport Agency Simplified Procedures SP-11 Walking and Cycling.

The preferred option achieves a **BCR of 2.2** with a sensitivity tested range of between 1.5 and 2.7. This results in a **low** efficiency rating.

6.0 Management Case

6.1 Governance

Governance area	Description
Summarise the project management arrangements	The Albany Street cycleway project is an integral part of the Shaping Future Dunedin Transport Programme. The programme delivers on multiple strategic objectives with a particular focus on safety, travel choice, improved freight connections and climate change. Oversight of the project will be through the existing established Council procedures for infrastructure projects. The Council has in place comprehensive financial and project management controls and systems 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. Established programme management arrangements, via the Connecting Dunedin governance structure, are in place for the Shaping Future Dunedin Transport programme of works which includes the Albany Street cycleway. These governance structures are responsible for overseeing the successful delivery of these projects. Further detail on the Connecting Dunedin governance structure is presented below. The delivery of the Albany Street works will be managed by DCC. DCC will use external consultants for the design, construction, and MSQA elements. For the physical works contract, a qualified DCC engineer will act as Engineer to the Contract. They will carry out the day-to-day contract management tasks. They will be supported by a chosen designer who will have the role of Engineer's Representative. The Council will oversee the performance and review of the delivery of these elements using internal and external resources. Any required works at the SH1 intersections will be managed and delivered by DCC with Waka Kotahi approval. ORC in partnership with DCC will manage the design and delivery of changes to the public transport network. DCC intend to deliver several low-cost low risk bus stop improvements throughout the Tertiary Precinct in conjunction with this project and using the same contractor. The costs of these bus stop improvements are excluded from the scope of this business case. DCC have the capability to deliver this project. They have successfully delivered several cycleway improvement projects including the Dunedin Urban Cycleways programme. A Road Safety Audit has not been completed on the preferred option. Public feedback is yet to be received on the design and other design inputs such as the MRCagney accessibility audit for the project area. A Road Safety Audit exemption form has been included as Appendix G. Two independent Road Safety Audits will be carried out during the detailed design stage and post-implementation in accordance with Waka Kotahi guidelines. All Road Safety Audits will be completed in accordance with Waka Kotahi's Road Safety Audit Procedures for Projects (interim release May 2013).[7]
Provide a diagram or a description of the project governance structure	The Connecting Dunedin governance structure is a partnership between DCC, ORC, and Waka Kotahi. See Figure 17 for details on the governance structure. It will be reviewed and tailored to the Shaping Future Dunedin Transport programme requirements. - A steering group will be responsible for the delivery of the project - A programme coordination group will facilitate collaboration and alignment between projects

[7] https://www.nzta.govt.nz/resources/road-safety-audit-procedures/

Governance area	Description
	- Waka Kotahi will be responsible for approving any changes (traffic signal design, traffic signal operation, and spatial layout) to the Albany Street - SH1 northbound and Albany Street SH1 southbound intersections

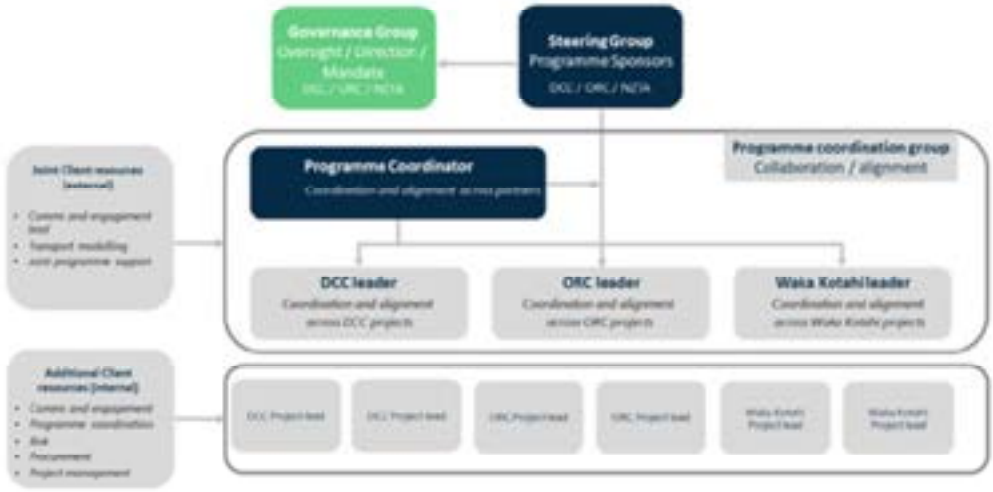


Figure 17: Connecting Dunedin governance structure

Outline key milestones

Key milestones for the project are shown in Table 14.

Table 14: Albany Street Cycleway key dates

Task	Description	Dependencies	Timeframe
SSBC lite	Completion of SSBC lite for submission to Waka Kotahi for funding approval	None	03 June 2022
Public, mana whenua, stakeholder consultation	Final consultation and engagement with public, mana whenua and key stakeholders. Feedback to inform detailed design	Completion of Albany Street concept designs	20 June 2022
Decision point	Decision by DCC and Waka Kotahi to progress project	Completion of SSBC Lite	30 June 2022
Detailed design	Detailed design completed based on the scope of the preferred option outlined under the economic case	Approval by Waka Kotahi and DCC to proceed. Procurement of professional services for detailed design through direct award	September 2022
Procurement	Commence procurement based on the complete detailed design	Completed detailed design	October 2022
Construction	Staged construction of the cycleway commences	Procurement and alignment with university semester break to minimise disruption	Commence November 2022 and completion March 2023

6.2 Stakeholder engagement

The Council's intent to undertake improvement works on Albany Street has been signalled through stakeholder consultation on selected options. DCC engaged key stakeholders for their input on Option 4 and Option 5 during February 2022.Their input was used to confirm the preferred option. Their comments are shown in Table 15.

There were common risks raised by multiple stakeholders concerning the development of a cycleway along Albany Street. These are listed below and will be addressed during the detailed design of the project.

- Bi-directional cycleways can be difficult to access mid-block
- Cyclist-vehicle conflicts at property access and side streets
- Mode priority at key intersections such as Forth Street/Albany Street

DCC have arranged to complete public consultation on the preferred option during May and June 2022. Consultation will include parking changes on adjacent side streets and low-cost low-risk works associated with ORC bus network improvements.

MRCagney are concurrently completing an accessibility audit for the project area. Best practice design has been incorporated into the concept plans for the preferred option. Outcomes from the accessibility audit will be considered and design responses incorporated during the detailed design phase.

Table 15: Key stakeholders' comments and preferred option

Stakeholder	Comment	Preferred option
Otago University Students Association	Reduced crossing distance will make crossing the road easier and safer with a bi-directional cycleway. Pedestrians will only have to cross one cycleway, not two and the separator will be wider.	Option 4
Spokes Dunedin	No chance of car doors impacting cyclists in Option 4	Option 4
Dunedin City Council – Waste and Environmental Solutions	Rubbish collection will be easier with a wider cycleway rather than two narrower separated cycleways. Can use existing waste collection vehicles. Less impact on residential activities that have lots of small bins and are located more heavily on the south side of Albany Street.	Option 4
University of Otago	Increased amenity value outside the university library entrance as general traffic is shifted further away due to the introduction of the cycleway. This results in a more comfortable environment for people to congregate.	Option 4
Otago Museum	A bidirectional cycleway on the southern side of the museum block road won't conflict with the coach stop, bus stop and will create less conflict with pedestrians at signalised intersections (less pedestrians on southern side of the road)	Option 4
Businesses and residences on Albany Street – consulted during Tertiary Precinct business case work	Business and residential parking loss on the southern side of Albany Street is minimised with Option 4. It keeps the parking outside the businesses and residential buildings as they are mainly on the southern side of the road. Additionally, businesses are less likely to be disrupted during construction.	Option 4
Otago Regional Council – Public Transport	Bus stop design and operation will be easier and safer if the cycleway is just on one side of the road and the median barrier is wider. Priority at Forth Street will need some consideration between cyclists and buses.	Option 4

6.3 Risk management

Risk management is an ongoing task and will be refined through detailed design and through the physical works tendering and contract phases. A preliminary Safety in Design risk register, available in Appendix F has been produced to manage and mitigate risks.

Key project risks identified for the Albany Street Cycleway project are outlined in Table 16. Risk will be allocated between Waka Kotahi and the Council to match the funding arrangement split. Risk will be managed using Waka Kotahi's Risk management practice guide (February 2018)[8].

Table 16: Risks for Albany Street Cycleway project

Area of Risk	Description	Likelihood	Consequence	Risk Treatment / Management
Cost escalation / scope creep	Value for money for package not obtained through either construction cost increases, overestimates, or reduced benefits realisation. Cost escalation of 5-6% is forecasted for the 2022 calendar year[9]	Likely	Moderate	Costs have been estimated in-line with the cost estimation manual and recent DCC maintenance improvement works contracts. Construction is due to begin within 6 months of the current cost estimate. Procurement strategy for adjacent low-cost low risk works to be well understood to take advantage of economies of scale. Monitoring and reporting on costs will be completed throughout the life cycle of the project.
Financial	Assumed funding arrangements not obtained from Waka Kotahi leading to project costing the Council more than budgeted	Rare	Moderate	Early identification of project with Waka Kotahi for a 'no surprises' approach
Land use and growth	Dunedin Hospital and Waterfront redevelopments will see changes to traffic movements through Dunedin leading to potentially the non-optimal solution being applied	Unlikely	Minor	Project is focussed on improving safety for all road users. This project will improve active travel links and support mode shift to more sustainable and healthier alternatives.
Engagement and disruption to local area	Risk of lack of buy-in on the improvements from local businesses, stakeholders and mana whenua	Rare	Minor	DCC have conducted early and thorough engagement with nearby businesses and organisations that are located on the proposed

[8] https://www.nzta.govt.nz/resources/minimum-standard-z-44-risk-management/

[9] https://www.mbie.govt.nz/building-and-energy/building/building-system-insights-programme/sector-trends-reporting/biannual-snapshots/may-2022/

				cycleway route. They have expressed desire for the preferred options. DCC to continue following best practice for consultation throughout the public consultation period.
	Disruption to local businesses due to construction impacts	Unlikely	Minor	Work is anticipated to be completed during the summer construction season. This will maximise the opportunity when Dunedin has less people due to university holidays. Businesses are also quieter during this time as their customer base is centred around the university.
	Construction delays causing physical works to drag out beyond the university break period leading to business disruption	Unlikely	Moderate	Construction programme to be carefully considered. High impact physical works to be programmed first to increase likelihood of completion during summer period. In this way, any physical works that drag beyond the summer period will likely be low impact.
Coordination with other businesses cases	Adjacent business cases may overlap the project extent	Unlikely	Minor	At of the time of writing, the Tertiary Precinct business case was put on hold prior to its conclusion and has not been re-started. Other business cases in process include the Harbour Arterial, and State Highway 88 realignment. DCC and Waka Kotahi do not consider there to be any substantial conflicts between the Albany Street Cycleway project and any future works that may arise from these business cases. All projects are included in the Shaping Future Dunedin Transport Programme Business Case. The governance structure also includes a coordination group to identify and resolve these types of issue.

Weather	Weather causes unsafe work conditions and/or too cold/wet for works (e.g. installation of coloured surfacing for cycle lane marking)	Unlikely	Minor	Work is anticipated to be completed during the summer construction season when the weather is at its most stable.
Tertiary precinct speed limit changes	Proposed speed change from 50km/h to 30km/h on the road network surrounding the Tertiary Precinct. A delay in implementation could introduce cost and safety risks in the delivering the cycleway	Likely	Minor	The exact timing of these changes is yet to be confirmed. Ideally the 30km/h speed limit would be in force prior to construction beginning. Temporary speed limit signs could be used if there is a delay in implementing the speed limit change. DCC have initiated the development of an interim speed management plan, which will apply to Tertiary Precinct streets. Physical speed management infrastructure will be considered during detailed design.
Changes to ORC bus network	Proposed changes to the bus network near Albany Street may impact works on the core cycleway if not managed proactively.	Likely	Minor	Clear management and timing of bus network changes should be coordinated with works on Albany Street. Works that disrupt public transport operations should be timed for low-patronage times.
Urban design elements	DCC have stated that funding from this SSBC lite will not cover urban design elements within the extent of the project. This may lead to cost overruns or a design that does not achieve amenity or mana whenua outcomes	Likely	Minor	Funding will be sourced from internal DCC urban design funding streams to cover urban design elements such as planting, bicycle racks, and trees.

6.3.1 Safety in Design

A preliminary Safety in Design risk register has been compiled for the project. This is based on the preferred concept designs for the Albany Street cycleway. The register will capture elements of potential safety concern on the construction, operation, and demolition of the project.

This is a live register and will be continuously updated throughout the detailed design phase to ensure safety concerns are identified and managed accordingly. The Safety in Design risk register can be found in Appendix F.

7.0 Next Steps

The next step is for Council to apply to Waka Kotahi for implementation funding for the preferred package of safety and access upgrades to Albany Street.

The Council are also to arrange for consultation and the relevant stages of an independent Road Safety Audit based on the agreed concept plans for the preferred option.

Once funding is confirmed, the Council will commence procurement activities. This will include development of an implementation plan and preparation of detailed design for tender/construction. If funding is approved in a timely manner, construction could begin on Albany Street in the 2022/2023 construction season. The project has funding committed under the current DCC Long Term Plan through the Shaping Future Dunedin Transport Programme funding.[10]

[10] https://www.dunedin.govt.nz/council/annual-and-long-term-plans/10-year-plan-2021-2031/section-4/10-year-capital-expenditure-programme

Appendix A

Approved Point of Entry

Record of the point of entry

The record of the point of entry (PoE) is a critical part of a business case. It is also the initial record of the pathway to be followed through investment decision making processes where a business case is established.

Please ensure you address each question carefully, and consider the full range of risks, timeframes, and costs. It is essential that you also anticipate the business case development pathway appropriate to the proposed investment, including the next step, as this will inform the level of detailed information you must capture here.

Note that completion of this record **is not** a substitute for the necessary critical thinking and discussions that **must** characterise the development of a PoE.

All fields are required to be completed for Waka Kotahi NZ Transport Agency to consider whether or not a business case will receive endorsement. Where appropriate, reference or additional information can be added to this record, such as evidence used to answer the 16 investment questions.

The text in *blue italics* is a guide to how to consider the questions. The actual information provided needs to be detailed, specific and relevant. The level of detail should reflect the risk and complexity of the proposed investment.

For more comprehensive guidance visit the Transport Agency's Business Case Approach (BCA) guidance.

This template should be completed by the problem owner in consultation with a Point of Entry specialist from the Transport Agency Strategy Policy and Planning team, to ensure effective early engagement and access to clear and consistent advice to ensure fit-for-purpose effort.

Context	
Initiative name	*SFDT - Central City Cycle and Pedestrian improvements – (Albany Street)*
Author	[redacted]
Lead organisation or business group	*Dunedin City Council*
Problem owner	[redacted]
Transport Agency point of contact	*Anja McAlevey, Senior Investment Advisor*
File reference	
Date submitted for review	*12.10.2021*

Background

The Central City walking and cycling improvements project is one of seven Dunedin City Council (DCC) projects of the Shaping Future Dunedin Transport (SFDT) Programme. The purpose of the Shaping Future Dunedin Transport Programme is to change the Dunedin transport network to support the location of the New Dunedin Hospital (NDH), whilst at the same time provide a future focussed, accessible transport system enabling placemaking and liveability outcomes for the city.

The NDH site fronts the busiest roads in the central city which will create a barrier to safe and easy pedestrian access to the building and result in poor integration and interaction with the city. The design, use and management of central city routes means many roads operate in a similar way resulting in dispersal of traffic and severance between key city precincts and poor accessibility for active modes and public transport.

The individual projects of the SFDT programme are interdependent, build upon one another and together seek to deliver a holistic and integrated programme of interventions that only as a package can achieve desired outcomes. The Central City Walking and Cycling improvements project is one critical piece of the puzzle as it will support mode shift to public transport, walking and cycling for people travelling to the CBD and within the CBD. It will provide people realistic choices that are anticipated to result in mode shift towards more efficient and sustainable modes.

The Central City walking and cycling improvements project consists of these sub-projects:

- ***Albany Street** walking and cycling connection from the Harbour Walk/Cycleway to the City Centre and tertiary area*
- ***St Andrew Street** safe local road with a pedestrian focus*
- ***Slower speeds** within the core of the CBD with pedestrian and cycling improvements*
- ***Bank Street/George Street** walking and cycling improvements (SSBC endorsed)*

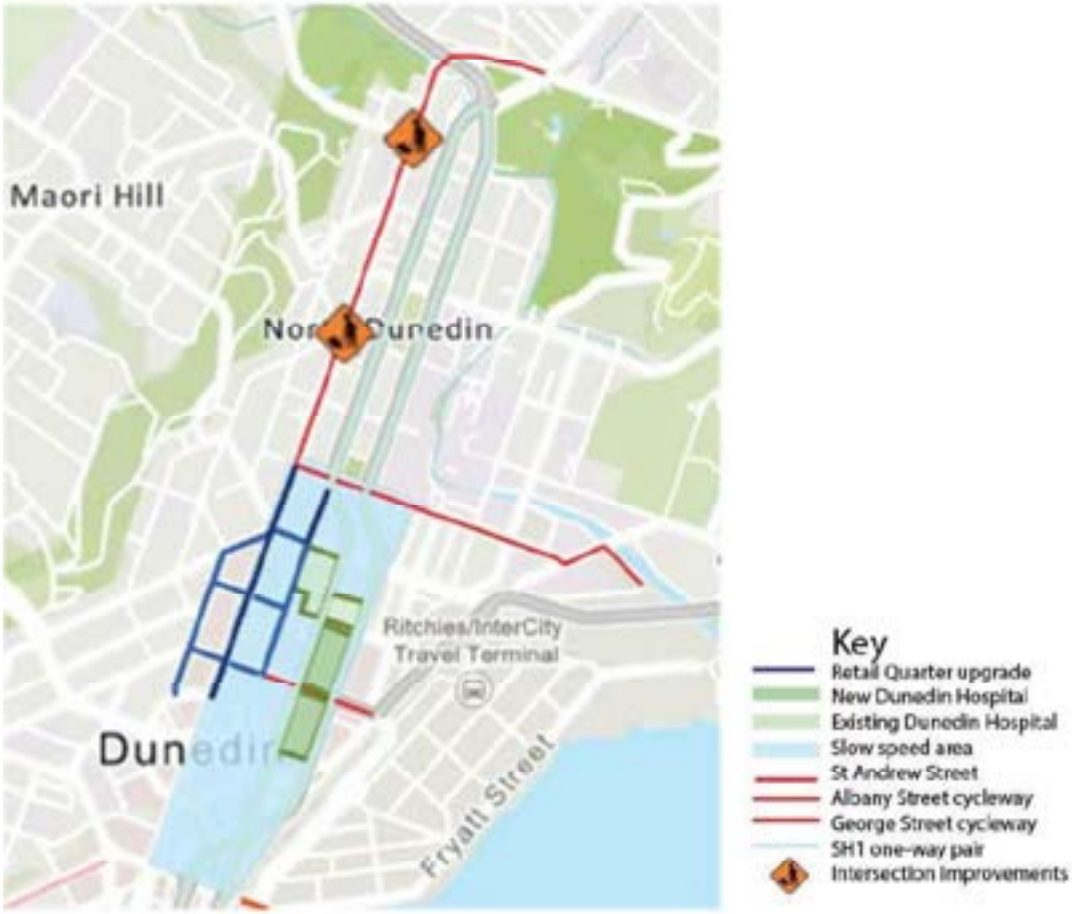
Planning and implementation of these four projects are scheduled at different points in time of the SFDT programme. Timing is determined by programme dependencies and scheduling:

- ***Albany Street project:** A business case needs to be delivered now because of the NDH construction starting in 2022, with demolition of the old Cadbury factory completed prior to that. A functioning walking and cycling connection from the harbour path to the CBD and tertiary area is required to be in place early on to drive mode shift which will mitigate construction disruption, congestion and improve accessibility.*
- ***St Andrew Street project:** this project depends on the development and endorsement of the Waka Kotahi BC on shifting SH88 to Frederick Street. Construction start depends on the NDH's construction of two footbridges across St Andrew St to be completed. Planning is anticipated to start 2022/23.*
- ***Slower speeds with pedestrian and cycling improvements project:** This project needs to align with Waka Kotahi's work on reducing the speed limit on the SH oneway pair. Planning for this is anticipated to start in 2022/23. It also requires DCC to review its strategic walking and cycling network which has PBC funding approved in NLTP 2021-24 for 2022/23. A further point is*

that DCC would like to see Central City Plan and SFDT upgrades that relate to walking and cycling to be further advanced and partly implemented in order to undertake a gap analyses that will identify missing links that can then be delivered through this project.

- ***Bank Street/George Street project:*** *This project has an endorsed SSBC and LCLR funding approved in the NLTP 2021-24, for 2022/23*

The below map shows the geographic scope of the four projects and where they are located in relation to the old and New Dunedin Hospital, the SH1 one-way pair and the Retail Quarter upgrade work (for more information on Retail Quarter upgrade, see the related work section)

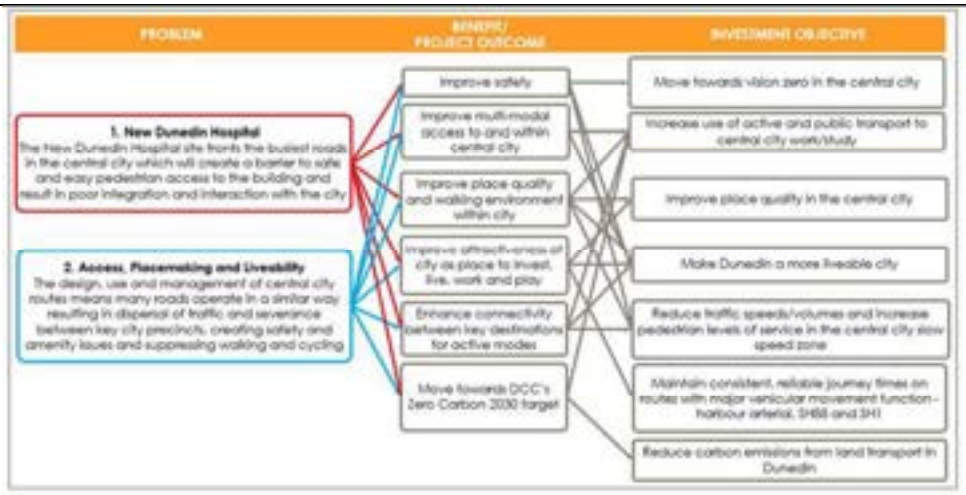


This PoE is for the Albany Street walking and cycling connections only.

TIO will be updated to reflect the splitting of this project

The SFDT programme is being designed and delivered by Connecting Dunedin, a partnership of Waka Kotahi NZ Transport Agency (Waka Kotahi), DCC and Otago Regional Council (ORC).

Setting out the problem or opportunity	
Problem or opportunity description	*The SFDT PBC problems, benefits, project outcomes and investment objectives are as follows:*

	 *Problem and opportunity descriptions specific to the Albany Street project have not yet been developed but will be as part of the next planning stage. Preliminary/draft problem and opportunity descriptions are as follows.* ***Draft Problems:*** *The design, use and management of central city routes means many roads operate in a similar way resulting in dispersal of traffic and severance between key city precincts, creating safety and amenity issues and suppressing walking and cycling. Albany Street is a key route from the Harbour Walk/Cycleway to the CBD and Tertiary area. Albany Street also has high pedestrian volumes and major trip generators either side with strong crossing desire lines. However, the level of service for walking and cycling is poor and cycle infrastructure is not connected. This results in poor accessibility and safety for a large number of vulnerable road users and unused potential for mode shift.* ***Draft Opportunities:*** • *Utilise planning progress and partnerships that have been established through the Tertiary Precinct Project* • *Implementation of ORC's bus super stop* • *Achievement of lower vehicle volumes, speeds and thus increased place value on Albany St.* • *Achievement of greater integration of tertiary precinct with key University facilities on southern side of Albany St*
Outcomes sought	*1. Improve safety* *2. Improve multi-modal access to and within central city* *3. Improve place quality and walking environment within city* *4. Improve attractiveness of city as place to invest, live, work and play*

	5. Enhance connectivity between key destinations for active modes *6. Improve environmental outcomes, moving to zero carbon by 2030* *These outcomes originate from the SFDT PBC.*
Ensuring alignment with strategy (see Note 6)	
Describe how the investment aligns with strategy	- ***Government Policy Statement on Land Transport 2021:*** *Very Strong alignment with the 'Better Travel Options' and 'Climate Change' priorities, by providing an urban area that is well connected, safe, accessible and liveable.* - ***Waka Kotahi Road to Zero 2020 –2030:*** *Very Strong alignment with focus area 'Infrastructure Improvements and Speed Management', Improving pedestrian and cycle safety is a priority for the project, as well as safety for all road users.* - ***Otago Southland RLTP 2021-2031:*** *Strong alignment with objective 1 'Prioritise high risk areas to create a safe transport system free of death or serious injury', objective 3 'Develop a range of travel choices that are used by communities and businesses to connect' and objective 4 'Facilitate understanding and support responses that help meet environmental and emissions targets'.* - ***Dunedin City Integrated Transport Strategy:*** *Strong alignment. Transport Objective 6 is 'Dunedin's urban form and design creates high levels of accessibility to key destinations such as healthcare, education, recreation and employment'. Scope to deliver on three of five areas of focus (Safety, travel choices and centres). The strategy includes a target of 40% active/public transport for the journey to work.* - ***DCC Central City Plan:*** *Strong alignment with aims to improve liveability, placemaking and streetscape as this project would reduce vehicle volumes.* - ***DCC Long Term Plan 2021-2031:*** *Strong alignment, includes funding for this project ($6.5m)* - ***DCC Second Generation District Plan 2017 (2GP):*** *Alignment with Objective 2.2.2 Energy Resilience b) Reduced reliance on private motor cars for transport.* - ***Otago Regional Public Transport Plan 2021-2031:*** *Strong alignment with objectives and implementation of bus super stop is in the previous RPTP.*
Level of risk, uncertainty and complexity (see Note 7)	

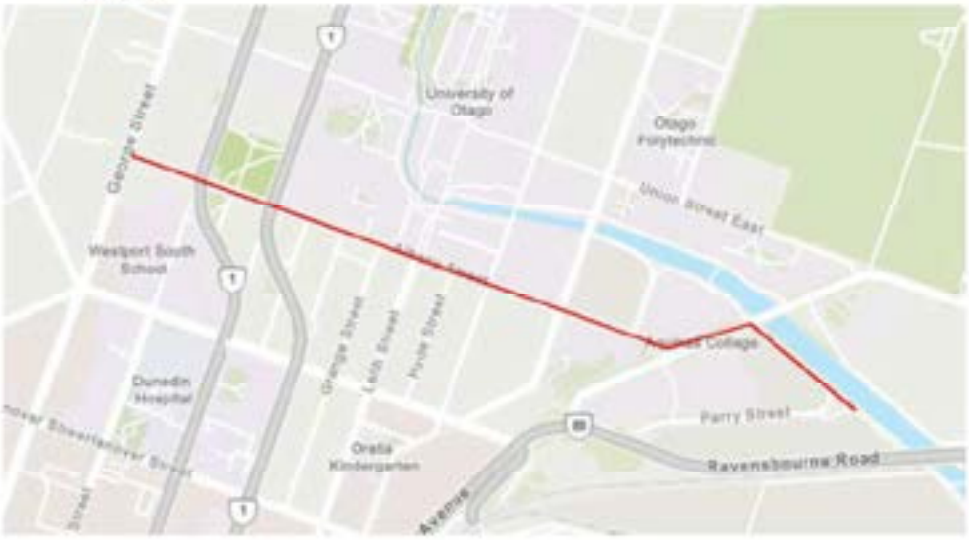
Key risks	• *Parking removal is likely to be needed which might result in public and political debate.*	**Overall risk level:**	*low*

	There are preliminary plans to offset most if not all of the loss. • *Delays might lead to construction period not aligning with semester break* • *Local funding has been allocated through DCC's 10 Y Plan.* • *Contractor availability risk is low if this project is to be delivered ahead of other SFDT projects.* • *Consenting is not anticipated to be required.*		
Key uncertainties	• *None as there has been significant planning and engagement undertaken as part of the Tertiary Precinct project*	**Overall uncertainty level:**	*low*
Level of complexity	• *Low level of complexity as it is a straightforward project. Public consultation with users will be the only complexity, although the University and Otago University Student Association are supportive of this project and consultation on the aspiration of the road has been undertaken previously.* • *The geographical scope of the project intersects with the Retail Quarter Upgrade and the George St/Bank St project at the Albany St/George St intersection. This needs to be coordinated. There is no direct link to the NDH construction site.*	**Overall complexity level:**	*low*
Previous and related work (see Note 8)			
Summarise previous work	***Tertiary Precinct Development Plan 2008 and Governance Structures**: The DCC, University and Polytechnic developed a Tertiary Precinct Development plan with a vision to contribute to the creation of a quality, sustainable campus environment and a vibrant tertiary precinct, ensuring Dunedin's place as the Education Capital of New Zealand. A Tertiary Sector Steering Group and a Tertiary Precinct Planning Group were set up*		

	consequently to ensure effective governance to guide implementation of the plan. The groups are meeting quarterly. ***Tertiary Precinct Project SSBC development 2020**: A draft SSBC has been developed up to an IBC stage but hasn't been progressed further due to funding reallocation in DCC's 10 Year Plan 2021-31. Strong partnerships with the University, Polytechnic, student associations, Aukaha and the ORC have been developed through this process. High level public engagement on design principals and aspirations for the area took place in 2019. Targeted engagement with key stakeholders and partners took place as part of the SSBC options development and innovating streets for people funding application development in 2020.* ***Innovating Streets funding application 2020**: DCC with support from the University, Polytechnic and ORC submitted a funding application to Waka Kotahi's Innovating Streets for People fund. The application sought co-funding for a cycleway along Albany St, parts of Anzac Ave and Minerva St to connect the Harbour walking and cycleway with the SH1 separated cycle lanes. It also envisioned ORC's bus super stop, crossing points and traffic calming on Albany St. The funding application was declined on the basis that it would have been a too permanent intervention.* ***Dunedin City Centre – Access, Mobility and Safety Strategic Case (2013):** This Strategic Case focused on how transport can enable a more liveable and safer central city by reducing severance created by SH1, the railway and north-south arterials, and through travel demand management and safety improvements.* ***Shaping Future Dunedin Transport PBC:** This Programme Business Case sets out the need for investment to support construction of the NDH and shift the central city to a more liveable and accessible place. The Central City Walking and Cycling improvements project was identified as one of 13 key projects to deliver on this.* ***Otago Southland RLTP 2021 - 2031:** The SFDT programme and this project are included in the Otago Southland RLTP 2021-2031 with a regional priority of 10.* ***NLTP 2021 - 2024:** The SFDT programme and this project are included in the NLTP with a probable status.* ***Dunedin 2021-31 10 Year Plan:** The plan allocates funding to develop the Central City Walking and Cycling improvements in the first five years, with Albany Street as an early implementation.* ***Concept designs*** - *for Albany St between the two SH1 corridors (2017).* - *for the cycleway from SH1 to the harbour walking cycleway via Albany St, Anzac Ave, Minerva St (2020)*

Summarise related work	• *ORC seeks to implement five super stops in Dunedin, one of them being the University Super Stop on Albany Street. A preferred location and layout have been identified in collaboration with the University and Otago University Student Association (OUSA) and ORC. Regulatory changes with consultation are currently being progressed to implement the new stop ahead of major investment (to test the location)* • *Cycle network improvements are currently being constructed, extending the Harbour Cycleway to Port Chalmers, through to St Andrew Street and along the Peninsula. This will provide access to the Harbour walking and cycleway to more people and communities and consequently user numbers are expected to increase.* • *The Tertiary Precinct project has been moved out 10 years by DCC's 10 Year Plan 2021-31 but transport safety and accessibility issues are thought to be delivered in a low cost/low risk manner within the next five years (although there is currently no funding for this). Likely interventions are a 30km/h speed zone, speed management, network/priority changes, etc. A bus stop and route rationalisation process is currently being progressed jointly by DCC and ORC.* • *DCC's Waste and Environmental Solutions team are planning recycling stations for the tertiary area, ideally integrating with this project.* • *The SFDT Bike hubs project is likely to identify the Tertiary area as a preferred site for a bike hub and improved bike/scooter parking and charging facilities.* • *The university has just constructed a bike parking and charging facility on their campus near Albany Street.* • *The SFDT Central City Parking management project is likely to effect Albany Street as it is an area with high and competing demands for parking.* • *Retail Quarter Upgrade on George Street and Great King Street, which effects intersections with Albany Street. Construction is planned to have finished 2023.* • *Three Waters upgrades in the area and possible alignment of work.* • *Reseal and rehab work coming up in Albany St and Minerva St for 2022/23/24* • *Safer Streets SSBC endorsed by Waka Kotahi. This BC presents the case for investment in walking, cycling and safety improvements on 7 key arterial routes in Dunedin. Only one route (Bank St/George St) is in the city centre* • *NLTP 2021-24 and DCC Low Cost Low Risk programme includes upgrades to several intersections and buffered cycle lanes along George Street.*
Planning the next stage (see Note 9)	

Recommended next phase	*Single Stage Business Case Lite for Albany St walking and cycling connection from the Harbour Walk/Cycleway to the City Centre and tertiary area*
Scope of next phase	***SSBC lite scope:*** • *Review and confirmation of the strategic case including problems and opportunities - using Tertiary Precinct Project draft SSBC and SFDT PBC work* • *Review of the planning done to date, including through Tertiary Precinct project and innovating streets for people funding application* • *Draft engagement strategy and reignite engagement and collaboration with partners and key stakeholders, i.e. University of Otago, Otago Polytechnic, student associations, Otago Regional Council (ORC) and Aukaha.* • *Identification of short list of options* • *Economic case that identifies a preferred option that represents the best value for money* • *Details of the preferred option including scope and prioritisation profile* • *Integrate bus super stop and recycling station into preferred option* • *Sensitivity analysis including BCR* • *Reporting of the financial, commercial and management aspects of the preferred option* • *Identification of risks associated with the preferred option including description of likelihood of occurrence, consequence or impact and risk treatment/ mitigation* • *Public consultation on preferred option* • *Develop and implement monitoring framework to measure the success of the project in accordance with PBC KPI's. Targets for KPI's will be developed.* • *Peer review of BC* ***Project scope:***

	• *A cycleway that connects the Harbour walking and cycleway to the SH1 separated cycle lanes and the CBD as outlined on the map below.*  • *This includes a cycling crossing facility on Anzac Ave near Minerva St* • *Parking regulatory changes* • *Provision for a bus super stop on Albany Street* • *Crossing points and speed calming measures* • *Offsetting of parking loss utilising Leith Street and Clyde St (between Albany St and Frederick St) and making them one-way.* • *Scooter/bike parking and bike wayfinding* • *Provision for bus turning movements from/into Forth St/Albany St.* • *Provision for installation of a recycling stations*
Target completion date	*June 2022*
Budget requirements	*Budget requirement: $150,000* *NLTF share: $80,000* *FAR%: 53%* *Activity class: Walking and Cycling* *Work category: 452 - cycling facilities* *TIO will be adjusted to reflect the splitting of the project.*
Business case pathway (see Note 10)	

The Strategic Case for the Central City Cycle and Pedestrian Improvements is provided in the SFDT PBC.

The remaining business case phase that are needed are:

- *a Single Stage Business Cases lite for the Albany St project (subject to this PoE)*
- *A Business Case for the St Andrew Street project, to be developed by Waka Kotahi*
- *A SSBC/SSBC lite for the slower speed zone with walking and cycling improvements project (not subject of this PoE).*

The NLTP includes $300,000 of Business Case development as probable. Due to the splitting of the business cases, this PoE only applies for $150,000. The POE for the Slower Speed zone with walking and cycling improvements and a contribution to the St Andrew Street BC will apply for the remainder of the funding approved. This will be reflected in TIO also.

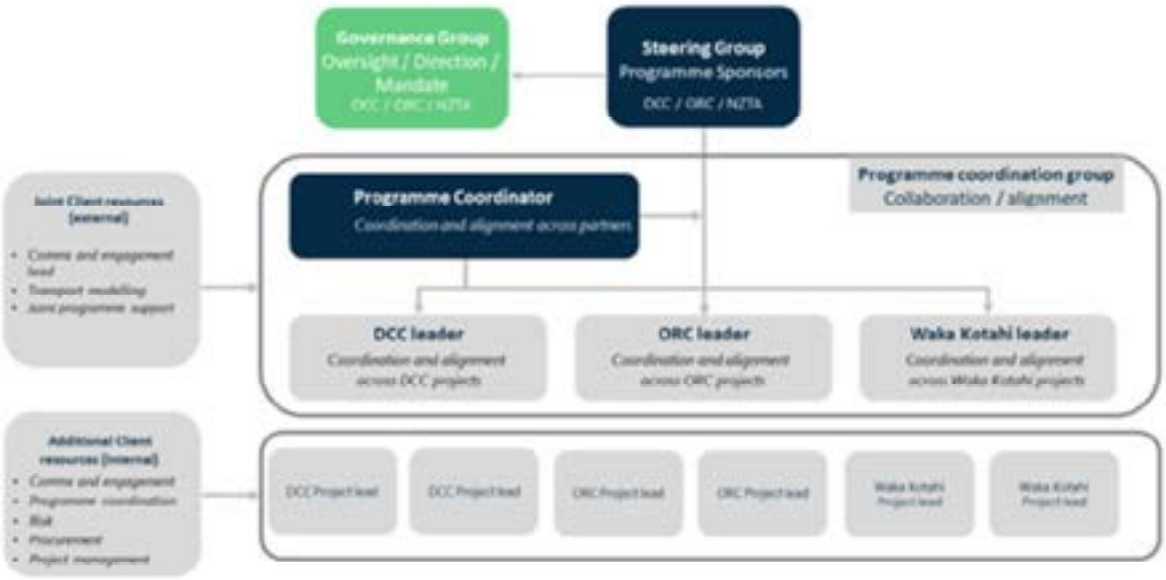
Key business case and investment decision points are upon completion of the Single Stage Business Case lite phase.

Key deliverables with timeframes for the project are:

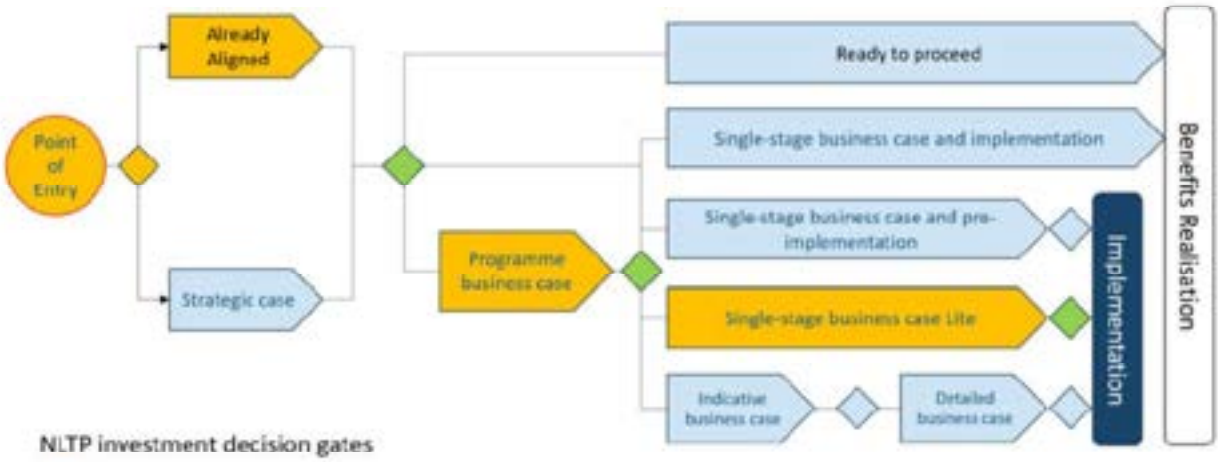
- *Contract awarded: November 2021*
- *SSBC lite start: November 2021*
- *SSBC lite completion: June 2022*
- *Decision point for Waka Kotahi: July 2022*
- *Decision point for DCC: July 2022 – if required*
- *Pre-implementation/detailed design: August 2022*
- *Construction start: staged October 2022 (aligns with university semester break)*
- *Construction end: January 2023 (aligns with university semester break)*

The accountabilities for decisions: [redacted] *for DCC and Anja McAlevey for Waka Kotahi.*

There are specific governance needs that are anticipated for the Shaping Future Dunedin Programme. The Connecting Dunedin governance structure is currently being reviewed and tailored to the SFDT programme requirements. A steering group and a planning group will be in place and a core programme coordination group will coordinate efforts at the officer level. See below governance structure for further details.



The Business Case Approach – available pathways for NLTP development



NLTP investment decision gates

- Decision gate required - funding
- Decision gate required - non-funding
- Decision gate not used

Indicative phase requirements

- Phase required
- Phase not required

Decision/next steps (to be completed by Lead Organisation – Problem Owner)

Decision *(signature required here)*	**Recommended / Not recommended** (strike out as applicable) **Name:** [redacted] **Role:** [redacted] **Date:**

Decision/next steps (to be completed by NZ Transport Agency - Senior Manager, System Planning)	
Decision *(signature required here)*	**Endorsed / Not endorsed** (strike out as applicable) *That the Senior Manager, System Planning endorse:* • *the [insert project name] Point of Entry, and* • *approve proceeding to [insert project name and BC phase]* **Name:** *The person who holds the **delegation** for PoE Endorsement.* **Date:**
Conditions and/or agreements required	*Set out any conditions or agreements that the decision is contingent upon.*
Decision/next steps (to be completed by NZ Transport Agency – Chief Financial Officer)	
Decision *(signature required here)*	**Endorsed / Not endorsed** (strike out as applicable) *That the CFO approve funding for [insert project name and BC phase] with a total shared project cost of [insert total project cost and NLTF share] at a FAR of [insert FAR%] from the [insert activity class] and work category [insert work category name and number].* **Name:** *The person who holds the **delegation** for Funding Endorsement.* **Date:**
Conditions and/or agreements required	*Set out any conditions or agreements that the decision is contingent upon.*
Mandatory Information ☐ *(Check once confirmed)* ☐ ☐ ☐	1. That the activity is included (or varied into) the RLTP and NLTP 2. That the Manager, Treasury and Cashflow confirms funds are available from the relevant activity class. 3. That the activity class owner has been engaged and confirmed priority for the activity. 4. That relevant DP&S and PI staff have been engaged in understanding the need and priority for the activity.
NZTA Assessment for Endorsement (Completed by NZTA Staff only)	
Additional relevant Context/Background	
Confirmation of Strategic Context	

IAF Results Alignment Assessment (if Applicable)	
Timing/Urgency	
Funding Position	
Recommendation	
Reasons for Recommendation	

GUIDANCE NOTES FOR RECORDING THE POINT OF ENTRY FINDINGS

The Point of Entry is where we consider whether to begin the development (or not) of a business case for investment, and if so, how that should start.

The Point of Entry phase is designed to allow meaningful discussion and the use of critical thinking.

Completion of this Record of Point of Entry is an important step and about much more than form-filling or compliance. It is important that effort and attention is given to completing the PoE phase well, rather than rushing to complete it to get started. Often the reason business cases don't progress, or have significant problems, is because the PoE didn't identify the scope the work properly.

Carrying out a Point of Entry should precede the initiation of **any** business case. However, for the Transport Agency to **endorse** a PoE, certain information is needed: that information is set out in this form. In part this is because endorsement of a PoE signals that the Transport Agency believes the proposed investment is both needed and aligned with current priorities for NLTP investment.

The Transport Agency expects that its advice and input will be sought at an early stage in completing the PoE phase (not just this record), and that endorsement of the Point of Entry phase will be needed **before** work commences on any future stages. Failure to do so means that the lead organisation continues work at their own risk and carries a high likelihood that rework will be needed or that funding will not be available.

The level of detail that is captured should be consistent with the recommended starting point. If a strategic case needs to be done before the scope of work can be fully understood, the information will be a best-estimate, based on what is currently known. It should be possible to provide more detail for the development pathway if there is information from earlier phases.

Guidance on completing a Point of Entry and recording the results

Notes:

1. Provide the name of the organisation that will be accountable for the investment and will lead development of the business case. This will be either:
    a. An Approved Organisation, or;
    b. The relevant business group within the Transport Agency.

2. Identifying who will be accountable for the business case is an important early step, as this person needs to sign the PoE to confirm they agree with the findings and recommendations. Forms that are not signed by an accountable person will not be accepted for endorsement. The name provided must be an individual, not a business group or organisation. A problem owner may want to consider a RASCI matrix for their proposed investment (Responsibility, Accountability, Supporting, Consultation, Information). This will help to identify the accountable person, and who else needs to be involved.

3. Provide the name of the primary Transport Agency contact for the business case, including PoE and subsequent phases.

4. When describing the problem (or problems) for the purposes of PoE, it is expected that the PoE phase will include discussions to better understand the problem. The description provided should be based on the best initial understanding of the problem and should be phrased simply and clearly. Avoid long and detailed explanations – clarity is more important. Also avoid statements that point to a specific solution or response, for example 'we need to increase bus services'. If in doubt, consult a representative of the Transport Agency, who can help guide you through this step.

5. Similarly, in describing anticipated outcomes or benefits it is not necessary to have completed a detailed benefit definition exercise. The PoE phase should focus on understanding the overarching outcomes, and

whether they will deliver a significant or minor contribution.

6. The proposed investment must be well-aligned with strategy to justify developing a business case. If the PoE is being completed by a Transport Agency staff member seeking internal funding, be clear about the alignment to the Transport Agency's strategic directions.

7. Understanding the levels of risk, uncertainty and complexity are key factors when determining the level of effort required for any business case. Risks and uncertainties are treated differently for the purposes of investment. Whole-of-life costs are typically unknown at the PoE phase and cannot be estimated with any confidence. The degree of complexity is often used instead, to help in determining the likely level of effort required.

   Guidance on the risk-based approach

8. Provide a summary of relevant pre-existing work. This might include strategic cases, programme business cases or reports. Include any references made to the problem or opportunity in regional land transport programmes (RLTPs) or the National Land Transport Programme (NLTP). Does the pre-existing work help to respond to any of the 16 investment questions? Would it pass an assessment by the Agency? Are there existing documents that relate to this investment, and do they address some or all of the requirements for any phases of business case development?

   16 investment questions for the business case approach

9. The starting point will either be a strategic case or some later phase. If it is a strategic case the information can be relatively brief, but will need to answer these questions as a minimum:
   - How will problem and benefit definition be carried out?
   - If Investment Logic Mapping (ILM) workshops are to be used, what level of facilitation will be needed?
   - Who will need to be involved – including stakeholders, the people who hold the most knowledge about the problem, and any Transport Agency staff.
   - Who will write the strategic case, and will they need any specific support from other parts of the organisation?
   - What approvals will be needed?

10. If the start point is beyond a strategic case the information provided needs to demonstrate how the requirements of a strategic case have been met. The scope of the next stage should also include details of how any gaps in previous work will be addressed and be able to justify the value of any NLTP funding application needed for the phase to proceed. If available, a project plan can be attached to this PoE record.

    Information about the indicative pathway for completion of the business case is required at the PoE development stage. This includes the expected pathway for the business case process and investment decision(s), ensuring all stakeholders have visibility of the phases of development likely to be necessary to complete development of the business case and the decision-making process.

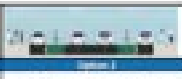
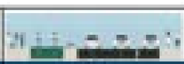
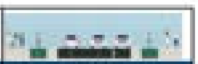
    Guidance on how to plan for and describe the anticipated pathway

Appendix B

Multi Criteria Analysis

Albany Street cycleway SSBC Lite

Option assessment

							
		Do Minimum	Option 1	Option 2	Option 3	Option 4	Option 5
GPS Strategic Direction	Safety	Business as usual speed review	Cyclist presence considered through use of sharrows and minimal speed calming	Buffered protection from vehicle conflict. Dedicated space for cycles.	Segregation from vehicle traffic, but cycle/pedestrian conflict significant especially outside uni. Speed differential with Ebikes.	Contra flow tricky for getting on and off for cyclists. More poles as conflict points. Separation from all other modes.	Physical protection from vehicles. Removal of some parking reduces side friction. Cycle position on street easy to access.
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Better travel options		No improvement on existing	Good size cycle lane to encourage uptake	Significant interaction with pedestrians slows travel time.	Good through travel options as well as access to uni	Good through travel options as well as access to uni
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Climate change	Would not encourage noticeable mode shift	Would not encourage noticeable mode shift	Minimal mode shift of longer trips	Would not encourage as noticeable mode shift	Some removal of longer car trips to cycle	Some removal of longer car trips to cycle
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Outcomes/benefits	Improve safety for active modes	Duplication with safety					
		[illegible]					
	Improve multi-modal access to central city		No improvement on existing	Scooters unlikely to use cycle lane so minimal improvement to mul-i modal choice	Increased width for all active modes, however also increased conflict	Separation from pedestrian for scooters and cycles. Reduced speed differential between users	Separation from pedestrian for scooters and cycles. Reduced speed differential between users
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Improve place quality and walking environment		Unlikely to be significant operational speed reduction and place value improvement	Narrowed lanes and clearer delineation for each mode	Improvement of place through increased space allocation. Difficult for disability community	Planting strip and separation improves place function	Planting strip and separation, along with removal of some parking improves place function
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Enhance connectivity and community cohesion		LOS gap in cycle network would still exist	Some improvement in LOS through dedicated space	Slight improvement in connectivity for some users. Difficult for the disabled community	High LOS for cycle connectivity	High LOS for cycle connectivity
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Impact on physical and mental health			Close to traffic but some additional uptake and physical wellbeing	Separation from vehicles but stress of navigating through pedestrians	Potential stress from the contra flow but level of separation from vehicular traffic improvement. Good intersection connectivity	High separation from vehicles and improved air quality
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Assessment of effects	Stakeholder and public acceptability		Not ambitious enough not improving cycle network enough to warrant cost	Retention of parking as well as dedicated space for cyclist likely to be amenable with many stakeholders	Too much conflict to be acceptable to key land and stakeholders and vulnerable community especially around the library. Likely to be constant ong going complaints. Bus super stop challenging	Some resistance to removal of parking even though compensated elsewhere. Short term Uni relatively comfortable with some parking	Some resistance to removal of parking even though compensated elsewhere. Short term Uni relatively comfortable with some parking
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Technical feasibility	Managed through design, not site specific feasibility challenges					
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Climate change mitigation	Duplication with GPS criteria					
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Te Ao Māori	To be managed at Detail design with the implementation of cultural narrative and design elements					
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	DECISION	Discard	Discard	Possible	Discard	Preferred	Preferred

Appendix C

Appraisal Summary Table

Appraisal Summary Table

Date: 7/04/2022	**Evaluation Period: (baseline and forecast year) e.g 2020 - 2060** 2022 - 2062	**Option Name:** Option 4 - Separated contra-flow cycle path on north side of Albany Street and speed reduction	**This is the preferred option**

Problem/opportunity statement: The inappropriate design use and and management of the corridor does not support the adjacent land-use. A lack of safe active mode facilities between the Harbour Cycleway and the CBD/Tertiary Precinct results in poor accessibility level of service and safety for active modes preventing mode shift.	**Investment objectives:** Improve safety for active modes along Albany Street Improve multi-modal access to and within the central city Improve place quality and the walking environment within the central city Enhance connectivity between key destinations for active modes	**How project gives effect to GPS:** Very strong alignment with GPS strategic priorities - Safety Better Travel Options Climate Change. Safety - Reduced risk of DSIs through dedicated cycling infrastructure. Improved comfort and access bility for cyclists on A bany Street ensuring people feel safe to cycle. Better Travel Options - Improved cycle connections on Albany Street w ll address actual and perceived safety risks making cycling a more appealing option. Severance issues also addressed through the provision of a continuous cycle connection from the harbour to the CBD.	**How project gives effect to local community outcomes:** Project is a component of the Dunedin Central City walking and cycling improvements project as outlined in the Shaping Future Dunedin Transport (SFDT) Programme. The SFDT programme aims to change the transport network to support the development of the new Dunedin hospital as well as provide a future-focussed accessible transport system. The walking and cycling improvements project will support mode shift to public transport walking and cycling for people trave ling to and within the CBD. Albany Street is a critical link in establishing a complete cycle connection from the harbour through the tertiary precinct and on to the central city. This provides improved travel options and supports a sustainable safer and healthier cyc ing network.

1. Summary of Non-Monetised Impacts (Description)	**2. Summary of Financial Impacts (nominal, non-discounted)**		**3. Summary of Monetised Option Impacts (present value, discounted)**	
The option provides minimal improvement in cycle facilities for Albany Street in the form of on-street sharrow markings. While sharrows will alert traffic to the possible presence of cyclists safety benefits will likely be minimal as there will be no delineation of the carriageway. This may be adequate for the most confident cyclists however it w ll not address the needs of the 'interested by concerned' users. Some reduction in operating speed may reduce the severity of incidents. This option is unl kely to significantly impact mode shift or address the cycle severence. Consequently benefits/outcomes for safey air quality CO2 emissions and people throughput are likely to be negligible.	Capital Costs	$1 067 000	Total Monetised Benefits excluding Wider Economic Benefits (WEBs)	$3 545 876
			Total Monetised Benefits including Wider Economic Benefits (WEBs)	Not applicable
	Operating Costs	$413 971	Total Economic Costs	$1 693 496
			BCR (excluding WEBs)	2.1
	Total Financial Costs	$1 480 971	BCR (including WEBs)	Not applicable

Transport Outcomes	**Non-Monetised Impact:** (description in numerical or narrative terms)				**Monetised Impact:** (description in dollar terms in real terms non-discounted)	
Name of Benefit	**Name of Measure:**	**Base ine:**	**Do Minimum Impact:**	**Option Impact:**	**Do Minimum Impact:**	**Option Impact:**
Healthy and safe people *(Please copy the row below to add an additional benefit or measure and delete rows as appropriate)*						
1.1 Impact on social cost and incidents of crashes	1.1.3 Deaths and serious injuries	Two serious injury incidents were reported on Albany Street between 2016 and 2021	A speed review may decrease the risk of DSIs. However safety impacts are likely to be minimal	Vehicles more aware of the possible presence of cyc ists due to sharrow markings. However safety impacts are likely to be minimal	$ 446 699	$ 2 567 026
1.1 Impact on social cost and incidents of crashes	1.1.2 Crashes by severity	28 crashes occurred on Albany Street between 2016 and 2021 - 2 serious 9 minor and 17 non-injury	A speed review may result in a reduction in crash severity. However safety impacts are likely to be minimal	Vehicles more aware of the possible presence of cyc ists due to sharrow markings. However safety impacts are likely to be minimal	As above	As above
1.2 Impact on a safe system	1.2.3 Travel speed gap	The operational vehicle speed on A bany Street is currently 54 km/hr. The posted speed is 50km. This is unsuitable for an environment with high levels of activity and vulnerable users.	A speed review wi l reduce the posted speed. Operational speed is unlikely to significantly change	Operational speed may reduce through traffic calming measures and increased awareness of the presence of cyc ists. Speed reduction l kely to be minimal.	Not applicable	Not applicable
2.1 Impact on perceptions of safety and security	2.1.1 Access - perception	Perception of access for cyclists on A bany Street is poor due to the complete absence of dedicated cycle infrastructure	Cycle infrastructure absent. No change in perception of cycle access	Improved access perception for confident cyclists. No improvements for interested by concerned cyclists	Not applicable	Not applicable
3.1 Impact of mode on physical and mental health	3.1.1 Physical health benefits from active modes	Cycle counts along Albany Street are low with an average of 84 per day compared with 9 835 vehicles. Health benefits from cycling are therefore low in the current environment	Cycle infrastructure absent. No change in health benefits from additional uptake of active modes	Minimal mode shift as sharrows only cater to enthused and confident cyclists. Minimal change in health benefits from uptake of active modes	$897 930	$897 930
3.2 Impact of air emissions on health	3.2.1 Ambient air quality - NO2	With low cycle counts high traffic volumes and car-centric infrastructure ambient air qua ity improvements are not currently supported	Limited mode sh ft encouragement. Improvements in ambient air quality not supported	Minimal mode shift as sharrows only cater to enthused and confident cyclists. Improvements in ambience of air quality un ikely	This measure's monetised benefits have not been calculated. Economic assessment has followed SP-11 which does not factor in vehicle emission reduction benefits	This measure's monetised benefits have not been calculated. Economic assessment has followed SP-11 which does not factor in vehicle emission reduction benefits
Environmental sustainability						
8.1 Impact on greenhouse gas emissions	8.1.1 CO2 emissions	With the lack dedicated cycle infrastructure on Albany Street mode shift and a corresponding reduction in CO2 emissions are not supported	Limited mode sh ft encouragement. No significant change to CO2 emissions	Minimal mode shift as sharrows only cater to confident cyclists. Reduction in CO2 emissions un ikely	This measure's monetised benefits have not been calculated. Economic assessment has followed SP-11 which does not factor in vehicle emission reduction benefits	This measure's monetised benefits have not been calculated. Economic assessment has followed SP-11 which does not factor in vehicle emission reduction benefits
Inclusive access						
10.1 Impact on user experience of the transport system	10.1.7 People - throughput (UCP)	Pedestrian activity is high along Albany Street and estimated at 6 359 pedestrians per day. Existing cyclist volumes is estimated at 317. Annual average daily traffic of vehicles is 0 500.	Limited change to cycle throughput	Potential increase in recreational and confident cyclists	The monetised impact of each new cycle user is estimated at $2 031	The monetised impact of each new cycle user is estimated at $2 031
10.1 Impact on user experience of the transport system	10.1.8 Traffic - throughput	Pedestrian activity is high along Albany Street and estimated at 6 359 pedestrians per day. Existing cyclist volumes is estimated at 317. Annual average daily traffic of vehicles is 0 500.	Limited change to traffic throughput	Limited change to traffic throughput as significant mode shift unlikely	The number of new cyclists anticipated from the Do Minimum is 417	The number of new cyc ists anticipated from the Do Minimum is 417
10.2 Impact on mode choice	10.2.3 Spatial coverage - cycle lanes and paths	Cycle lanes are currently absent from A bany Street	No change to spatial coverage of cycle lanes	No change to spatial coverage of cycle lanes. Sharrows to be installed on carriageway	Not applicable	Not applicable
10.4 Impact on community cohesion	10.4.3 Severance	The Dunedin cycle network between the harbour and CBD is currently severed due to the lack of cycle infrastructure along Albany Street	No change to severence of the Dunedin cycle network	Some connection of the cycle network form harbour to CBD for confident cyclists. Severence remains for interested by concerned cyclists	Not applicable	Not applicable
12.1 Impact on Te Ao Māori	12.1.1 Te Ao Māori	The street environment on Albany Street completely lacks recognition of Te Ao Māori values or concepts	No further incorporation of Te Ao Māori values or concepts	Te Ao Māori values and concepts can be incorporated during the detailed design of the project.	Not applicable	Not applicable

Rationale for option selection decision

Option 4 performed equally well as Option 5 during the multi-criteria analysis
Targeted consultation with key stakeholders was conducted to help capture opportunites outside of the benefits framework.
All stakeholders preferred option 4 unanimously. It was subsequently selected as the preferred option.

Appendix D

Cost estimate

Project Estimate - Form B

Project Name: Albany Street preferred option (including Museum Block extension, Minerva Street extension and connecting streets (Regio Street, Leith Street and Clyde Street)

SSBC

Single Stage Business Case Lite Estimate

Item	Description	Base Estimate	Contingency	Funding Risk Contingency
A	Total Property Cost			
	Project Development Phase			
	- Consultancy Fees	-		
	- Waka Kotahi Managed Costs (Form G)	-		
B	Total Project Development	0		
	Pre-Implementation Phase			
	- Consultancy Fees	105,000		
	- Waka Kotahi Managed Costs (Form G)	17,000		
C	Total Pre-Implementation	122,000	25,000	37,000
	Implementation Phase			
	Implementation Fees			
	- Consultancy Fees	53,000		
	- Waka Kotahi Managed Costs (Form G)	11,000		
	Sub Total Base Implementation Fees	64,000	13,000	20,000
	Physical Works			
1	Environmental Compliance	9,500		
2	Earthworks	100,770		
3	Ground Improvements	-		
4	Drainage	21,500		
5	Pavement and Surfacing	529,532		
6	Bridges	-		
7	Retaining Walls	-		
8	Traffic Services	203,033		
9	Utility Services	-		
10	Landscaping	14,665		
11	Traffic Management	67,285		
12	Preliminary and General	89,715		
13	Extraordinary Construction Costs	-		
	Sub Total Base Physical Works	1,038,000	209,000	313,000
D	Total for Implementation Phase	1,102,000	222,000	333,000
E	Project Base Estimate (A+B+C+D)	1,224,000		
	Project Base Estimate (rounded)			

F	Contingency (Assessed/Analysed) (A+B+C+D)	247,000	
G	Project Expected Estimate (E+F)	1,471,000	
	Project Expected Estimate (rounded)		
Total Property Cost Expected Estimate		-	
Project Development Phase Expected Estimate		-	
Pre-implementation phase Expected Estimate		147,000	
Implementation Phase Expected Estimate		1,324,000	

H	Funding Risk Contingency (Assessed/Analysed) (A+B+C+D)		370,000
I	95th percentile Project Estimate (G+H)		1,841,000
	95th percentile Project Estimate (rounded)		1,841,000
Total Property Cost 95th percentile Estimate			-
Project Development Phase 95th percentile Estimate			-
Pre-implementation Phase 95th percentile Estimate			184,000
Implementation Phase 95th percentile Estimate			1,657,000

Date of Estimate 01/06/2022	Cost Index (Qtr/Year)	Q1 FY 22/23
Estimate prepared by Russell Wark	Signed	
Estimate internal peer review by Marc Cilliers	Signed	
Estimate external peer review by	Signed	
Estimate accepted by Waka Kotahi project manager	Signed	

Note: (1) These estimates are exclusive of escalation and GST.
(2) Refer to Section 6.6 for guidance on rounding.

Albany Street Options

Concept Options Estimate

Option	Description	P50	P95
0.00	Do Minimum - Linemarking and signs	$ 51,080.00	$ 64,080.00
1.00	Option 1 - Linemarking and signs	$ 135,000.00	$ 169,000.00
2.00	Option 2 - Both side cycle lane linemarking	$ 292,000.00	$ 365,000.00
3.00	Option 3 - Shared Path	$ 1,155,000.00	$ 1,444,000.00
4.00	Option 4 - One side precast cycle separators	$ 821,000.00	$ 1,027,000.00
5.00	Option 5 - Both side precast cycle separators	$ 1,293,000.00	$ 1,617,000.00

Connecting Streets

Option	Description	P50	P95
0.00	Connecting Streets Design	$ 357,000.00	$ 447,000.00

Total Costs (exluding extensions)

Option	Description	P50	P95
0.00	Do Minimum - Linemarking and signs	$ 408,080.00	$ 511,080.00
1.00	Option 1 - Linemarking and signs	$ 492,000.00	$ 616,000.00
2.00	Option 2 - Both side cycle lane linemarking	$ 649,000.00	$ 812,000.00
3.00	Option 3 - Shared Path	$ 1,512,000.00	$ 1,891,000.00
4.00	Option 4 - One side precast cycle separators	$ 1,178,000.00	$ 1,474,000.00
5.00	Option 5 - Both side precast cycle separators	$ 1,650,000.00	$ 2,064,000.00

Extensions (Exclusive to Option 4)

Option	Description	P50	P95
0.00	Musuem Block Extension	$ 146,000.00	$ 183,000.00
1.00	Minerva Extension	$ 147,000.00	$ 184,000.00

Basis

1.0 Drawing Title - 60630252-SHT-CD-CI-ROADING-0001 to 0009-A/B & 1001

Assumptions

1.0 Open market tender, mininum of 3 conforming tenders

2.0 Full access, normal working hours

3.0 Albany Street (George St to Cumberland) - Sharrow markings only

4.0 Clyde & Hyde Street line marking change only

5.0 Anzac Ave - Western footpath widening to create shared pathway and designated crossing at Minerva street

Exclusions

1.0 Contaminated Material

1.0 GST

3.0 Land Purchase

4.0 Betterment to surrounding carriageway & stormwater

5.0 Services and utilities clashes

6.0 Escalation beyond date of estimate

7.0 Sunk Costs for Project Development Phase

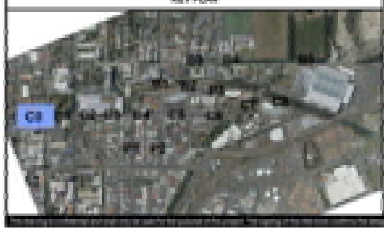
Legal Disclaimer

1.0 This estimate is solely for our Client's use for the purpose for which it is intended in accordance with the agreed scope of work. It may not be disclosed, used or relied upon by any person other than the Client contrary to the above, to which AECOM has not given its prior written consent.

Appendix E

Preferred Option Concept Design

KEY PLAN



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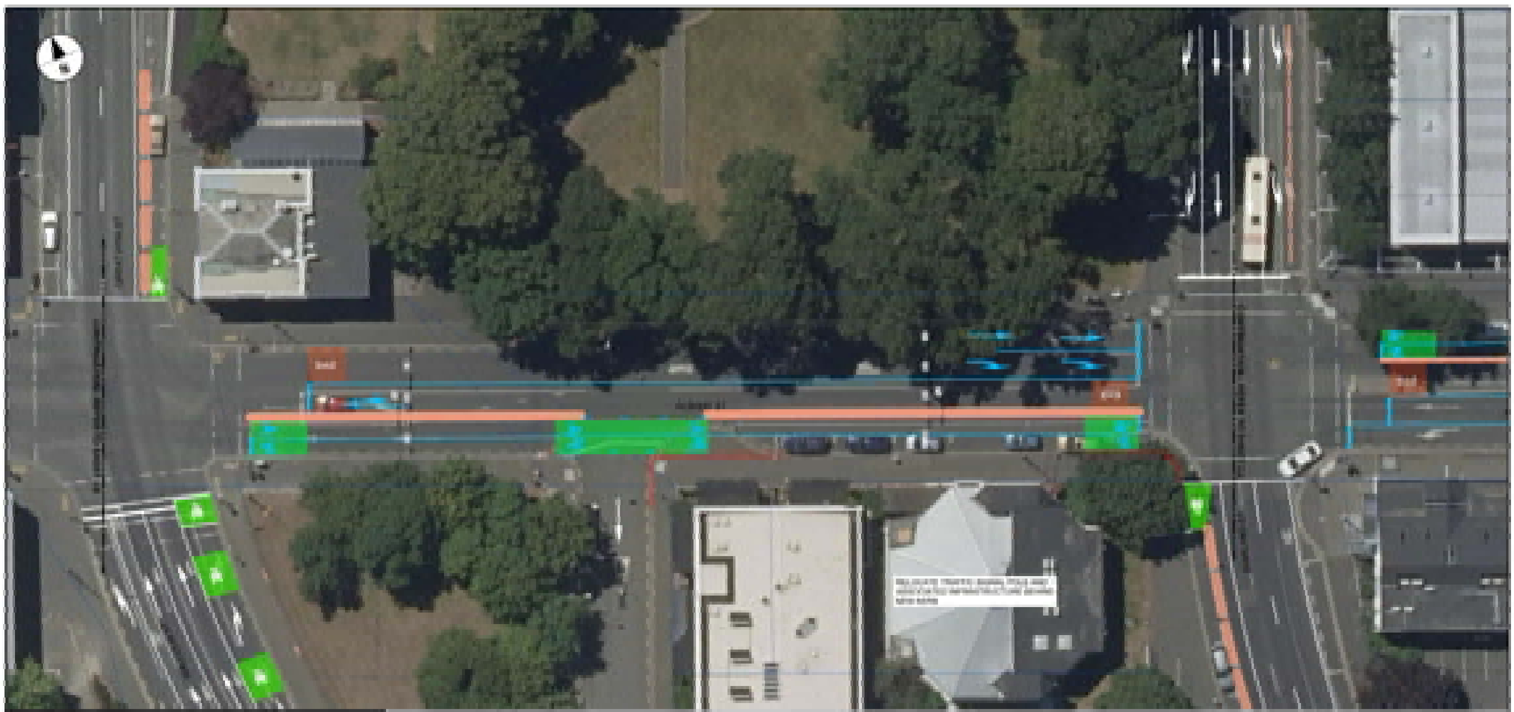
SHEET TITLE

ALBANY STREET LAYOUT
CONCEPT DESIGN
SHEET C8

SHEET NUMBER



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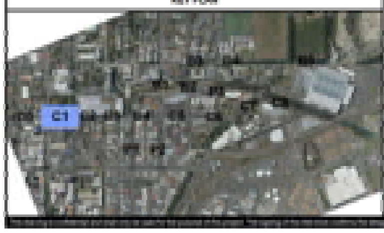

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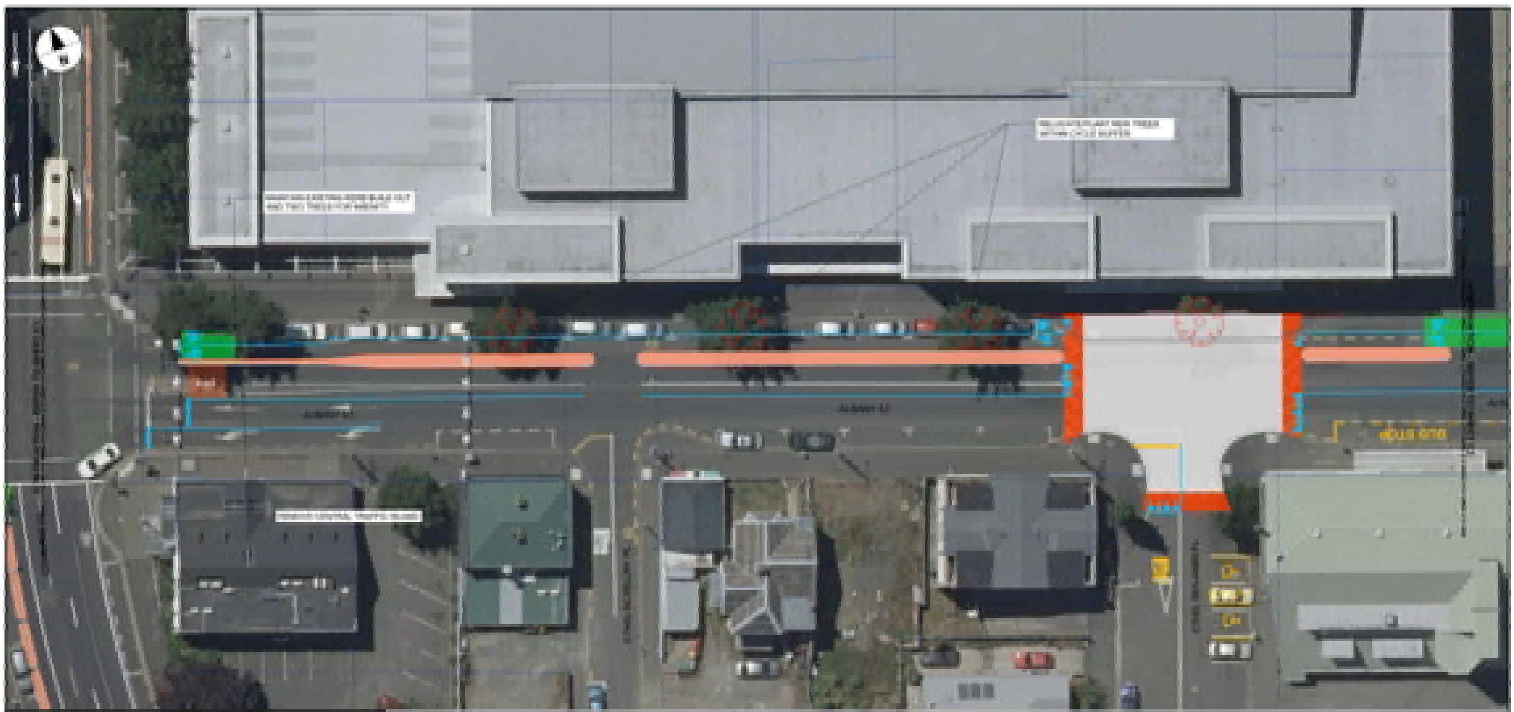

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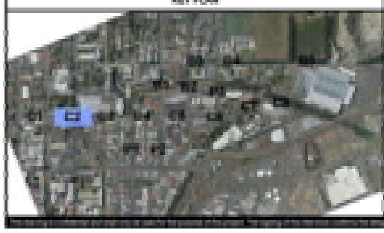

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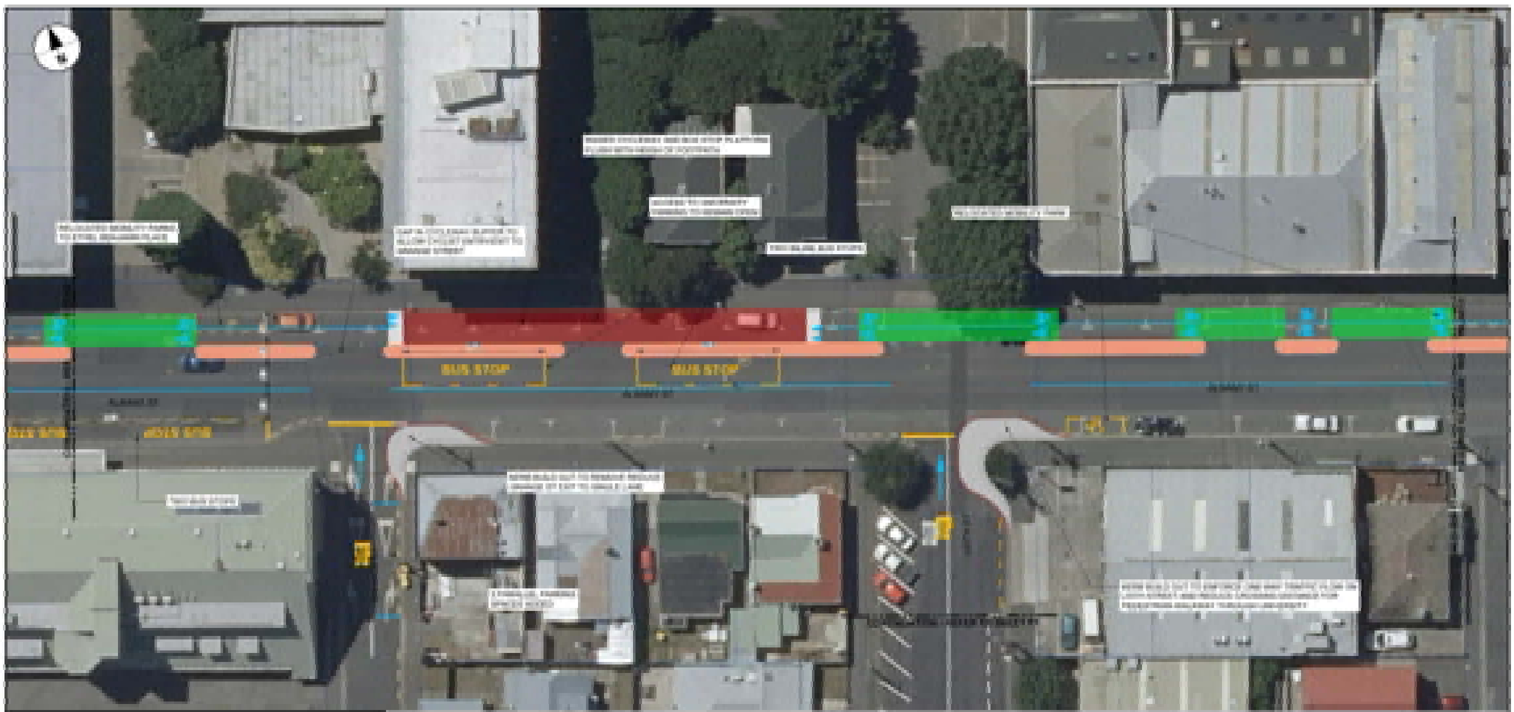

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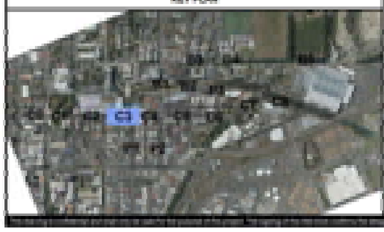

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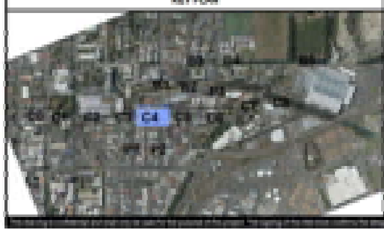

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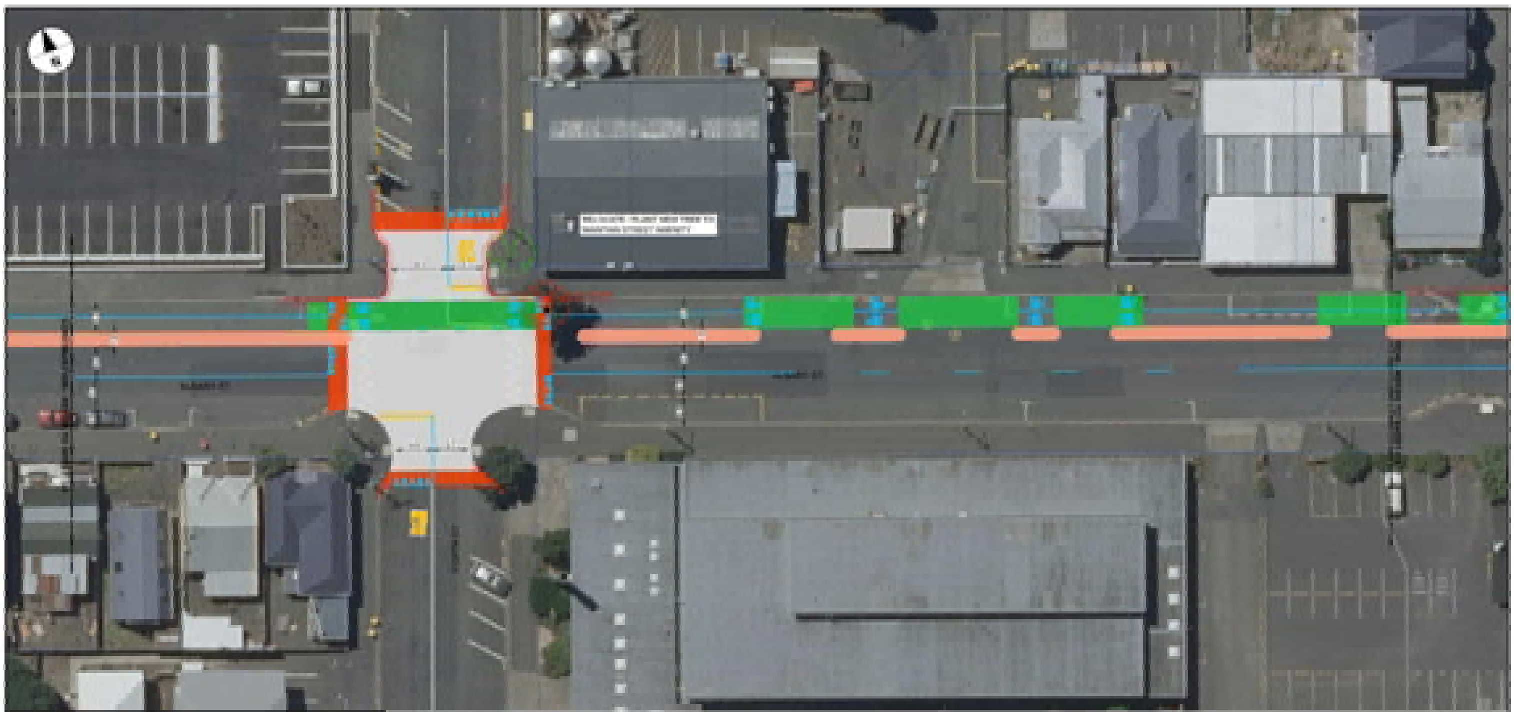

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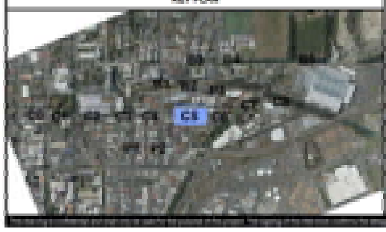

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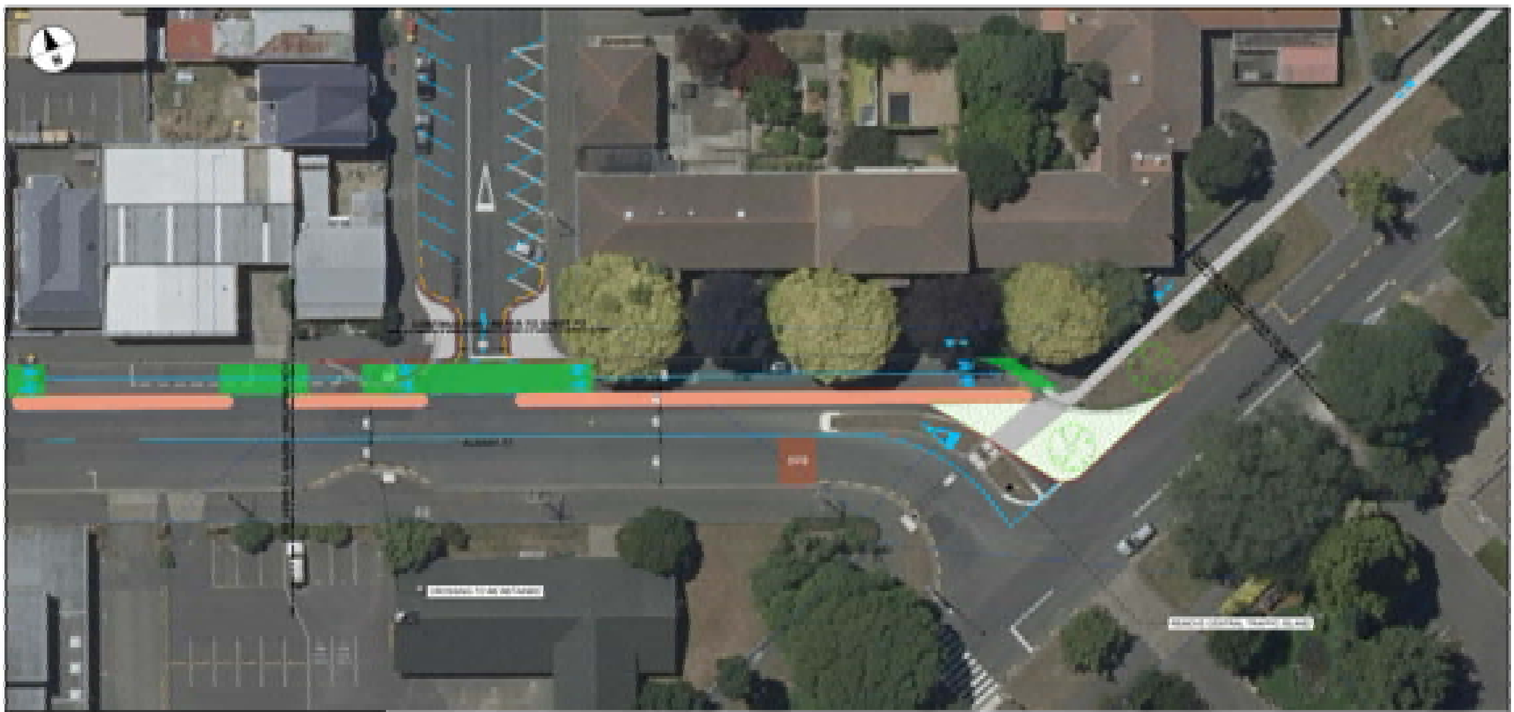

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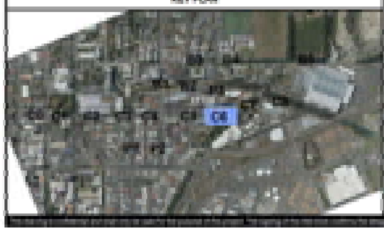

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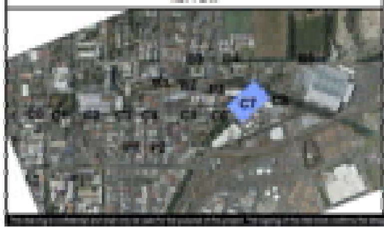

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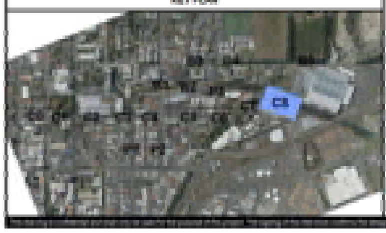

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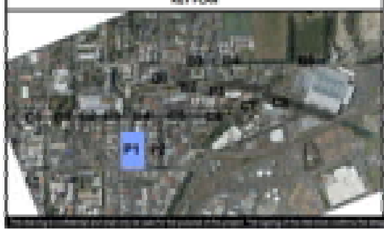

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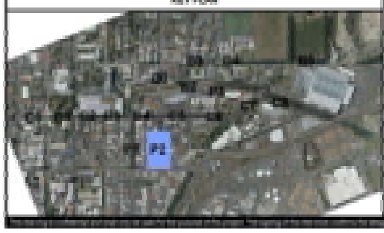

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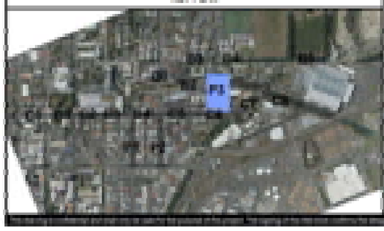

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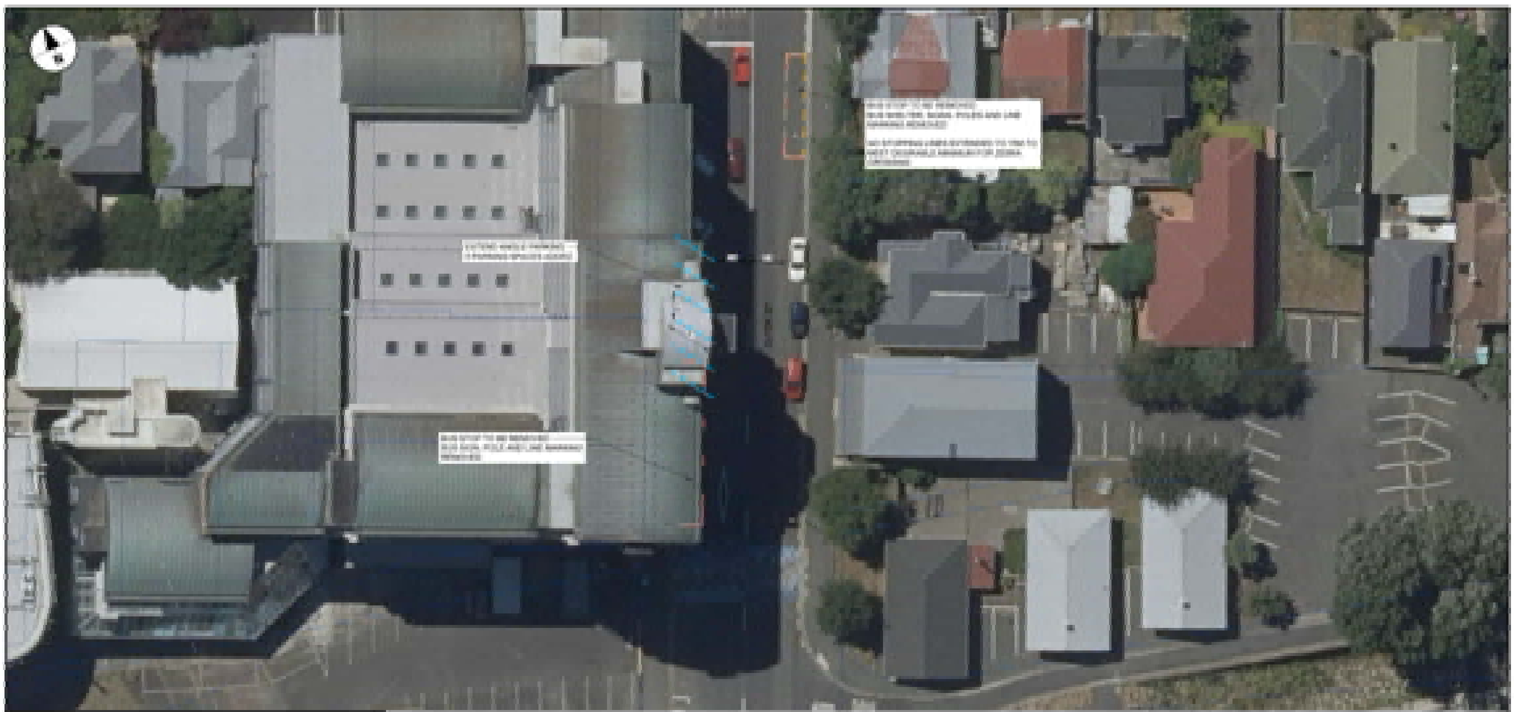

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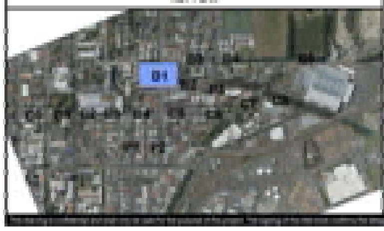

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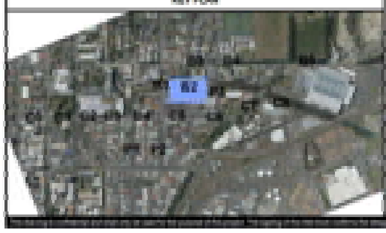

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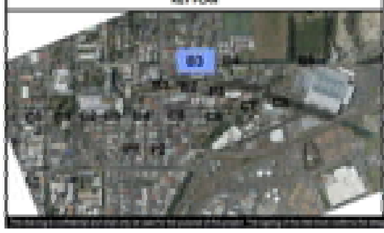

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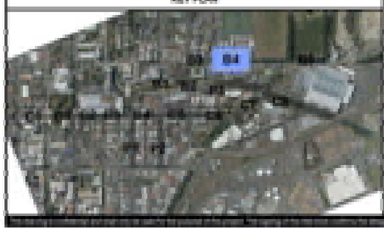
SHEET NUMBER

KEY PLAN



LEGEND GENERAL

NOTES GENERAL

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CONSULTANT

AECOM New Zealand Ltd

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PROJECT

CENTRAL CITY CYCLE AND PEDESTRIAN IMPROVEMENTS - ALBANY STREET

Dunedin City Council

DUNEDIN CITY COUNCIL | Ōtepoti

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REV	DATE	DESCRIPTION
		FOR INFORMATION

PROJECT NUMBER

SHEET TITLE

ALBANY STREET LAYOUT
CONCEPT DESIGN
SHEET B4

SHEET NUMBER

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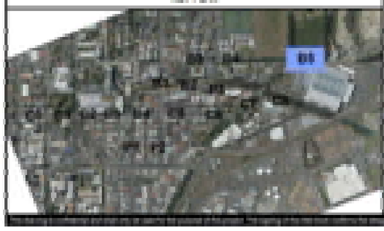

LEGEND GENERAL

NOTES GENERAL

AECOM

CONSULTANT

PROJECT

CENTRAL CITY CYCLE AND PEDESTRIAN IMPROVEMENTS - ALBANY STREET

Dunedin City Council

DUNEDIN CITY COUNCIL

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ISSUE/REVISION

PROJECT NUMBER

SHEET TITLE

ALBANY STREET LAYOUT
CONCEPT DESIGN
SHEET B5

SHEET NUMBER

Appendix F

Safety in Design Risk Register

e	Albany Street Cycleway - Single Stage Business Case ile
e sa e	Single stage business case
A	Benjamin Zmijewski AECOM
a e	27 04 2022
Ve s	

aza	a s	a sa	e s	a e	a es e e e	aza	sk s a e	es m a meas e	sa a va e ee mes	es a aza s	k	se e e	es a sk	sk e	W ks mme s	A ake
	Open	AECOM	B Zmijewski	3 04 2022	Al ia eas whe e a sepe ated c cleway s ins alled	Wa te o ection ope a ion on no th side o Albany Street	e a s a ma e a e	Wdth o cyc e sepe a o is 5m wide and can accomdoate a 240 was e whee le b nw thout ove hanging (depth = 730mm) Coni m wih Duned n waste colect on ope a o s to manage is s assoc a ed wth collect ng waste		one			OW	DCC		
2	Open	AECOM	B Zmijewski	3 04 2022	S gna sed c oss ngs on SH no hbound and ou hbound)	Need o accommodate diagonal c cle moveme t on Albany Street	e a s a ma e a e	o be m igated du ng deta ed design Ba nes dance c ossings cu e ty accommodate diagonal cyc e movement on SH wi h pedest a s at he same t me a ic signal des gn wl l accommodate cyc is s du ing the ba nes dance and any othe poss ble movements wth gene al ta c when sa e o do so		yc l ts app oaching the Ba nes ance when the phase s open may ass h ough he nte sect on at speed d wi h con l ct ng movemen s is should be ach ved h ough the esence o o he pedest ans n he ea	2	2	OW	DCC Waka Kotahi		
3	Open	AECOM	B Zmijewski	3 04 2022	Bus stops on Albany Street	Bus stop des gn and access o un ve s cyc pa k ng a eas	e a s a ma e a e	o be m igated du ng deta ed design Access to unve si y ca pa k o be mainained No p iva e veh c e access be ween bus s ops Use a oating bus s op design to educe umbe o ine ac ions between c d sts peds Cyc e sepe a o to be widened o accommodate she te and c ea nace a ea o passenge s		oo path cyc eway w dth may need o e educed to a commoda e loa ing s s op design Min mum w dhs hould be ma nta ned	2	3	MED UM	DCC ORC		
4	Open	AECOM	B Zmijewski	3 04 2022	Conve s ion o two-way st eets to o e way st ee s e g ei h St eet Cyde St eet Re go St eet	One-way side t ee s shou d ti a ow a e kely to be used o cyc e wo way t avel Oppo un ty to educe exi en o ke b bu ds at ede ick St eet o accommodate c cl sts	e a s a ma e a e	o be m igated du ng deta ed design Allow cont a- ow on hese st ee s Ma k edge l nes o h ghight a ea - need o p ovide bu e om ang e pa k ng on both sides o the oad OR move cont a ow cyc e ane ad acent to ke b o emove con ict po nt wi h pa ked veh cles Main ain pa a lel pa ing on ha side o he oad Sepe a e wth plan e boxes		nge pa king when ca s a e eve s ng t Ma k edge ines to highlight u e c ea ance a ea	2	3	MED UM	DCC		
5	Open	AECOM	M Wi iams	2 04 2022	A bany St eet Cumbe and St eet SH southbound) in e sec ion	A bany St eet st aight h ough t a c movement at SH sou hbound nte sect on	e a s a ma e a e	Ma k cont nui y gu del nes h ough in e sec ion o movement o hep d ve s en e t a ic lane and not cyc e ane by acc dent G een pa nt ma king wi l u the de inea e cyc eway		ive s coud phys ca y st l cont nue own the cyc e ane howeve th s s eemed o be an unlike ye ent		3	OW	DCC Waka Kotahi		
6	Open	AECOM	M Wi iams	2 04 2022	A bany St eet Cumbe and St eet SH southbound) in e sec ion	Cyc e sepe a o con ict at A bany-SH cumbe and] st eet nte sect on wi h vehic es t ave ing east on A bany St eet	e a s a ma e a e	End e b espe a o s to be sem-mountab e o educe ma ntenance costs and RR M s nsta led		ngo ng damage to sepe ato coud ont nue I his occu s sepe a o coud e na owed u the and sa e h t o a ds nsa led o hep d ve s avo d he a ea	2		OW	DCC Waka Kotahi		
7	Open	AECOM	M Wi iams	2 04 2022	A bany st eet nea Unive si y o Otago b a y	Na ow oo path w dth outs de Unive sy o Otago ib a y	e a s a ma e a e	o be m igated du ng deta ed design nial op ons inc ude W den ootpa h n his a ea to make he whoe hing sha ed pace - ma nta n a t ees ga n o pedest ians loss wil a so he p s ow pedest ians OR skew vehic e t a c a o nd ex st ng ke b ne o ma nta n ped oo path w dth in ont o ib a y		Wil depend on deta led des gn on gu at on	3	3	MED UM	DCC		
8	Open	AECOM	M Wi iams	2 04 2022	A bany St eet	Veh cles t ave ling above 30km h pe hou and nc eased sk o g ea te seve l y nu y	e a s a ma e a e	he o low ng e ements wil be added o he des gn No s opping l nes a ongside cyc e sepa a o wh t edge ine be ween bu e s edge ine along south e ns de o A bany S whe e pa k ng s p esent Edge l nes a ong o g ve pe ceived oad na owing plus ext a 30km h ed epea e panels a ised e ec ve oad pavement ma ke s u wid h ed h esho d ma k ng		dd t onal ve ica e emen s coud be ns a led o hep s ow veh cles in the ent hat veh cle speeds a e s l too igh	2	3	MED UM	DCC		
9	Open	AECOM	M Wi iams	2 04 2022	B dge on An ac Avenue ove he Rve o e th	St uctu a l mp ica ions o b dge on Anzac Ave w th a sed asphalt ped c oss ng on top = an ext a 7 053 kg o mass = 75 tonne on the b dge pe manent y Sem-t a le s have a maximum we ght o 39 tonne	s	o be m igated du ng deta ed design Coni m wih AECOM st uc u al engineer and seek ecommenda ions		a iageway w dth may be oo na ow d p ace addi ional st ess on d ive s avigating Mine va St eet Any ne act ons w l appen at slow speeds o unlike y to aise mao sa e y once ns	3	3	MED UM	DCC		
0	Open	AECOM	B Zmijewski	3 04 2022	Mine va St eet	Reduced w d h o Mine va St eet o sa e ly ma nta n wo-way t a c wth pa a lel pa k ng on both sides	e a s a ma e a e	Moni o ope at on o Mine a St eet du ing in a weeks o ope at on Remov ng pa king alongs de sha ed pathi he e a e subs anst al sa e y conce ns due to na ow ca ageway			3		OW	DCC		

Appendix G

Road Safety Audit Exemption Form

Road Safety Audit Exemption Form

NZ TRANSPORT AGENCY
WAKA KOTAHI

File reference	
Project name	Albany Street Cycleway
Project stage	Single Stage Business Case Life
RCA	Dunedin City Council

Brief project description and location:

The Albany Street Cycleway project seeks to improve active mode connections along Albany Street in North Dunedin. Albany Street has been identified as a key missing link in the Dunedin cycle network and will offer improved access to the Tertiary Precinct and Central City. The project seeks to improve safety outcomes for active modes and increase cycling uptake across the network. The project is currently in the Single Stage Business Case phase and Detailed Design is set to commence shortly.

Exemption rationale:

Given the Albany Street Cycleway project is a small-scale local authority project, it is the recommendation of the Dunedin City Council project manager and safety engineer that concept designs be except from a Road Safety Audit during the Single Stage Business Case phase. A Road Safety Audit will be conducted during the detailed design phase in line with Waka Kotahi Road Safety Audit Procedures.

Declaration:

Having checked the above project with reference to the relevant procedures as laid down in Road Safety Audit Procedures for Projects - Guidelines, 2013, I consider that the proposals will not have an adverse effect on the safety of road users over a significant period. Therefore I consider that an independent road safety audit is not required for this stage.

Recommended by (project manager):		**Endorsed by (safety engineer):**	
Name	[redacted]	Name	[redacted]
Position	[redacted]	Position	[redacted]
Signature	[redacted]	Signature	[redacted]
Date	26/05/2022	Date	26/5/22

Appendix H

Traffic modelling technical note

Albany Street – Testing for TPU Business Case

To	Ian Clark, [redacted]
Copy	
From	Matthew Gatenby (WSP), Chris Blackmore (Abley)
Office	Dunedin
Date	14 April 2022
File/Ref	6-CD109.52/00300
Subject	Albany Street Option Tests

Albany Street – Testing for TPU Business Case

Background

WSP and Abley were commissioned by Dunedin City Council (DCC) to undertake option testing for several potential network changes on Albany Street, related to a bi-directional cycleway being provided along one side of Albany Street, with associated other traffic management changes. The relevant section of George Street is shown in Figure 1 covering the area between the intersections of Moray Street/George Street in the south to George Street/Frederick Street/London Street in the north.

Figure 1: Extent of network changes along Albany Street

WSP
Dunedin
197 Rattray Street
Dunedin 9016
New Zealand
+64 3 471 5500
wsp.com/

This tech note describes the option testing completed using the 2028 Future Baseline models (with George Street as the preferred southbound-only option), considering the weekday AM peak, Interpeak and PM peak periods.

Modelling Scenarios

The options developed were set out into four tasks:

- Test 1: Update base in the Albany Street area to better represent the local road network
- Test 2: Option 1 + Conversion of sections of Leith Street and Clyde Street (between Albany Street and Frederick Street) to one-way operation
- *Test 3: Option 2 + one-way eastbound traffic operation of Albany Street between Great King Street and Cumberland Street*
- *Test 4: Option 3 + one-way westbound traffic operation of Frederick Street between Castle Street and Cumberland Street*

This note only reports the results for Tasks 1 and 2.:

Test 1

For option 1, a number of minor changes were made to the 2028 Future Baseline model. For the purposes of the modelling work, the recent 2028 DMM George Street SB-only option was used as the starting point.

- Additional detail added between Albany St and Frederick St
    - Connecting Hyde St as a through route, one-way southbound (previously not a through route in the model)
    - Connecting Leith St as a through route, two-way between Albany St and St Andrews St (previously not a through route in the model)
    - Added Grange St, one-way northbound between Frederick St and Albany St (previously not in model)
    - Connected Harrow St and Forth St as a through route, two-way between Albany St and Frederick St (previously not a through route in the model)
- Included planned speed limit changes of 30kmh to the Albany St Tertiary Precinct between Cumberland St and Anzac Avenue
- In addition, it was found that the short right turn from Gowland Street into Frederick Street was shorter in the model than in reality (due to it being extended when the SH1 cycleway was added). This was corrected in the model, as it became a more critical movement in Tests 3 and 4

The updated base network is shown in Figure 2.

Traffic volumes on Albany Street drop between the previous Base and Option 1 (refined Base), primarily due to the addition of the 30kph speed limit, which encourages traffic to re-assign onto other east-west parallel routes, and the modification of the side roads to represent through roads, which also results in more traffic rat-running through the area in a north-south direction.

After including the updates, two-way volumes along Albany St are generally between 100 vph and 300 vph in the three modelled periods. A plot of peak hour volumes in the evening peak is shown in Figure 3.

It is likely that the volumes on Albany Street in the model are lower than the actual volumes (even accounting for the above reductions due to the model changes) – but that this is likely to be due to a general shortfall in volumes in the base model on Albany Street.

Figure 2: Added Network Detail

Figure 3: Test 1 traffic volumes in vph (1700-1800)

Test 2

The following changes have been included in the model to assess the impact of one-way operation around Albany St:

- Leith Street one-way northbound between Frederick Street and Albany Street
- Clyde Street one-way southbound between Albany Street and Frederick Street
- Roundabout removed at intersection of Albany Street / Clyde Street and reverted to priority control

Operation in all periods follow a similar trend where the vehicles displaced from travelling southbound on Leith Street (~125 vph) and northbound on Clyde Street (~300 vph) instead tend to utilise Forth Street (~175 vph) and Anzac Avenue / Union Street (100-150 vph).

There is limited rerouting (<50 vph) around the northern border of the University which tends to route via the SH1 one-way pair.

A diagram of the local area volume change in the evening peak is shown in Figure 4. Changes in the morning peak and interpeak periods follow a similar trend. In terms of general operation of the network, there is little change between Test 2 and Test 1 – the re-assigned traffic volumes are relatively small and can be accommodated by the road network operation, with minimal delay experienced on either the previous or new (re-assigned) route within the immediate study area.

In the case of the Albany Street/Clyde Street intersection change (roundabout, back to priority controlled), the model predicts a drop in southbound volumes on Clyde Street (Albany to Frederick), and this is due to the change in control at the intersection (increased delay to north-south cross movements, less delay to east-west cross movements). At present we have not included the conversion of Forth Street to a one-way route (in either direction) but it is likely

that this would result in more traffic being pushed onto the Anzac Avenue route, as well as other traffic back onto the other minor through roads (of Leith Street and Clyde Street).

Figure 4: Volume difference plot of Test 2 v Test 1 in vph (1700-1800)

Summary

The above section has shown the relative performance of each of two test options for Albany Street and connecting side roads at the 2028 future year

Table 1 shows a summary of traffic volumes in the model on Albany Street and the various north-south side roads under the Tests able to be run successfully (Base plus Tests 1-2). The table also includes volumes from a 2016 count at the Albany Street/Clyde Street intersection, prior to the conversion to a small roundabout, for context on observed volumes.

Figure 5 and Figure 6 show these AM and PM peak volumes in graphical form.

Table 1: Summary of two-way flow volumes

Scenario	2016 Count	Baseline	Test 1	Test 2
AM Peak Hour				
Albany Street (E of Cumberland)	609	379	87	141
Grange St (S of Albany)	-	-	2	2
Leith Street (S of Albany)	-	84	55	326
Hyde St (S of Albany)	-	54	54	66
Clyde Street (S of Albany)	199	800	778	133
Forth St (S of Albany)	-	42	59	321
Anzac Avenue (S of Albany)	-	433	369	468
Total (North-South links)	-	1413	1316	1316
Interpeak Hour				
Albany Street (E of Cumberland)	-	395	86	183
Grange St (S of Albany)	-	-	1	2
Leith Street (S of Albany)	-	135	64	240
Hyde St (S of Albany)	-	61	67	70
Clyde Street (S of Albany)	-	517	568	185
Forth St (S of Albany)	-	18	42	217
Anzac Avenue (S of Albany)	-	320	250	349
Total (North-South links)	-	1051	992	1063
PM Peak Hour				
Albany Street (E of Cumberland)	618	522	297	374
Grange St (S of Albany)	-	-	7	6
Leith Street (S of Albany)	-	118	115	224
Hyde St (S of Albany)	-	64	89	88
Clyde Street (S of Albany)	222	727	670	207
Forth St (S of Albany)	-	65	74	289
Anzac Avenue (S of Albany)	-	593	498	629
Total (North-South links)	-	1568	1453	1444

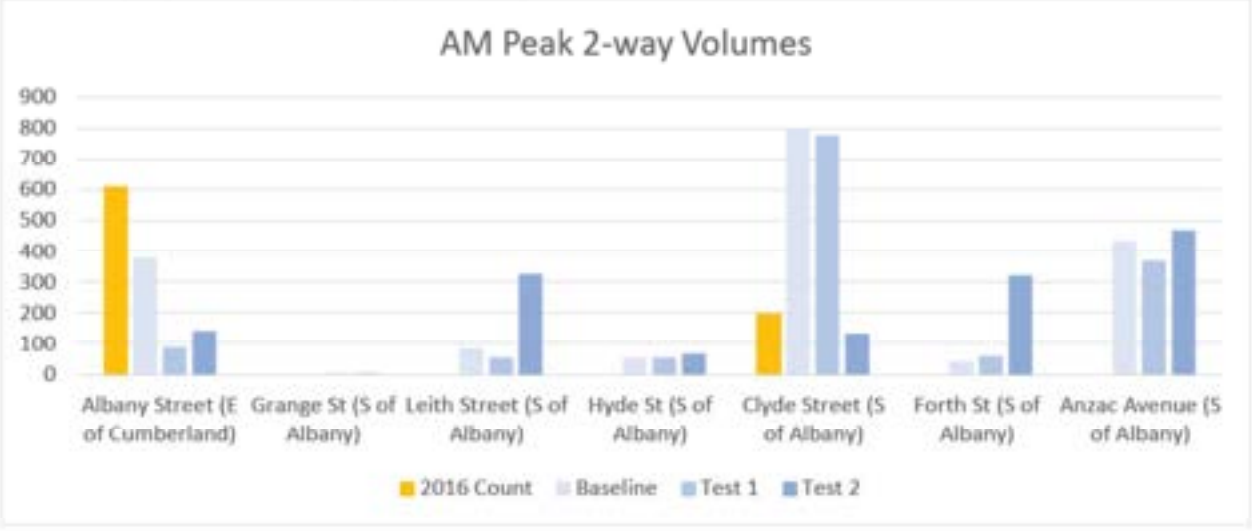

Figure 5: AM peak hour two-way flow comparison

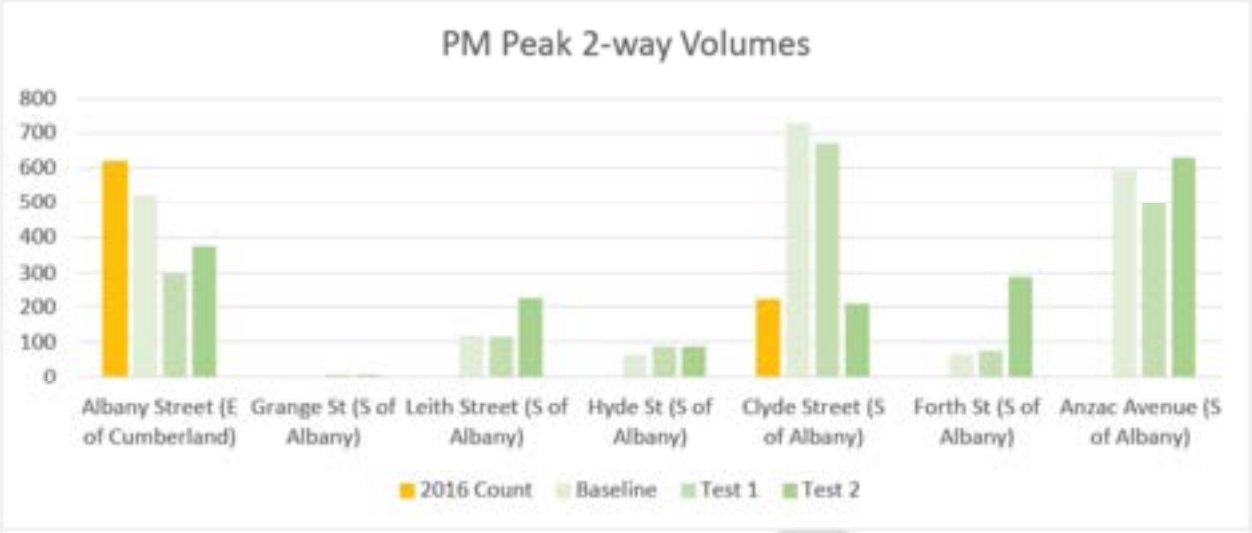

Figure 6: PM peak hour two-way flow comparison

For Comparison with the 2016 Count:

- Clyde St volumes in the 2016 count and Test 2 (i.e. with roundabout set back to priority control) are in the same ballpark
- Albany Street volumes in the model are low in the AM peak, but ok in PM (comparing 2016 count to baseline)
- In summary, the flow comparison shows some differences, but not fundamental flaws in respect of maintaining a reasonable representation

For Test 1 (Base Update):

- There is a significant decrease in traffic volumes on Albany Street, compared to the 2028 Baseline scenario – due to the lower speed (50kph to 30kph) and other speed reduction measures added in the Test 2 scenario.
- On the side roads, there is only minimal change in volumes, resulting from the re-coding of the links as through links. This shows that the lack of detail in the original base model had little impact on the overall operation of the model in this area
- Overall, the update has a negligible impact on overall network operation

For Test 2 (Side Road changes):

- There is a predicted significant drop in volumes on Clyde Street, forecast to be due to the removal of the small roundabout at the Albany Street/Clyde Street intersection, resulting in more delay on the Clyde Street (north) approach (and therefore a less attractive through north-south route); and the conversion of the link to one-way southbound
- Leith Street and Forth Street see associated increases in volumes, as traffic re-assigns to these links instead of Clyde Street – with more minor increases on Anzac Avenue and Albany Street
- Overall, the changes in Test 2 have little impact on overall network operation, except for the re-assignment of traffic between these various north-south route options. Note the total north-south volumes across all side streets is fairly static between the Base, Test 1 and Test 2, showing that wider assignment is not predicted

In conclusion, it would appear that the proposed changes to the side roads to the south of Albany Street (and associated provision of a segregated bi-directional cycleway) in Test 2 have a negligible impact on network operation.

Disclaimer

This technical note ('Report) has been prepared by WSP New Zealand Limited ('WSP') exclusively for Dunedin City Council ('Client') in relation to the modelling of TPU options within the DMM ('Purpose') and in accordance with DCC Project reference 9479 and WSP LTES Panel Scope of Works dated 8 March 2021). The findings in this Report are based on and are subject to the assumptions specified in the Report. WSP accepts no liability whatsoever for any use or reliance on this Report, in whole or in part, for any purpose other than the Purpose or for any use or reliance on this Report by any third party.