ZERO CARBON INVESTMENT PACKAGES

Department: Sustainability Group

EXECUTIVE SUMMARY

1 This report provides Zero Carbon High and Medium investment packages ('the packages') for consideration in the 9 year plan, as requested by Council. A summary of the packages is presented in Attachment A. Detail of each investment option is provided in Attachment B, with notable exclusions in Attachment C.

2 This report also provides a summary of projects within draft 9 year plan budgets that will provide some emissions reduction benefits. Each draft capital budget line has been assessed for contribution to emissions reduction.

3 As the national context has shifted significantly in the 15 months since initial advice was provided to Council, this report also provides an update on the national context for emissions reduction and implications for Zero Carbon Plan implementation (Attachment D).

4 The packages were developed taking into account guidance from the councillor-led Zero Carbon Plan Advisory Panel. Investment options were prioritised primarily based on emissions reduction potential per dollar spend, with secondary considerations including building on other DCC investment underway, seeking opportunities to catalyse by building on or maintaining momentum, and aligning with DCC strategic priorities.

5 Package development considered the different roles of the DCC, from providing infrastructure, to supporting and enabling communities to change behaviour, and decarbonising the DCC's own assets. The full breadth of the Zero Carbon Plan was considered, with a particular focus on action areas that were identified as having higher emissions reduction potential. Transport is a particular focus due it being a high proportion of total city emissions (34% in 2021/22).

6 The High package includes a total of $101.17 million capital expenditure and $9.00 million operating expenditure plus ongoing interest and depreciation costs. The Medium package includes a total of $35.54 million capital expenditure and $5.54 million operating expenditure plus ongoing interest and depreciation costs. The Medium package excludes several transport projects and DCC emissions reduction projects. In addition, several projects in the Medium package have scaled back investment (with scaled back emissions reduction outcomes). A summary of the High and Medium investment packages is at Attachment A.

7 The level of DCC investment in emissions-reducing 9 year plan projects has implications for emissions at both DCC and city-wide scales.

a) At the city scale, the High and Medium packages would support emissions reduction and provide other benefits for the community. However, preliminary indications from modelling are that, in the updated context, it is unlikely either package will bring about the degree of change at the pace required to achieve the city's 2030 target.

b) At the DCC scale, based on modelling completed in 2023/24, it's possible that the DCC's organisational target can be achieved with projects that are in draft budgets alone.

Investment in High and Medium packages would increase the probability of this target being achieved.

8 Decisions about Zero Carbon packages will have implications for other parts of the draft 9 Year Plan, including the Significant Forecasting Assumptions and Levels of Service. Amendments to some other draft plan content may also be required to ensure the broader 9 Year Plan accurately reflects decisions about Zero Carbon packages.

RECOMMENDATIONS

That the Council:

a) **Decides** on a preferred option for Zero Carbon investment packages, for consultation purposes, as part of the 9 year plan 2025-34.

b) **Approves** inclusion of the additional Zero Carbon city-wide Level of Service appropriate to the chosen investment option.

c) **Delegates** authority to the Chief Executive Officer to make changes to the Significant Forecasting Assumptions, Finance Strategy, Infrastructure Strategy, and other relevant 9 Year Plan documents to reflect decisions about Zero Carbon investment options.

BACKGROUND

Emissions reduction targets and the Zero Carbon Plan

9 The DCC is seeking to manage and reduce emissions at two scales – DCC at the organisational level, and the city. Decisions on the 9 year plan have implications for emissions at both scales.

10 At the DCC scale, the target is to reduce emissions 42% from a 2018/19 baseline by 2030/31. The organisation is so far tracking well towards this target, having achieved a 29.7% reduction from the baseline year in 2023/24.

11 At the city scale, the DCC has adopted a 'Zero Carbon 2030' city emissions reduction target, which is in two parts:

- net zero emissions of all greenhouse gases other than biogenic methane by 2030, and
- 24% to 47% reduction below 2017 biogenic methane emissions by 2050, including 10% reduction below 2017 biogenic methane emissions by 2030.

12 In September 2023, Council adopted an emissions reduction plan for Dunedin: the Zero Carbon Plan 2030. The Zero Carbon Plan set out a pathway to achieve the city's target, building on trends already underway. At last count, Dunedin's emissions were tracking down – between 2018/19 and 2021/22, Dunedin's gross emissions decreased by 9%.

13 The modelling that underpinned the Zero Carbon Plan built in emissions reduction targets and commitments made by government and other entities, as well as DCC actions. It concluded that achieving the city's targets would require a wide range of government, community, and business stakeholders to pull all available levers as hard as credibly possible.

The Zero Carbon Plan identified that upfront investment would be required to achieve targets

14 The Zero Carbon Plan sets out the overall shifts Dunedin will need to make as a city to become a Zero Carbon city.

15 The Plan also identifies the DCC's roles to support the transition to zero carbon, setting out 'action areas' for the DCC prioritised by emissions reduction potential. In doing so, it recognises that many actions required to reduce emissions will reduce costs in the medium term, but there will be upfront costs especially for owners of assets/infrastructure.

16 While no equivalent figures are available for Dunedin, a report by Deloitte estimates that inadequate climate action could cost the New Zealand economy $4.4 billion by 2050, with losses becoming exponentially worse after that. On the other hand, decisive climate action could deliver $64 billion to New Zealand's economy by 2050.

17 Many actions also have co-benefits for the community and city, such as reducing the costs of living or doing business, health benefits, and community cohesion.

Zero Carbon investment packages were considered in September 2023

18 In September 2023, an indicative implementation plan was presented alongside the Plan.

19 The accompanying report also included indicative 'high', 'medium' and 'low' investment scenarios for Zero Carbon investment over the 2024-34 10 year plan period. Each scenario identified additional funding on top of each department's early draft 10 year plan capital and operating budget.

20 At that time:

a) *high investment scenario* included undertaking all DCC actions at the highest level deemed feasible and deliverable over the period to 2030.

b) *medium investment scenario* retained a high level of investment in decarbonisation of DCC-owned infrastructure and transport-related actions, but most other actions were to be progressed to a lesser degree than under the high investment scenario.

c) *low investment scenario* retained a high level of investment in decarbonisation of DCC owned infrastructure, but the level of investment in transport-related actions was reduced. Most other actions were retained at the minimum level that staff considered would have any degree of efficacy. Some actions that were considered to represent longer-term investments in emissions reduction (e.g. amenity aspects of urban form actions) were not progressed.

21 For the purposes of costing each scenario, New Zealand Transport Agency (NZTA) co-funding was assumed for projects that would qualify under policy settings at the time.

22 At that meeting, Council resolved:

Moved (Cr Steve Walker/Cr Christine Garey):

That the Council:

f) **Requests** further development of the high investment option for the Zero Carbon Implementation plan (as the preferred option) in time for consideration as part of the Draft Long Term Plan 2024-34, with medium investment as the alternative option.

Division
The Council voted by division

For: Crs Sophie Barker, David Benson-Pope, Christine Garey, Kevin Gilbert, Carmen Houlahan, Marie Laufiso, Mandy Mayhem, Jim O'Malley and Steve Walker (9).

Against: Crs Bill Acklin, Cherry Lucas, Lee Vandervis, Brent Weatherall and Mayor Jules Radich (5).

Abstained: Cr Andrew Whiley (1).

The division was declared CARRIED by 9 votes to 5

Motion carried (CNL/2023/214)

Establishment of the Zero Carbon Plan Advisory Group

23 On 27 August 2024, Council resolved to establish a Zero Carbon Plan Advisory Group, as follows:

Moved (Cr Cherry Lucas/Cr Sophie Barker):

That the Council:

a) **Adopts** the Zero Carbon Plan Advisory Panel Terms of Reference with agreed amendments to the frequency of reporting and meetings and membership.

Motion carried (CNL/2024/156) with Cr David Benson-Pope recording his vote against

24 The Zero Carbon Panel Advisory Group Terms of Reference and full minute extract from the meeting are included as Attachment E.

The context has changed since September 2023

25 Under the Climate Change Response Act, the government is required to formalise a planned approach to reduce emissions in line with targets by publishing a national emissions reduction plan. The Zero Carbon Plan was developed and adopted in the context of New Zealand's first emissions reduction plan (ERP1).

26 Since the October 2023 central government election, changes in central government policy and co-funding have had a material impact on the DCC's emissions reduction activity. A number of projects included in the Zero Carbon 2023/24 implementation plan because of their potential to reduce transport emissions, have been either discontinued or put on hold.

27 In December 2024 the Government released 'Our journey towards net zero: New Zealand's second emissions reduction plan 2026-30' (ERP2).

28 Key changes between ERP1 and ERP2 include:

a) Significantly reduced policy support and co-funding for active and public transport;

b) Mode shift, speed, and vehicle kilometre travelled (VKT) reduction plans discontinued or scope amended;

c) Government incentives and funding for electric vehicles discontinued;

d) EECA's 'Government Investment in Decarbonising Industry' and commercial funding discontinued;

e) Climate Emergency Response Fund discontinued;

f) Mandates to standardise recycling/organics collections in urban areas discontinued, along with related reporting initiatives;

g) Equitable transition and circular economies not included as priorities;

h) On-farm emissions no longer being priced from 2025 (now 2030); and

i) An increased emphasis on removing regulatory barriers, for example to enable faster investment in renewable energy projects.

29 Other Government policy programmes also have implications for the potential scope of DCC's emissions reduction efforts. Examples include local government reform, water services reform and resource management reform.

30 The DCC's own work programmes have also progressed. For some emissions sources, work undertaken during 2023/24 and 2024/25 has resulted in better defined emissions reduction investment options.

31 These changes in the emissions reduction context have required 'high' and 'medium' investment packages to be re-worked.

32 Attachment D provides detailed information about how the changed context has been reflected in the updated investment packages and advice.

Zero Carbon Levels of Service

33 On 5 November 2024, the OAG released a report auditing the performance of four councils' climate work. The report includes five recommendations for councils, three of which relate to reporting.

34 Specifically, the OAG recommend Councils should:

a) make clear in climate strategies what their climate-related objectives are, how they intend to achieve those objectives, how they will use their strategies to set priorities, and how they will measure and report on progress in implementing their strategies;

b) strengthen the use of performance measures that reflect climate-related strategic objectives and priorities; and

c) report publicly on progress with their climate change strategies and work programmes, to support accountability and so communities are well-informed, engaged, and supportive.

35 The DCC now has a well-developed emissions reduction framework, which can support reporting in line with OAG expectations:

a) A Zero Carbon Policy and associated guidance that is built into procurement processes, project management processes, and Council report templates.

b) Organisational emissions reduction targets for 2026/27 and 30/31, a DCC Emissions Management and Reduction Plan and associated modelling.

c) City-wide emissions reduction targets for 2030/31, a Zero Carbon Plan and associated modelling.

36 On 10 December 2024, Council adopted Levels of Service for inclusion in the draft 9 year plan, including a specific LoS for DCC emissions **(CNL/2024/245)**.

37 As the recommended LoS for city-wide emissions was dependent on Zero Carbon investment packages, options are presented in this report for Council consideration.

DISCUSSION

Zero Carbon Plan Advisory Panel advice informed Zero Carbon investment package development

38 In November 2024, the Zero Carbon Plan Advisory Panel provided advice to inform Zero Carbon investment package development as follows:

Guidance on High and Medium investment packages

a) Original 'High' investment scenario definition to be retained (undertaking all DCC actions at the highest level deemed feasible and deliverable over the period to 2030), aligning as closely as possible with what is required to achieve the Zero Carbon target.

b) Any actions not included due to being deemed not feasible/deliverable, also be appended.

c) 'Medium' investment scenario to be a subset of high priority options, with an associated statement on likelihood of emissions reduction targets being achieved. Quantum / level of investment to be decided by Council.

Guidance on prioritisation

a) Carbon removal options to be workshopped directly with Council.

a) Prioritisation of actions should be based on emissions reduction potential. Highest priority should be actions that represent 'greatest emissions reduction potential per dollar spend'.

b) Relative importance of other considerations as follows:

i) Seeking opportunities to build on other existing DCC investment;

ii) Seeking opportunities for DCC to act as a catalyst by building on other available resources or momentum;

iii) Alignment with DCC's strategic framework; and

iv) Ensuring DCC is set up to scale up action quickly in the future, in response to changes or opportunities.

c) Co-benefits should also be assessed for each action, as supporting information.

Guidance on content:

a) Package development assessments to include consideration of:

i) Potential 100% local share funding for transport 'ready to deliver' walking and cycling projects.

ii) Potential funding for ORC-led projects that may improve public transport outcomes.

Potential Zero Carbon Plan investment options for inclusion in packages were reviewed and updated

39 The September 2023 indicative implementation plan was reviewed considering the updated context, work that had been completed since September 2023, and Zero Carbon Plan Advisory Panel advice. This resulted in some actions that were no longer feasible being discounted, and other new opportunities being added. Per the Panel's guidance, to be included in either investment package, projects needed to be considered feasibly deliverable in the period to 2030 and meet one of the following definitions:

a) **'Core'** emissions reduction initiatives either:

- have a key focus on reducing city-wide emissions; and/or
- were identified as a priority in the September 2023 Zero Carbon indicative implementation plan.

b) **'Contributes'** emissions reduction initiatives will either:

- make a material contribution to city-wide emissions reduction, but emissions reduction is not a primary reason for investing; or
- contribute to the DCC's own decarbonisation but have less impact on city-wide emissions reduction.

40 Actions deemed only **complementary** to emissions reduction efforts were not included. These actions are not emissions reduction focussed and would only deliver emissions reductions as a co-benefit of the project – reflecting poorer emissions reduction per dollar spend than 'core' and 'contributing' actions.

41 Scope and costings for each potential action were reviewed and updated. This is particularly relevant for transport-related investment options:

a) Given that Government policy/NZTA funding settings make it very unlikely that new walking, cycling or public transport projects would attract NZTA co-funding, these investment options have all been costed at 100% local share (DCC funding).

b) Where NZTA co-funding has been reduced for existing services, two separate investment options have been included. Investment required to 'maintain 2024/25 status quo' has been separately presented from 'further expand service levels'.

42 Staff also considered opportunities to bring forward existing projects already in draft budgets, where doing so would materially contribute to the achievement of city-wide emissions reduction targets.

Zero Carbon Plan investment options were then prioritised to maximise emissions reduction per dollar spend

43 Non-transport options and transport options were separately assessed and prioritised, with the primary consideration being maximising emissions reduction per dollar spend.

44 For transport actions, a notable additional factor in determining priority was how quickly a project could be delivered. Several walking and cycling projects have been fully designed and consulted on. In some instances, projects that are 'ready to go' have been prioritised in investment packages over those that may ultimately deliver larger emissions reduction benefits

but are yet to move through planning stages. The rationale is that emissions reduction benefits will be realised earlier and have greater effect on the achievement of targets.

45 Co-benefits of each action were also separately assessed and are reported for each action, but in line with Zero Carbon Plan Advisory Panel advice these have not been factored into the prioritisation.

Some actions were not included in the High and Medium investment packages

46 Several projects that were included in the original September 2023 indicative action list have not been included in either the High or Medium investment scenarios for a range of reasons, including:

a) actions have been assessed as relatively lower emissions reduction benefit for the investment required.

b) there is high uncertainty about costs, scope or phasing.

c) provision is already included in draft 9 year plan budgets.

d) provision is included in a separate 9 year plan investment option (Draft Festival and Events Plan and Implementation Options report only).

47 Attachment C sets out a list of more notable exclusions and the reason for their exclusion.

Public transport investment options have been considered

48 Achievement of Dunedin's emissions reduction targets is highly dependent on significant growth in public transport mode share. Investment in public transport improvements has the potential to grow mode share faster and at lower capital cost than investment in active modes, because:

a) according to recent surveys, for the majority of Dunedin people public transport is the most viable alternative to use of private motor vehicles;

b) improvements to the key factors that determine public transport mode share (e.g. frequency, relative journey times, reliability and affordability, infrastructure quality) can be achieved more quickly and without the complex capital investment that some cycle and pedestrian infrastructure requires; and

c) public transport improvements promote travel choice for longer journeys.

49 However, investment in public transport generates fewer co-benefits than investment in active modes.

50 Public transport patronage has been increasing under current service settings. Between 2018/19 and 2023/24, patronage in Dunedin grew approximately 54%. From 2018 to 2023, despite Covid-related interruptions, the proportion of people traveling to work on public transport increased 33% (4% to 5.3%).

51 However, Government policy and reduced co-funding is likely to result in changes that will adversely affect patronage. The Otago Regional Council (ORC) has been directed to increase the percentage of public transport operating costs it recovers from 'private share' (sources other than rates and government funding) – from 18.7% in 2023/24 up to 40% by 2026/27. The ORC is yet to formally consider its response, but councils elsewhere have signalled the policy change is likely to result in significantly higher fares.

52 Zero Carbon and Transport staff have identified potential priority areas for direct DCC investment in public transport that may mitigate adverse impacts on patronage and have engaged with ORC staff about these. Projects focused on improving bus priority and bus network/infrastructure are included in the High and Medium investment packages. However, it has not yet been possible to jointly scope or cost other investment options that have the potential to support bus patronage.

53 Further conversations with the ORC and NZTA are required to determine whether there is an opportunity for the DCC to contribute to the maintenance of affordable fares through direct investment in bus operations. The ORC is working through the implications of the recent Government/NZTA direction on private share recovery targets. There remains some uncertainty about what constitutes 'private share' funding, and whether there is a way for DCC contributions to qualify as 'private share'.

54 Subject to finalisation of priorities through the ORC's Regional Public Transport Plan, other investment options could focus on the development/delivery of a scheme enabling employer subsidy of staff public transport costs (similar to Fareshare in Auckland). This would also need further scoping with the ORC.

55 Staff will continue to engage with the ORC and will update Council when there is clarity on investment options, noting that this may preclude their consideration until Annual Plan 2026/27.

56 It should be noted that public transport mode share is also strongly linked to other DCC projects and decisions, particularly those relating to parking management (parking pricing and availability of parking influences residents' transport choices). In the High and Medium packages, investment options like workplace travel planning (which encourages use of public transport) would also support mode shift.

Investment options to promote carbon removals have been considered

57 The DCC has adopted a city-wide target of achieving a 'net zero' position for all greenhouse gas emissions other than biogenic methane, by 2030. This means balancing the amount of greenhouse gases emitted in the city, with 'carbon removals'. Carbon removals occur when carbon that has already been emitted into the atmosphere is soaked up and stored long term, often within trees.

58 Staff have been investigating the potential role of carbon removals, and options to support these, as part of Zero Carbon Plan implementation.

59 The carbon removals field is technical and evolving. Best practice is to reduce gross emissions as far as possible and then consider carbon removals. This is because planting trees alone is not a long-term solution to climate change – ultimately, emissions need to be reduced.

60 Carbon removals can occur at different scales. The DCC measures and manages emissions at two scales – city and DCC. The DCC's Zero Carbon Policy states that options that contribute most to city emissions reduction targets should be prioritised. However, removals that happen at one scale can also influence or help achieve outcomes at other scales.

61 There are a range of technical considerations and accounting 'rules' and guidelines about how carbon dioxide removals can be used and what claims can be made. For example, carbon removals must be *additional* (over and above existing activities) and cannot be *double counted*. Currently, trees are the only type of removal that 'count' at national scale and are included in the national Emissions Trading Scheme.

62 Council direction is required on a range of policy points relating to carbon removals. This direction is linked to updates on modelling. Once the level of investment is known, the modelling will reflect that decision. This will be brought to Council for consideration once complete.

63 In this context, the carbon removals investment options included in High and Medium packages represent 'no regrets' opportunities to plan for or grow local carbon removals that contribute to community wellbeing in other ways. It should be noted that the scale of planting involved in the investment options would be sufficient only to balance out a fraction of DCC-scale emissions.

Overall High and Medium package design

64 The different roles of the DCC have been considered, with various initiatives types included – from providing infrastructure, to supporting and enabling communities to change behaviour, and decarbonising the DCC's own assets.

65 Funding for initiatives has been included until 2030/31 only, as this is the period covered by the Zero Carbon Plan.

66 The full breadth of the Zero Carbon Plan has been considered, with a particular focus on action areas that were identified as having higher emissions reduction potential:

a) **Very high** emissions reduction potential:

- Communities and Economies action area 3: Empower the community to respond
- Communities and Economies action area 4: Deepen partnerships and collaboration
- Communities and Economies action area 7: Support businesses to transition

b) **High** emissions reduction potential:

- Transport and Urban Form action area 9: Complete urban cycleway networks and improve priority pedestrian networks
- Transport and Urban Form action area 10: Support improvements in public transport frequency, operating hours and quality while maintaining affordability for users
- Transport and Urban Form action area 13: Align parking management and consider other pricing mechanisms
- Forestry, Land and Agriculture action area 2: Support growth of sequestration that aligns with mana whenua and community values
- Communities and Economies action area 6: Support development of a diverse low carbon economy

67 Amongst the actions included in the High and Medium investment packages are a number that are highly scalable. In order to provide Council with clear, costed options, staff have needed to make pragmatic decisions about the level of spend to include in the packages for these investment options. Rationale for the level of investment chosen is provided in Attachment B.

68 Council could choose to scale up or down spend on a number of the actions, noting that in most cases further scaling up of investment would also require additional staff resource to be added. Should Council wish to invest at a higher level than is set out in the High package, priority

investment options could be scaled up. This is likely to better align with prioritisation criteria than inclusion of additional lower priority actions.

69 Transport is a particular focus due its high proportion of total city emissions (34% in 2021/22). Council's decision on Zero Carbon packages determines a core programme of work for Transport over the next three years.

70 A number of cycle and pedestrian infrastructure investment options included in the packages were identified through the draft Ōtepoti Dunedin Pathways Programme Business Case. An update to this work was provided to the 26 November 2024 Council meeting. Staff are currently working on the public facing version of the business case, which is the Ōtepoti Dunedin Pathways Plan. It is anticipated that this plan will be finalised and ready for public engagement mid/late 2025. Engagement will focus on refinement of indicative routes as well as feedback on the 30 year vision and the 10 year delivery approach.

71 Changes in central government policy and co-funding, particularly with respect to public transport, place additional reliance on parking management as a key DCC tool to support the achievement of emissions reduction goals. No options have been developed for this, as options need to be considered in a holistic way as part of Parking Strategy development. This work is ongoing and will be brought to Council when complete.

Zero Carbon High investment package

72 The Zero Carbon High investment package is summarised in Attachment A, with further detail on each individual investment option set out in Attachment B.

73 The High package sets out all 'core' and 'contributing' actions that are feasibly deliverable by 2030/31, prioritised in accordance with the criteria described above.

74 The High package includes initiatives that target emissions across a wide range of emissions sources and across the spectrum of the Zero Carbon Plan: Transport and Urban Form, Forestry, Land and Agriculture, Communities and Economies, Energy and Buildings. Resource Use and Waste investment options are not included – all projects that met criteria already form part of the capital programme.

75 The High package includes projects to:

a) kickstart a collaborative agricultural innovation project modelled on the Centre of Digital Excellence (CODE) approach;

b) support and invest in communities to transition and reduce their emissions;

c) support active and public transport modes through infrastructure improvements, linking key gaps in the cycleway network, supporting workplaces to implement workplace travel interventions, and central city bike parking facilities;

d) implement car share;

e) support schools and students with cycling infrastructure and skills, including supporting schools that are currently waitlisted;

f) increase carbon removals by growing the current number of native trees DCC provides to meet volunteers' demand, and undertake work to identify high priority areas in the city to improve biodiversity and increase sequestration; and

g) decarbonise and improve the energy efficiency of additional DCC buildings.

76 The High package includes a total of $101.17 million capital expenditure and $9.003 million operating expenditure, over the next six years plus ongoing interest and depreciation costs. The impacts for rates and debt are set out in Table 1. Funding for initiatives has been included until 2030/31 only, as this is the period covered by the Zero Carbon Plan, however there are ongoing interest and depreciation costs.

Table 1: Zero Carbon High package financial impact summary

$'000	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	Total
Capital expenditure	11,080	22,210	33,480	23,500	7,900	3,000	0	0	0	101,170
Debt	11,080	22,210	33,480	23,500	7,900	3,000	0	0	0	101,170
Operating expenditure: Operating costs ($9.003 million)	1,628	1,915	1,745	1,245	1,245	1,225	0	0	0	
Interest	228	914	2,061	3,235	4,711	4,984	5,059	5,059	5,059	
Depreciation	0	367	1,220	2,357	3,115	3,488	3,584	3,584	3,584	
Total operating expenditure	1,856	3,196	5,026	6,837	9,071	9,697	8,642	8,642	8,642	
Impact on rates:	1,856	3,196	5,026	6,837	9,071	9,697	8,642	8,642	8,642	

Zero Carbon Medium investment package

77 The Zero Carbon Medium investment package is summarised in Attachment A, with further detail on each individual investment option set out in Attachment B.

78 The Medium package progresses many of the initiatives in the High package, but some to a lesser degree.

79 The Medium package does not include several initiatives in the High package: decarbonising DCC buildings; the Dunedin Tunnels Trail; improvements to the Shore Street/Portsmouth Drive intersection; the City to Waterfront bridge; and centres upgrades – transport investment.

80 Areas with reduced investment include: cycle skills training for schools; community-led emissions reduction initiatives; tree planting on DCC land; safer schools streets in South Dunedin; and transport improvements for the Town Belt, and between the hill suburbs and central city.

81 The Medium package includes a total of $35.54 million capital expenditure and $5.538 million operating expenditure, over the next six years plus ongoing interest and depreciation costs. The impacts for rates and debt as set out in Table 2. Funding for initiatives has been included until 2030/31 only, as this is the period covered by the Zero Carbon Plan, however there are ongoing interest and depreciation costs over the nine-year period.

Table 2: Zero Carbon Medium package financial impact summary

$'000	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	Total
Capital expenditure	6,080	8,480	8,430	6,350	3,100	3,100	0	0	0	35,540
Debt	6,080	8,480	8,430	6,350	3,100	3,100	0	0	0	35,540
Operating expenditure:										
Operating costs ($5.538 million)	1,106	1,203	983	753	753	743	0	0	0	
Interest	125	425	774	1,078	1,545	1,700	1,777	1,777	1,777	
Depreciation	0	206	493	778	993	1,098	1,203	1,203	1,203	
Total operating expenditure	1,231	1,834	2,249	2,609	3,290	3,540	2,980	2,980	2,980	
Impact on rates:	1,231	1,834	2,249	2,609	3,290	3,540	2,980	2,980	2,980	

Draft 9 year plan budgets contribute to Zero Carbon goals

82 The Council's Zero Carbon Policy provides that all DCC activities, including renewals, should seek to minimise emissions and contribute to achieving both city-wide and DCC emissions reduction targets.

83 Draft operating budget reports include commentary about links with Zero Carbon outcomes, and the capital expenditure report and appendices indicate the Zero Carbon impact of each project. Projects have been assessed as follows:

- **'Core'** emissions reduction initiatives either:
    - have a key focus on reducing city-wide emissions; and/or
    - were identified as a priority in the September 2023 Zero Carbon indicative implementation plan.
- **'Contributes'** emissions reduction initiatives will either:
    - make a material contribution to city-wide emissions reduction, but emissions reduction is not a primary reason for investing; or
    - contribute to the DCC's own decarbonisation but have less impact on city-wide emissions reduction.
- **'Complements'** emissions reduction initiatives are not focussed on emissions reduction, however emissions reduction is a co-benefit of the project.
- **Neutral** where the project is considered to neither increase nor decrease city-wide emissions, nor significantly increase or decrease DCC emissions.

84 **Core** emissions reduction projects identified in the draft budgets include:

- **Shaping Future Dunedin** – central city cycle and pedestrian improvements, Princes Street bus priority and corridor safety plan, and parking management.
- **Dunedin Urban Cycleways Tunnels Trail** - (part funding Year 9 only) - an off-road trail linking Dunedin with the outer suburbs and Mosgiel via two unused train tunnels in the Chain Hills area.
- **City to Waterfront Connection** (part funding Year 9 only) - an accessible pedestrian and cycling bridge across the railway line between Queens Gardens and the Steamer Basin.
- **Low Cost, Low Risk transport improvements** – small projects aimed to improve pedestrian safety, particularly around schools.
- **Waste Futures -** measures to reduce waste emissions, such as constructing facilities to store/process material diverted from landfill, and improvements to landfill gas capture and destruction.
- **Green Island Landfill Gas Collection System** – improvements to landfill gas capture and destruction.
- **Bioresources Facility** – a secure solution for beneficial use of sludge as a bioresource to reduce operational costs and improve resilience of sludge disposal.
- **Decarbonising DCC buildings** - the renewal of energy systems for multiple properties, including the Civic Centre, Dunedin City Library, Dunedin Public Art Gallery, Toitū Otago Settlers Museum, and the Town Hall and Municipal Chambers.

85 Projects that **contribute** to achieving city-wide emissions reduction include:

- **EV Charging Facilities for the DCC**
- **Moana Pool Redevelopment Renewals**
- **Track Network Development**
- **Retail Quarter - Transport**
- **Mosgiel Park and Ride**
- **Tertiary Precinct Upgrade**
- **Mobile Waste Education Unit**
- **Rural Recycling Hubs**
- **Carbon Reduction Studies and Design for Water Supply**
- **Centres Upgrade Programme**
- **Minor Streetscapes Upgrades**

86 There are a wide range of projects within the draft capital budgets that **complement** city-wide emissions reduction efforts. Collectively these projects will help improve energy efficiency, and help reduce emissions from stationary energy, transport and waste systems, but for any one project the near-term reduction in emissions is unlikely to be material.

87 Most renewals are in the **neutral** category. Growth-related expenditure has also been assessed as neutral as there are too many uncertainties at this point to determine the net emissions impact of each budget line.

88 The assessed emissions impact of draft 9 year capital expenditure is summarised in Figure 1.

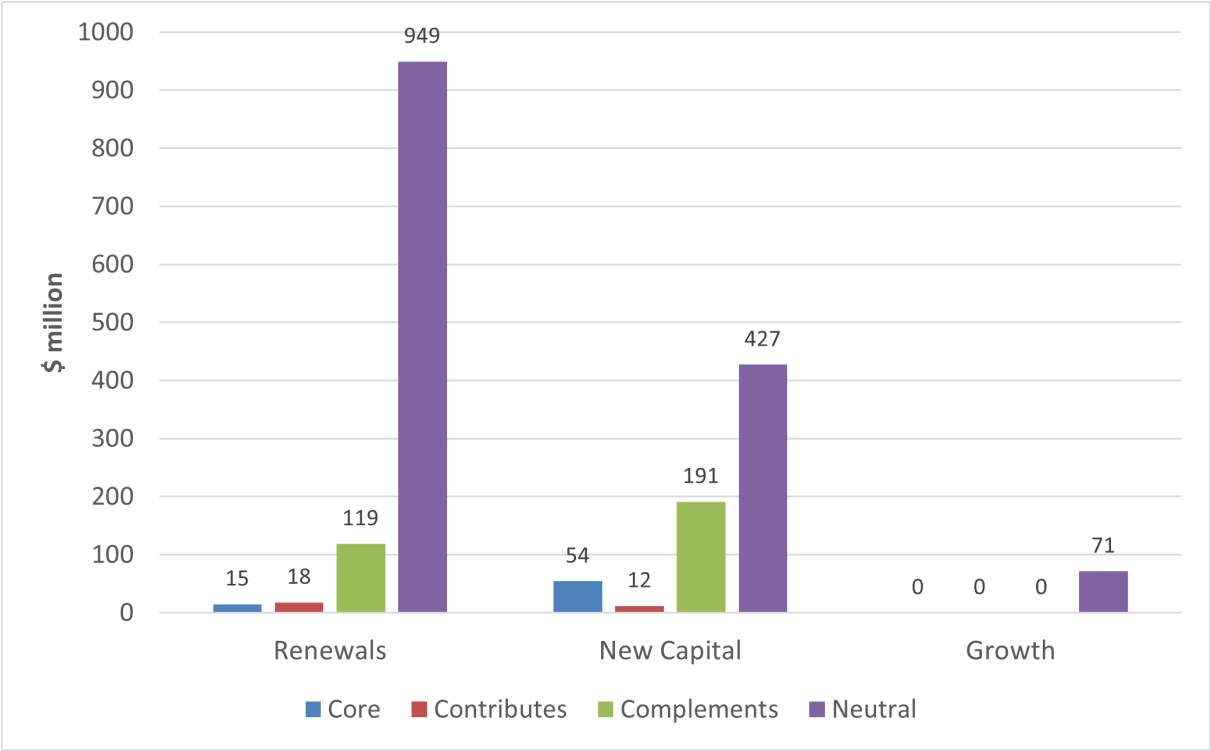

Figure 1: Assessed emissions impact of draft 9 year plan capital expenditure

Progress towards DCC and city-wide targets

89 Zero Carbon modelling is currently being updated to reflect changes in Government policy (including ERP2), the change in investment timing for the long-term plan, and other relevant contextual changes.

90 At the DCC scale, based on modelling completed in 2023/24, it is possible the DCC's organisational target can be achieved with projects that are in draft budgets alone. Investment in High and Medium packages would increase the probability of this target being achieved.

91 Emissions outcomes at the city scale can be difficult to predict. There are a wide range of external influences, which can have significant impacts on emissions at short notice. Progress is also not linear - emissions can reduce quickly when network infrastructure or community uptake reaches certain 'tipping points'.

92 At the city scale, the High and Medium packages would support emissions reduction and provide other benefits for the community. However, preliminary indications from modelling are that, in the updated context, it is unlikely either package will bring about the degree of change at the pace required to achieve the city's 2030 target.

93 The Zero Carbon work programme guiding principles adopted by Council in February 2022 included 'Evidence-led' ("We utilise data and evidence and strive to follow international best practice. We acknowledge the urgency of climate change mitigation and are committed to contributing to global efforts to limit warming to 1.5°C").

94 Best practice at all scales is to pursue gross emissions reduction, as quickly as possible, before seeking to offset residual emissions. Gross emissions reduction delivers financial and wellbeing co-benefits, as well as supporting global efforts to limit warming and avoid irreversible climate tipping points.

95 The investment packages presented align with this approach.

96 Following Council decisions on Zero Carbon investment packages, modelling will be completed and full advice on implications for targets will be presented to Council.

Zero Carbon Levels of Service

97 To align with OAG expectations with respect to reporting on progress, it is recommended that Council adopt an additional Level of Service (LoS) relating to city-wide emissions for inclusion in the 9 year plan.

98 As city-wide emissions are measured and reported triennially, it is not possible to include this as an annual measure. The LoS options are linked to Council's decision on Zero Carbon investment options, as set out in Table 3.

Table 3: Options for additional Zero Carbon city-wide specific Level of Service

Zero Carbon Investment Option selected	**LoS**	**Performance measure**	**Target**
Option One – Zero Carbon High investment package as the preferred option	**LoS A**: The DCC implements actions to reduce Dunedin's emissions	Zero Carbon Plan actions progress as scheduled	80% of Zero Carbon 'core' and 'contributes' projects are on track to be delivered in line with the 9 year plan.
Option Two – Zero Carbon Medium investment package as the preferred option	**LoS A**: The DCC implements actions to reduce Dunedin's emissions	Zero Carbon Plan actions progress as scheduled	80% of Zero Carbon 'core' and 'contributes' projects are on track to be delivered in line with the 9 year plan.
Option Three - No additional Zero Carbon investment	**LoS B:** The DCC implements actions to reduce Dunedin's emissions	Progress on Zero Carbon Plan actions is publicly reported	An annual Zero Carbon Plan update report is published.

OPTIONS

99 Three options have been identified.

Option One – Zero Carbon High investment package as the preferred option for consultation purposes

Impact assessment

100 Under this option, the Zero Carbon High investment package will be included in consultation materials as Council's preferred option for consultation purposes, along with any alternative option.

101 An additional Level of Service (LoS A) will be included in the draft 9 year plan.

Debt

- The High package would require borrowing of $101.17 million.

Rates

- The High package would require rates funding of $1.86 million in 2025/26, increasing each year up to $9.70 million in 2030/31. From 2031/32 onwards rate funding would be $8.64 million per year. The financial impacts are provided in table 1. There is no expected maintenance costs for the first five years after completion of footpath and cycleway projects.

Zero carbon

- This option will contribute most to city-wide and DCC emissions reduction. It includes initiatives that target emissions across a wide range of emissions sources and across the spectrum of the Zero Carbon Plan: Transport and Urban Form, Forestry, Land and Agriculture, Communities and Economies, Energy and Buildings. However, preliminary indications are that, in the changed context, it is unlikely to bring about the degree of change at the pace required to meet the city's current target.

  Best practice at all scales is to pursue gross emissions reduction, as quickly as possible, before seeking to offset residual emissions. The investment package aligns most with this approach.

Advantages

- Council would receive feedback from the public about the acceptability of investment in the Zero Carbon High package, and any alternative package, to inform final decisions on the 9 year plan.

- Responds to high community interest in the Zero Carbon Plan implementation options and progress towards emissions reduction targets at time of plan adoption in September 2023.

- If Council ultimately include the Zero Carbon High investment package in the 9 year plan, this would support both DCC and city emissions reduction, and progress towards targets to a high degree (as well as providing co-benefits for the community).

Disadvantages

- Likely to raise community expectations of Council investment in Zero Carbon packages.

- Draft 9 year plan consultation will be more complex.

- If Council ultimately include the Zero Carbon High investment package in the 9 year plan, there would be implications for debt and rates as set out above.

Option Two – Zero Carbon Medium investment package as the preferred option for consultation purposes

Impact assessment

102 Under this option, the Zero Carbon Medium investment package will be included in consultation materials as Council's preferred option for consultation purposes, along with any alternative option.

103 An additional Level of Service (LoS A) will be included in the draft 9 year plan.

Debt

- The Medium package would require borrowing of $35.54 million.

Rates

- The Medium package would require rates funding of $1.23 million in 2025/26, increasing each year up to $3.54 million in 2030/31. From 2031/32 onwards rate funding would be $2.98 million per year. The financial impacts are provided in table 2. There is no expected maintenance costs for the first five years after completion of footpath, cycleway projects.

Zero carbon

- This option contributes to city-wide and DCC emissions reduction, though to a lesser degree than the High package. The Medium package does not include several initiatives in the High package: decarbonising DCC buildings; the City to Waterfront bridge; the Dunedin Tunnels Trail; improvements to the Shore Street/Portsmouth Drive intersection; and Centres Upgrades – transport investment. Areas with reduced investment include cycle skills training for schools; community-led emissions reduction initiatives; tree planting on DCC land; safer schools streets in South Dunedin; and transport improvements for the Town Belt, and between the hill suburbs and central city.

  Preliminary indications are that, in the changed context, this package is unlikely to bring about the degree of change at the pace required to meet the city's current target.

Advantages

- Council would receive feedback from the public about the acceptability of investment in the Zero Carbon Medium package, and any alternative package, to inform final decisions on the 9 year plan.

- Responds to high community interest in the Zero Carbon Plan implementation options and progress towards emissions reduction targets at time of plan adoption in September 2023.

- If Council ultimately include the Zero Carbon Medium investment package in the 9 year plan, this would support both DCC and city emissions reduction and progress towards targets to a greater degree than Option 3 (as well as providing co-benefits for the community).

Disadvantages

- Likely to raise community expectations of Council investment in Zero Carbon packages.

- Draft 9 year plan consultation will be more complex.

- If Council ultimately include the Zero Carbon Medium investment package in the 9 year plan, there would be implications for debt and rates as set out above.

Option Three – No additional Zero Carbon investment

Impact assessment

104 Under this option no Zero Carbon investment package would be included in consultation materials for public feedback.

105 An additional Level of Service (LoS B) would be included in the 9 year plan.

Debt

- No debt funding is required for this option.

Rates

- There are no impacts on rates.

Zero carbon

- This option delays or precludes potential DCC and city-wide emission reduction benefits from being realised. It is possible that the DCC organisational emissions reduction target may still be met, however Dunedin would almost certainly not meet its current emissions reduction target.

Advantages

- No impact on debt or rates.

Disadvantages

- Council would not receive feedback from the public about the acceptability of investment in Zero Carbon packages, to inform final decisions on the 9 year plan.

- May not align with community expectations relating to Zero Carbon Plan implementation and progress towards emissions reduction targets, particularly in the context of high community interest in Zero Carbon Plan implementation at time of adoption in September 2023.

- Would delay or preclude potential city-wide and DCC emissions reduction (and associated co-benefits) from being realised, and it is almost certain the city would not meet its current emissions reduction target.

NEXT STEPS

106 Staff will include Council's decision on Zero Carbon investment packages and the Zero Carbon city-wide Level of Service in the draft 9 year plan and associated consultation materials.

107 Changes will also be made to the Zero Carbon Significant Forecasting Assumptions, Infrastructure Strategy, and other relevant 9 Year Plan documents to reflect decisions about Zero Carbon investment options.

108 Modelling will be completed considering Council decisions on Zero Carbon investment packages, and full advice on implications for targets will be presented to Council.

109 Staff will continue to engage with the ORC and will update Council when there is clarity on additional public transport investment options, noting that this may preclude their consideration until Annual Plan 2026/27.

Signatories

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Attachments

	Title	Page
A	Summary of High and Medium investment packages	
B	Detailed descriptions of Zero Carbon investment options	
C	Key projects not included in investment packages	
D	Zero Carbon context update	
E	Zero Carbon Plan Advisory Panel Terms of Reference and Council minute extract	

SUMMARY OF CONSIDERATIONS

Fit with purpose of Local Government

Zero Carbon investment packages presented would promote the social, economic and environmental wellbeing of communities in the present and for the future, by facilitating the transition to a low carbon economy.

Fit with strategic framework

	Contributes	Detracts	Not applicable
Social Wellbeing Strategy	✓	☐	☐
Economic Development Strategy	✓	☐	☐
Environment Strategy	✓	☐	☐
Arts and Culture Strategy	✓	☐	☐
3 Waters Strategy	✓	☐	☐
Future Development Strategy	✓	☐	☐
Integrated Transport Strategy	✓	☐	☐
Parks and Recreation Strategy	✓	☐	☐
Other strategic projects/policies/plans	✓	☐	☐

Elements of the package have been assessed as directly contributing to the goals of all strategies and the DCC's Emissions Management and Reduction Plan.

Māori Impact Statement

Wellbeing assessments for each action area have considered factors such as equity and cultural wellbeing taking into account the values and priorities of *Te Taki Haruru* and incorporating input from mana whenua and mātāwaka.

Sustainability

Climate change mitigation/emissions reduction efforts are considered key to sustainability. 'Climate Action' is one of the United Nation's Sustainable Development Goals, reflecting the centrality of action on climate change to the achievement of sustainable development. Without significant cuts to emissions, climate change impacts will further accelerate, with commensurate negative impacts on the social, environmental, cultural and economic wellbeing of New Zealand communities. Conversely, actions to reduce emissions generally have significant co-benefits in terms of community wellbeing.

Zero carbon

The report presents High and Medium investment options to progress implementation of the Zero Carbon Plan – an emissions reduction plan for the city. At the city scale, the High and Medium packages would support emissions reduction and provide other benefits for the community. However, preliminary indications from modelling are that, in the updated context, it is unlikely either package will bring about the degree of change at the pace required to achieve the city's 2030 target. At the DCC scale, based on modelling completed in 2023/24, it is possible that the DCC's organisational target can be achieved with projects that are in draft budgets alone. Investment in High and Medium packages would increase the probability of this target being achieved.

LTP/Annual Plan / Financial Strategy /Infrastructure Strategy

The Zero Carbon High and Medium investment packages presented in the report are unfunded in the draft 9 year plan. The implications of each package for rates and debt are set out in the report.
Decisions about Zero Carbon packages will have implications for other parts of the draft 9 Year Plan, including the Significant Forecasting Assumptions, Levels of Service and Infrastructure Strategy.

SUMMARY OF CONSIDERATIONS

Financial considerations

Financial considerations related to each package are set out in full in the report .

Significance

This decision is considered significant in terms of the Council's Significance and Engagement Policy.

Engagement – external

There was substantial external engagement in the development of the Zero Carbon Plan. Staff conducted a public survey that received over 1300 responses and spoke directly with over 50 community groups and organisations, and a range of subject matter experts.
There has been limited additional external engagement as part of Zero Carbon investment package development. Staff have engaged with the Zero Carbon Alliance, local government networks, and with various Government agencies. A University of Otago public health registrar independently conducted the co-benefit assessments using a mutually agreed methodology.

Engagement - internal

The Zero Carbon team have worked with teams across the organisation to develop the Zero Carbon investment packages. Transport in particular has been integrally involved in package development. Other teams that have been consulted on content related to their activity areas and/or areas of expertise include Waste and Environmental Solutions, Economic Development, Community Development and Events, Parks and Recreation Services, Property Services, Housing, 3 Waters, BIS, Finance, and City Development.

Risks: Legal / Health and Safety etc.

There may be reputational risks for the DCC associated with non-delivery on emissions reduction ambitions, given the target adopted by Council in 2019.

Conflict of Interest

No conflict of interest has been identified.

Community Boards

A workshop involving members of all community boards was held to inform Zero Carbon Plan development. Community Boards will have the opportunity to make submissions to the 9 year plan process.

Attachment A: Summary of High and Medium investment packages

High package

The High package includes initiatives that target emissions across a wide range of emissions sources and across the full spectrum of the Zero Carbon Plan: Transport and Urban Form, Forestry, Land and Agriculture, Communities and Economies, Energy and Buildings (Resource Use and Waste projects that met criteria are already included in draft 9 year plan budgets). It sets out all 'core' and 'contributing' actions that are feasibly deliverable by 2030/31, prioritised in accordance with the criteria described in the body of the report.

The High package includes a total of $101.17 million capital expenditure and $61.61 million operating expenditure over nine years. Funding for initiatives has been included until 2030/31 only, as this is the period covered by the Zero Carbon Plan, however there are ongoing interest and depreciation costs over the nine-year period. The High package would require rate funding of $1.86 million in 2025/26, increasing each year up to $9.7 million in 2030/31. From 2031/32 onwards rate funding would be $8.64 million per year.

Detail of the non-transport and transport elements of the High package are below.

High package phasing: non-transport investment options

Priority	Activity	Cost type $	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	Total
1	**Agricultural innovation project:** seed funds a collaborative agricultural sector innovation and emissions reduction initiative (based on CODE approach)	Capex	-	-	-	-	-	-	-	-	-	**-**
		Opex	15,000	-	-	-	-	-	-	-	-	**15,000**
2	**Zero Carbon community transition support project:** supporting communities to adopt low-carbon behaviours at key life transitions	Capex	-	-	-	-	-	-	-	-	-	**-**
		Opex	120,000	120,000	-	-	-	-	-	-	-	**240,000**
3	**Investing in priority community-led emissions reduction initiatives:** through introduction of Zero Carbon grants	Capex	-	-	-	-	-	-	-	-	-	**-**
		Opex	225,000	225,000	225,000	225,000	225,000	225,000	-	-	-	**1,350,000**
4	**Funding native trees to expand volunteer-based tree planting on DCC land** and increase sequestration (current funding oversubscribed).	Capex	-	-	-	-	-	-	-	-	-	**-**
		Opex	200,000	200,000	200,000	200,000	200,000	200,000	-	-	-	**1,200,000**
5	**Energy efficiency improvements for existing homes:** improve energy efficiency of households at risk of energy poverty	Capex	-	-	-	-	-	-	-	-	-	**-**
		Opex	15,000	15,000	15,000	15,000	15,000	15,000	-	-	-	**90,000**
6	**Green and Blue Networks Plan with DCC sequestration opportunities:** identify priority sites and method to optimise biodiversity and sequestration	Capex	-	-	-	-	-	-	-	-	-	**-**
		Opex	140,000	-	-	-	-	-	-	-	-	**140,000**
7	**Regent Theatre and Dunedin Railway Station LPG replacement and energy efficiency**	Capex	-	270,000	2,400,000	200,000	2,000,000	-	-	-	-	**4,870,000**
		Opex	-	-	-	-	-	-	-	-	-	**-**
8	**Wall St Mall LPG replacement and energy efficiency**	Capex	-	-	-	200,000	2,000,000	-	-	-	-	**2,200,000**
		Opex	-	-	-	-	-	-	-	-	-	**-**
9	**Sewer Thermal Energy Project (Toitū Otago Settlers Museum)**	Capex	500,000	4,560,000	-	-	-	-	-	-	-	**5,060,000**
		Opex	-	-	-	-	-	-	-	-	-	**-**
	Sub-total Non-Transport Projects - Operating Costs		715,000	560,000	440,000	440,000	440,000	440,000	-	-	-	**3,035,000**
	Total Non-Transport Projects - Interest		10,300	120,098	269,036	326,716	506,500	606,500	606,500	606500	606500	**3,658,650**
	Total Non-Transport Projects - Depreciation		0	31,145	332,003	481,497	506,413	755,571	755,571	755,571	755,571	**4,373,342**
	Total Transport Projects - Operating Expenditure		**725,300**	**711,243**	**1,041,039**	**1,248,213**	**1,452,913**	**1,802,071**	**1,362,071**	**1,362,071**	**1,362,071**	**11,066,992**
	Total Non-Transport Projects - Capital Expenditure		**500,000**	**4,830,000**	**2,400,000**	**400,000**	**4,000,000**	**-**	**-**	**-**	**-**	**12,130,000**

High package phasing: transport investment options

Priority	Activity	Cost type	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	Total
1	**Ōtepoti Pathways – pedestrian improvements:** improving walking infrastructure particularly at key destinations e.g. schools, centres	Capex	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	-	-	-	**6,000,000**
		Opex	-	-	-	-	-	-	-	-	-	**-**
2	**Ōtepoti Pathways – cycling improvements:** improving cycling infrastructure particularly at key destinations e.g. schools, centres, and on key routes	Capex	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	-	-	-	**6,000,000**
		Opex	-	-	-	-	-	-	-	-	-	**-**
3	**Bus priority improvements** at signalised intersections and bus stops to improve bus journey times and their reliability	Capex	-	-	500,000	500,000	500,000	500,000	-	-	-	**2,000,000**
		Opex	-	-	-	-	-	-	-	-	-	**-**
4	**Bus network and infrastructure improvements:** optimising routes and bus stop spacing and provision	Capex	-	-	500,000	500,000	500,000	500,000	-	-	-	**2,000,000**
		Opex	-	-	-	-	-	-	-	-	-	
5	**Car share:** enabling a provider to establish a car share service in Dunedin (projected revenue reduction from 10 parking spaces)	Capex	-	-	-	-	-	-	-	-	-	**-**
		Opex revenue	68,000	68,000	68,000	68,000	68,000	68,000	-	-	-	**408,000**
6	**Workplace travel planning expansion programme**: supporting more workplaces to promote sustainable travel to work	Capex	-	-	-	-	-	-	-	-	-	**-**
		Opex	120,000	120,000	120,000	120,000	120,000	120,000	-	-	-	**720,000**
7	**Ōtepoti Pathways – George/Bank St improvements:** improved bus stops with bus priority, cycle lanes, pedestrian crossings and intersection improvements	Capex	1,000,000	2,000,000	1,000,000	-	-	-	-	-	-	**4,000,000**
		Opex	-	-	-	-	-	-	-	-	-	**-**
8	**South Dunedin Safer School Streets:** safety and network improvements to improve South Dunedin school walking and cycles routes and public transport connections	Capex	3,000,000	3,000,000	4,000,000	-	-	-	-	-	-	**10,000,000**
		Opex	-	2,000	2,000	2,000	2,000	2,000	-	-	-	**10,000**
9	**Cycle skills training – existing schools:** training for all 38 schools/1,490 students supported by the programme in 2024/25 (maintain status quo)	Capex	-	-	-	-	-	-	-	-	-	**-**
		Opex	300,000	300,000	300,000	300,000	300,000	300,000	-	-	-	**1,800,000**
10	**Ōtepoti Pathways – Vogel Street improvements**: Vogel St will become a shared, low speed street to fill a priority gap in the cycle network	Capex	-	1,300,000	1,000,000	-	-	-	-	-	-	**2,300,000**
		Opex	200,000	-	-	-	-	-	-	-	-	**200,000**
11	Additional Transport team OPEX to enable projects beneath this line to be delivered	Opex		120,000	120,000	120,000	120,000	120,000	-	-	-	**600,000**
12	**Ōtepoti Pathways – Caversham to Central City Tunnels Trail link**: connecting the Dunedin Tunnels Trail end (near Sidey Park) to the central city (Vogel St)	Capex	-	-	1,000,000	3,000,000	-	-	-	-	-	**4,000,000**
		Opex	-	300,000	200,000	-	-	-	-	-	-	**500,000**
13	**Ōtepoti Pathways – Town Belt improvements:** providing safe walking and cycling connections largely following Queens Dr	Capex	-	500,000	500,000	500,000	500,000		-	-	-	**2,000,000**
		Opex	20,000	20,000	20,000	20,000	20,000	-	-	-	-	**100,000**
14	**Ōtepoti Pathways – Hill Suburbs link**: providing a safe cycle route between the central city and at least one of Maori Hill, Roslyn, Wakari, Belleknowes, Mornington	Capex	-	-	1,500,000	1,200,000	-	-	-	-	-	**2,700,000**
		Opex	-	100,000	200,000	-	-	-	-	-	-	**300,000**
15	**Central City bike parking facilities:** installing three covered bike parking facilities in the central city	Capex	80,000	80,000	80,000	-	-	-	-	-	-	**240,000**
		Opex	-	-	-	-	-	-	-	-	-	**-**
16	Additional Transport team OPEX to enable projects beneath this line to be delivered	Opex		120,000	120,000	120,000	120,000	120,000	-	-	-	**600,000**
17	**City to Waterfront Bridge:** building a bridge connecting Steamer Basin with Queens Gardens for people walking and cycling	Capex	-	1,000,000	10,000,000	9,000,000	-	-	-	-	-	**20,000,000**
		Opex	150,000	150,000	-	-	-		-	-	-	**300,000**
18	**Dunedin Tunnels Trail:** building a 15km cycle and walking path between Dunedin and Mosgiel through the Chain Hills and Caversham tunnels	Capex	4,000,000	7,000,000	8,000,000	4,400,000	-	-	-	-	-	**23,400,000**
		Opex	-	-	-	-	-	-	-	-	-	**-**
19	**Shore street/Portsmouth Dr/Portobello Road intersection**: improving the crossing point at this intersection for people walking and cycling	Capex	-	-	-	1,000,000	400,000	-	-	-	-	**1,400,000**
		Opex	-	-	100,000	-	-	-	-	-	-	**100,000**
20	**Cycle skills training - waitlisted schools:** training for an additional 10 schools/220 students that are on the wait list	Capex	-	-	-	-	-	-	-	-	-	**-**
		Opex	55,000	55,000	55,000	55,000	55,000	55,000	-	-	-	**330,000**
21	**Centres Upgrade programme - transport improvements:** transport improvements in priority suburban centres to complement amenity upgrades	Capex	500,000	500,000	1,000,000	1,000,000	-	-	-	-	-	3,000,000
		Opex	-	-	-	-	-	-	-	-	-	-
	Sub-total Transport Projects - Operating Costs		913,000	1,355,000	1,305,000	805,000	805,000	785,000	-	-	-	5,968,000
	Total Interest		217,948	793,924	1,792,200	2,908,308	4,204,500	4,377,000	4,452,000	4,452,000	4,452,000	**27,649,880**
	Total Depreciation		-	336,031	888,038	1,875,170	2,608,849	2,732,717	2,828,000	2,828,000	2,828,000	**16,924,805**
	Total Transport Projects - Operating Expenditure		**1,130,948**	**2,484,955**	**3,985,238**	**5,588,478**	**7,618,349**	**7,894,717**	**7,280,000**	**7,280,000**	**7,280,000**	**50,542,685**
	Total Transport Projects - Capital Expenditure		**10,580,000**	**17,380,000**	**31,080,000**	**23,100,000**	**3,900,000**	**3,000,000**	**-**	**-**	**-**	**89,040,000**

Medium package

The Medium package progresses many of the initiatives in the High package, but some to a lesser degree.

The Medium package includes a total of $35.54 million capital expenditure and $23.69 million operating expenditure. Funding for initiatives has been included until 2030/31 only, as this is the period covered by the Zero Carbon Plan, however there are ongoing interest and depreciation costs over the nine-year period. The Medium package would require rate funding of $1.23 million in 2025/26, increasing each year up to $3.54 million in 2030/31. From 2031/32 onwards rate funding would be $2.98 million per year.

Detail of the non-transport and transport elements of the Medium package are below.

Medium package phasing: non-transport investment options

Priority	Activity	Cost type $	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	Total
1	**Agricultural innovation project:** seed funds a collaborative agricultural sector innovation and emissions reduction initiative (based on CODE approach)	Capex	-	-	-	-	-	-	-	-	-	**-**
		Opex	15,000	-	-	-	-	-	-	-	-	**15,000**
2	**Zero Carbon community transition support project:** supporting communities to adopt low-carbon behaviour change at key life transitions	Capex	-	-	-	-	-	-	-	-	-	**-**
		Opex	120,000	120,000	-	-	-	-	-	-	-	**240,000**
3	**Investing in priority community-led emissions reduction initiatives:** through introduction of a grant	Capex	-	-	-	-	-	-	-	-	-	**-**
		Opex	125,000	125,000	125,000	125,000	125,000	125,000	-	-	-	**750,000**
4	**Funding native trees to expand volunteer-based tree planting on DCC land** and increase sequestration (current funding oversubscribed).	Capex	-	-	-	-	-	-	-	-	-	**-**
		Opex	150,000	150,000	150,000	150,000	150,000	150,000	-	-	-	**900,000**
5	**Energy efficiency improvements for existing homes:** improve energy efficiency of households at risk of energy poverty	Capex	-	-	-	-	-	-	-	-	-	**-**
		Opex	7,500	7,500	7,500	7,500	7,500	7,500	-	-	-	**45,000**
6	**Green and Blue Networks Plan with DCC sequestration opportunities:** identify priority sites and method to optimising biodiversity and sequestration	Capex	-	-	-	-	-	-	-	-	-	-
		Opex	140,000	-	-	-	-	-	-	-	-	**140,000**
	Sub-total Non-Transport Projects - Operating Costs		557,500	402,500	282,500	282,500	282,500	282,500	-	-	-	**2,090,000**
	Total Interest		-	-	-	-	-	-	-	-	-	-
	Total Depreciation		-	-	-	-	-	-	-	-	-	-
	Total Non-Transport Projects - Operating Expenditure		**557,500**	**402,500**	**282,500**	**282,500**	**282,500**	**282,500**	**-**	**-**	**-**	**2,090,000**
	Total Non-Transport Projects - Capital Expenditure		**-**	**-**	**-**	**-**	**-**					**-**

Medium package phasing: transport investment options

Priority	Activity	Cost type	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	Total
1	**Ōtepoti Pathways – pedestrian improvements:** improving walking infrastructure particularly at key destinations e.g. schools, centres	Capex	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	-	-	-	6,000,000
		Opex	-	-	-	-	-	-	-	-	-	-
2	**Ōtepoti Pathways – cycling improvements:** improving cycling infrastructure particularly at key destinations e.g. schools, centres, and on key routes	Capex	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	-	-	-	6,000,000
		Opex	-	-	-	-	-	-	-	-	-	-
3	**Bus priority improvements** at signalised intersections and bus stops to improve bus journey times and their reliability	Capex	-	-	500,000	500,000	500,000	500,000	-	-	-	2,000,000
		Opex	-	-	-	-	-	-	-	-	-	-
4	**Bus network and infrastructure improvements:** optimising routes and bus stop spacing and provision	Capex	-	-	500,000	500,000	500,000	500,000	-	-	-	2,000,000
		Opex	-	-	-	-	-	-	-	-	-	
5	**Car share:** enabling a provider to establish a car share service in Dunedin (projected revenue reduction from 10 parking spaces)	Capex	-	-	-	-	-	-	-	-	-	-
		Opex	68,000	68,000	68,000	68,000	68,000	68,000	-	-	-	408,000
6	**Workplace travel planning expansion programme**: supporting more workplaces to promote sustainable travel to work	Capex	-	-	-	-	-	-	-	-	-	-
		Opex	120,000	120,000	120,000	120,000	120,000	120,000	-	-	-	720,000
7	**Ōtepoti Pathways – George/Bank St improvements:** improved bus stops with bus priority, cycle lanes, pedestrian crossings and intersection improvements	Capex	1,000,000	2,000,000	1,000,000	-	-	-	-	-	-	4,000,000
		Opex	-	-	-	-	-	-	-	-	-	-
8	**South Dunedin Safer School Streets:** safety and network improvements to improve South Dunedin school walking and cycles routes and public transport connections	Capex	3,000,000	3,000,000	2,000,000	-	-	-	-	-	-	8,000,000
		Opex	-	2,000	2,000	2,000	2,000	2,000	-	-	-	10,000
9	**Cycle skills training – existing schools:** training for all 38 schools/1,490 students supported by the programme in 2024/25 (maintain status quo)	Capex	-	-	-	-	-	-	-	-	-	-
		Opex	150,000	150,000	150,000	150,000	150,000	150,000	-	-	-	900,000
10	**Ōtepoti Pathways – Vogel Street improvements**: Vogel St will become a shared, low speed street to fill a priority gap in the cycle network	Capex	-	1,300,000	1,000,000	-	-	-	-	-	-	2,300,000
		Opex	200,000	-	-	-	-	-	-	-	-	200,000
11	Additional Transport team OPEX to enable projects beneath this line to be delivered	Opex		120,000	120,000	120,000	120,000	120,000	-	-	-	600,000
12	**Ōtepoti Pathways – Caversham to Central City Tunnels Trail link**: connecting the Dunedin Tunnels Trail end (near Sidey Park) to the central city (Vogel St)	Capex	-	-	1,000,000	3,000,000	-	-	-	-	-	4,000,000
		Opex	-	300,000	200,000	-	-	-	-	-	-	500,000
13	**Ōtepoti Pathways – Town Belt improvements:** providing safe walking and cycling connections largely following Queens Dr	Capex	-	100,000	100,000	100,000	100,000	100,000	-	-	-	500,000
		Opex	10,000	10,000	10,000	10,000	10,000	-	-	-	-	50,000
14	**Ōtepoti Pathways – Hill Suburbs link**: providing a safe cycle route between the central city and at least one of Maori Hill, Roslyn, Wakari, Belleknowes, Mornington	Capex	-	-	250,000	250,000	-	-	-	-	-	500,000
		Opex	-	30,000	30,000	-	-	-	-	-	-	60,000
15	**Central City bike parking facilities:** installing three covered bike parking facilities in the central city	Capex	80,000	80,000	80,000	-	-	-	-	-	-	240,000
		Opex	-	-	-	-	-	-	-	-	-	-
	Sub-total Transport Projects - Operating Costs		548,000	800,000	700,000	470,000	470,000	460,000	-	-	-	**3,448,000**
	Total Interest		125,248	425,184	773,530	1,077,998	1,544,500	1,699,500	1,777,000	1,777,000	1,777,000	**10,976,960**
	Total Depreciation		-	205,871	493,008	778,451	993,465	1,098,433	1,203,400	1,203,400	1,203,400	**7,179,429**
	Total Transport Projects - Operating Expenditure		673,248	1,431,055	1,966,538	2,326,449	3,007,965	3,257,933	2,980,400	2,980,400	2,980,400	**21,604,389**
	Total Transport Projects - Capital Expenditure		**6,080,000**	**8,480,000**	**8,430,000**	**6,350,000**	**3,100,000**	**3,100,000**	**-**	**-**	**-**	**35,540,000**

High and Medium package costs by Zero Carbon Plan action area

		High package $000		Medium package $000	
Zero Carbon Plan action area	**Zero Carbon Plan chapter**	**Capex**	**Opex**	**Capex**	**Opex**
Complete urban cycleway networks and improve priority pedestrian networks	Transport & Urban Form	81,800	1,500	31,300	810
Replace fossil fuels and improve energy efficiency of DCC facilities	Energy & Buildings	12,130	-	-	-
Strengthen neighbourhood centres	Transport & Urban Form	3,000	-	-	-
Expand workplace and school travel planning and road safety promotion	Transport & Urban Form	-	2,860	-	1,630
Support improvements in the quality and consistency of bus stops and bike facilities	Transport & Urban Form	2,240	-	2,240	-
Support improvements in public transport service frequency, operating hours & quality, while maintaining affordability for users	Transport & Urban Form	2,000	-	2,000	-
Strengthen local communities	Communities & Economies	-	1,350	-	750
Support growth of sequestration that aligns with mana whenua and community values	Forestry, Land & Agriculture	-	1,340	-	1,040
Establish and promote car share	Transport & Urban Form	-	408	-	408
Empower the community to respond	Communities & Economies	-	240	-	240
Support energy efficiency and the transition away from fossil fuels in homes	Energy & Buildings	-	90	-	45
Support emissions reduction in agriculture	Forestry, Land & Agriculture	-	15	-	15

Notes to the 'High and Medium package costs by Zero Carbon Plan action area' table:

- Costs exclude depreciation, interest, and additional Transport team operating costs that enable delivery of several actions (as these have not been split by project).
- Many actions contribute to the achievement of more than one action area. Costs have been apportioned to the action area that they are considered to align most strongly with.

Attachment B: Detailed descriptions of Zero Carbon investment options

Costs: exclude depreciation, interest, and additional Transport team operating costs that enable delivery of several actions (as these have not been split by project).

Co-benefits: the assessed wellbeing co-benefits potential for both action areas and actions (+ 1-2 benefits identified; ++ more than 2 benefits identified, or one benefit with wide-reaching or significant impacts; +++ more than 4 benefits identified, or at least one benefit that will be wide-reaching and significant)

Non-transport investment options

Title	Agricultural innovation project			
Priority	1 (Non-transport)			
ZC Plan # and action area	F1.1.2 - Support emissions reduction in agriculture			
Description	This project seed funds an agricultural sector innovation and emissions reduction initiative, modelled on the successful Centre of Digital Excellence (CODE) approach. The funding will cover the initial stages of the project including mapping out existing work and identifying opportunities alongside stakeholders. Following this initial groundwork, future stages may be able to unlock funding opportunities outside of Council or a specific role/intervention of Council may be identified.			
Rationale: problem & opportunity	- Agriculture is the largest-emitting sector in Dunedin (46%), yet the DCC has limited levers to influence its emissions reduction. The Government delayed the sector's emissions pricing to be 'by 2030'. - Infometrics 2018 data show Otago primary industries productivity performing 14% below the national average. - The sector faces numerous structural challenges going forward, such as climate change, demographic succession and poor uptake of technology. - Supply chains, consumers, retailers are becoming more aware of environmental impacts and seeking to reduce the emissions intensity of products the purchase/consume. - As sustainably produced products fetch premiums, there are opportunities to grow productivity and decrease emissions. - Due to the multifaceted challenges, achieving these outcomes requires a collaborative approach with the sector, partners and stakeholders.			
Total new investment	**High and Medium:** $15,000 in 2025/26 Potential for further investment from DCC or other stakeholders in future years			
ER / $	Assessed as having **very high** potential for the investment required			
Dependencies or linkages	None.			
Risks	Outputs of the process are unclear as it is a collaborative initiative			
Co-benefits	**Social**	**Economic**	**Environmental**	**Cultural**
	++	++	+	

Title	Zero Carbon community transition support project			
Priority	2 (Non-transport)			
ZC Plan # and action area	Related to C1.3.2 – Empower the community to respond			
Description	This project will work alongside communities and groups/organisations to the integrate information and support required for people to live lower carbon lifestyles into existing supports and processes. The project will be targeted at life transition points where many lifestyle decisions are being made. It aims to make low-carbon choices visible and easier at these transition points, to enable longer term behaviour change.			
Rationale: problem & opportunity	- Collective action by everyone in Dunedin is the only way the city can fulfil the scale of change required to meet targets. Appropriate infrastructure and services are important enablers of low carbon lifestyles, but emissions reduction will only be realised when services and infrastructure are used by members of the community. - Changing the way we do things, including using new infrastructure and services, can be daunting and hard to navigate, and people are most likely to take these up when there is a catalyst to do so. - Major life events and transitions (e.g. becoming a parent, moving to a new house or into a new city, entering a new school or workplace) can be the catalyst for changing behaviours or choices. Many organisations, schools and workplaces already actively target these transitions with information and support about other topics. It is really important that supports and helpful information is available at this time. - There is an opportunity to work with relevant stakeholders to build Zero Carbon information and support into existing processes these key life transitions, so that residents are empowered and enabled to adopt behaviours with lower emissions impact.			
Total new investment	**High and Medium:** $120,000 p.a. for two years ($240k total opex)			
ER / $	Assessed as having **very high** potential for the investment required.			
Dependencies or linkages	Builds on or complements existing supports including the Zero Carbon Alliance, Zero Carbon business transition support programme, and place-based grants (in draft 9 year plan budgets).			
Risks / assumptions	Assumption: the Zero Carbon team will manage the delivery withing existing resourcing.			
Co-benefits	**Social**	**Economic**	**Environmental**	**Cultural**
	++	+		

Title	Investing in priority community-led emission reduction initiatives
Priority	3 (Non-transport)
ZC Plan # and action area	C1.2.5 – Strengthen local communities
Description	Investing in community-led climate action that is proposed and implemented by communities, focusing on at least one action area in the Zero Carbon Plan.
Rationale: problem & opportunity	- Reaching climate targets will require all actors to take action to reduce emissions. - The challenges of reducing emissions in Dunedin are faced unequally across sectors of the community and communities hold different opportunities.

	- Many territorial authorities in NZ have been investing specifically in communities to unlock these opportunities, enable them to take climate and sustainability action, and deliver on the objectives identified by the council. A review of other territorial authorities' per capita investment in community-led action has informed the proposed quantum.			
Total new investment	This project is scalable. Costings are based on level of investment by other territorial authorities, but ultimately can be scaled up/down. **High:** $225,000 p.a. (total $1.35M opex over six years) **Medium:** $125,000 p.a. (total of $750k opex over six years)			
ER / $	Assessed as having **high** potential for the investment required.			
Dependencies or linkages	Builds on or complements existing supports including the Zero Carbon business transition support programme, and place-based grants (in draft 9 year plan budgets). Links to Grants Review. Complements the Workplace travel planning support programme investment option.			
Risks / assumptions	Assumption: the Zero Carbon team will manage the delivery withing existing resourcing.			
Co-benefits	**Social**	**Economic**	**Environmental**	**Cultural**
	+++	+	+	

Title	Funding native trees to expand volunteer-based tree planting on DCC land
Priority	4 (Non-transport)
ZC Plan # and action area	F2.3.3 - Support growth of sequestration that aligns with mana whenua and community values
Description	Increasing the number of trees and associated establishment requirements to meet current levels of volunteer demand for planting opportunities on DCC land, and to increase sequestration in city (tree planting on DCC land is currently limited by funding available for trees)
Rationale: problem & opportunity	- To reach net zero, some degree of sequestration will be required, because not all emissions sources can be immediately abated. - This initiative enables volunteers to plant trees supplied by the DCC, as current demand for trees is oversubscribed. - If funding for this initiative went for 6 years from 2025/26 to 2030/31, for the high investment package ($200k per annum), trees planted under this initiative are estimated to sequester approximately 50 tonnes of CO2 (tCO2) in 2030. The sequestration per annum increases significantly in subsequent years due to increased growth over time (estimated at absorbing 210tCO2 in 2035, 375tCO2 in 2040, and 445tCO2 in 2045). - For the medium investment package ($150k per annum), trees planted under this initiative are estimated to sequester 38 tCO2 in 2030. The sequestration per annum increases significantly in subsequent years (estimated at 150tCO2 in 2035, 275 tCO2 in 2040, and 325 tCO2 in 2045).
Total new investment	This project is scalable as any level of funding would enable a greater number of trees to be planted. **High:** $200,000 p.a. ($1.2 million opex over 6 years) **Medium:** $150,000 p.a. ($900k over 6 years)
ER / $	This is assessed as having **high** potential for the investment required

Dependencies or linkages	None in the packages. Supports delivery of biodiversity outcomes.			
Risks	Volunteer groups ceasing to operate (funding, membership etc), plants not surviving (mitigated through maintenance and tree guards).			
Co-benefits	**Social**	**Economic**	**Environmental**	**Cultural**
	++		++	+

Title	Energy efficiency improvements for existing homes			
Priority	5 (Non-transport)			
ZC Plan # and action area	E1.3.4 - Support energy efficiency and the transition away from fossil fuels in homes			
Description	This initiative supports the expansion of the HEAT kit programme in Ōtepoti, to improve energy efficiency and behaviours for those not well served by existing energy efficiency initiatives (e.g. lower-income households, those at risks of energy poverty) . It will fund 100 (high) or 50 (medium option) households per annum. Participants have two visits from the Eco Design Advisor for advice and questions, complete an activity book, and receive a koha for participation that is appropriate for their house/household (e.g. a hot water cylinder wrap).			
Rationale: problem & opportunity	- Many Dunedin residents live in unhealthy and inefficient housing. Going without heating due to cost, spending more than needed on inefficient energy use, and using high-emissions energy sources for heating and cooking all contribute to city emissions and poor health outcomes. - This initiative is backed by research and is targeted at harder-to-reach groups. - The intervention aims to improve energy efficiency for participant homes and support switching to lower-carbon fuels where appropriate. It is targeted at reducing energy hardship in Dunedin. Households with inefficient energy use and high emitting heating sources will benefit by educating and empowering residents to improve their energy efficiency, contributing to city-wide emissions reduction. - This will improve indoor and outdoor air quality, support emissions reductions, and save money for the most vulnerable residents experiencing energy hardship.			
Total new investment	**High:** $15,000 opex p.a. ($90,000 over six years) **Medium:** $7,500 opex p.a. ($45,000 over six years)			
ER / $	Assessed as having **medium** potential for the investment required			
Dependencies or linkages	None in the packages. Builds on existing DCC Eco Design Advisor services. It may complement existing government/community funding for insulation and heating (e.g. through referrals). This initiative has the potential to complement any future ORC work on reducing coal use (should this be included in the refreshed regional air plan).			
Risks	Lack of participants; mitigated through working with existing community groups and networks.			
Co-benefits	**Social**	**Economic**	**Environmental**	**Cultural**
	++	++	+	

Title	Green and Blue Networks Plan with DCC sequestration opportunities
Priority	6 (Non-transport)
ZC Plan # and action area	F2.2.2 - Support growth of sequestration that aligns with mana whenua and community values

Description	Develop a cohesive blue and green network plan for Ōtepoti Dunedin that is consistent with the aspirations of DCC, ORC, and mana whenua and is informed by community and expert input. This Plan will identify specific restoration and enhancement projects, including opportunities to sequester carbon on existing DCC land, and link to the track and cycleways network. It will identify priority areas for restoration and enhancement, aligning where possible with existing projects and community biodiversity efforts and relevant strategies/policies.			
Rationale: problem & opportunity	- To reach net zero, some degree of sequestration will be required, because not all emissions sources can be immediately abated. - This initiative focusses on planning for sequestration to address residual emissions at the DCC emissions scale in the first instance, taking an approach that aligns with biodiversity and recreation goals. - Netting out city emissions is not proposed at this stage. Best practice is to pursue gross emissions reductions before looking to net-out emissions. Addressing residual emissions at the city-wide scale would require significant land area. - Research, mapping, and engagement through this initiative will inform how a green and blue network that promotes biodiversity and sequester carbon could best be advanced, with costed implementation to be considered in the next 10YP.			
Total new investment	**High and Medium**: $140,000 opex in year one only. Implementation of the plan may require future DCC investment.			
ER / $	Assessed as having **medium** potential for the investment required.			
Dependencies or linkages	None in the packages, but links to other work including the FDS and PARS strategies.			
Risks	None identified.			
Co-benefits	**Social**	**Economic**	**Environmental**	**Cultural**
	++		+++	+

Title	Regent Theatre and Dunedin Railway Station LPG replacement and energy efficiency
Priority	7 (Non-transport)
ZC Plan # and action area	E1.2.3, E1.2.4 – Replace fossil fuels and improve energy efficiency of DCC facilities
Description	Develop detailed cases and implement preferred options to improve energy efficiency and displace LPG use at Dunedin Railway Station and Regent Theatre.
Rationale: problem & opportunity	- Decarbonising the energy systems of DCC buildings contributes towards the Zero Carbon Plan goal to reduce city-wide LPG consumption by 65% compared with 2018/19 levels. - The Regent Theatre and Dunedin Railway Station each use approximately 200,000kWH of LPG per annum (approximately 35tCO2e in emissions per annum at each site).
Total new investment	**High:** Estimated $4.87 million total capex Regent: $270k in 2026/27, $2.4 million 2027/28 Railway Station: $200k in 2028/29, $2 million 2029/30 **Medium:** not included in package

ER / $	Assessed as having **low** emissions reduction potential for the level of investment required			
Dependencies or linkages	None identified.			
Risks	None identified.			
Co-benefits	**Social**	**Economic**	**Environmental**	**Cultural**
	+	+	+	

Title	Wall St Mall LPG replacement and energy efficiency			
Priority	8 (Non-transport)			
ZC Plan # and action area	E1.2.5, E1.2.6 – Replace fossil fuels and improve energy efficiency of DCC facilities			
Description	Develop detailed case to improve energy efficiency and displace stationary LPG use at Wall St Mall and implement preferred option.			
Rationale: problem & opportunity	- Decarbonising the energy systems of DCC owned buildings contributes towards the Zero Carbon Plan goal to reduce city-wide LPG consumption by 65% compared with 2018/19 levels. - LPG consumption in 2023/24 across the whole Wall Street Mall equated to approximately 470,000kWH of LPG (approx. 100tCO2e in emissions).			
Total new investment	**High:** $200k 2028/29, $2 million 2029/30 (total $2.2 million capex)			
ER / $	Assessed as having **low** emissions reduction potential for the level of investment required			
Dependencies or linkages	None identified.			
Risks	None identified.			
Co-benefits	**Social**	**Economic**	**Environmental**	**Cultural**
	+	+	+	

Title	Sewer Thermal Energy Project (Toitū Otago Settlers Museum)
Priority	9 (Non-transport)
ZC Plan # and action area	Related to: E1.2.3; E1.2.4 – Replace fossil fuels and improve energy efficiency of DCC facilities
Description	Sewer thermal energy project to investigate and implement use of waste heat from sewer to heat/cool Toitū Otago Settlers Museum
Rationale: problem & opportunity	- Decarbonising DCC energy systems contributes to the Zero Carbon Plan goal to reduce city LPG consumption by 65% compared with 2018/19 levels. - Toitū Otago Settlers Museum currently relies on LPG boilers for space heating, consuming approximately 500,000kWH of LPG in 2023/24 (adding to around 110tCO2e of LPG emissions in 2023/24). - Thermal energy from the main sewer running near to the Museum has been identified as a potential energy source to heat and cool the Museum. - Use of waste thermal sewer energy would have the benefit of both reducing DCC's ongoing operational energy costs, and reducing DCC's demand for electricity from the national grid at times of peak demand.
Total new investment	**High:** $500K in 2025/26, $4.56 million 2026/27 (total $5.06 million capex)

	Medium: not included in package			
ER / $	Assessed as having **low additional** emissions reduction potential for the investment required, given there is a separate budget line in the property base budget to decarbonise space heating at Toitū Otago Settlers Museum.			
Dependencies or linkages	There is a separate budget line within capital budgets to renew and decarbonise the heating system at Toitū Otago Settlers Museum. As such, LPG consumption at Toitū will still be addressed if this sewer thermal energy project does not progress.			
Risks	Possible risk of cost escalation if installation of underground infrastructure is more complex than anticipated.			
Co-benefits	**Social**	**Economic**	**Environmental**	**Cultural**
	+	+	+	

Transport investment options

Title	Ōtepoti Pathways – pedestrian improvements
Priority	1 (Transport)
ZC Plan # and action area	T4.9.2 – Complete urban cycleway networks and improve priority pedestrian networks
Description	This project would deliver new crossing points, missing footpaths, drop kerbs, and tactile paving particularly near schools, commercial centres, at bus stops, playgrounds and other key destinations. Where possible, improvements will be coordinated with the maintenance and renewals programme. Sites will be prioritised based on number of potential users (high trip generators), feasibility, cost and safety risk.
Rationale: problem & opportunity	- To achieve Dunedin's targets, Zero Carbon modelling suggests that emissions from transport need to be reduced at least 42% below 2018/19 levels. This will require a significant increase in the number of trips taken on foot. - Safe walking routes around schools, to town centres and public transport hubs are most likely to lead to an increase in walking. A high-quality pedestrian network is particularly important for vulnerable groups, including older people, families and children, and people with disabilities. - Pedestrian infrastructure such as footpaths and crossing points are missing or in poor condition in many places around the city. This is a frequent topic of complaints during consultations and coming through customer service. - The Ōtepoti Pathways business case has identified a need to fill missing links in the pedestrian network with priority areas being the City Centre, the Hill suburbs, South Dunedin, Mosgiel and Andersons Bay. - Many walking and cycling improvements could be delivered through several of the proposed investment options. This investment option gives a high degree of flexibility, allowing interventions to be prioritized according to mode shift potential, feasibility and cost. - With the reduction in Low Cost Low Risk co-funding, DCC will not have budget to improve walking and cycling infrastructure other than through approved projects.
Total new investment	This project is scalable. Cost per intervention ranges from $10,000 for a kerb cut at an intersection to $100,000 for a raised crossing. **High and Medium:** $1M per annum has been nominally identified as being a level of spend feasibly deliverable within existing resources (depending on what other additional work is approved).
ER / $	Assessed as having **very high** emissions reduction potential for the investment required.
Dependencies or linkages	Links with all other investment options that build safe walking and cycling infrastructure, as network connectivity will be prioritised. Complemented by Workplace travel planning expansion programme and Cycle skills training investment options (because complementary initiatives alongside infrastructure improvements help improve active travel rates)
Status	Areas for improvements have been prioritised through the Ōtepoti Pathways Programme Business case and potential sites have been identified. This project can be delivered in house with existing skills and resources and would be delivered through the maintenance contract.

Risks	This project is low risk as it would deliver standard interventions that can be planned and designed in-house, which has been done many times in the past.			
Co-benefits	**Social**	**Economic**	**Environmental**	**Cultural**
	+++	++	+	

Title	Ōtepoti Pathways – cycleway improvements
Priority	2 (Transport)
ZC Plan # and action area	T4.9.2 – Complete urban cycleway networks and improve priority pedestrian networks
Description	This project would deliver new or improved cycle wayfinding, markings, crossing points and connections where there are gaps, particularly near schools, commercial centres, at bus stops, playgrounds and other key destinations and routes. Where possible, improvements will be coordinated with the maintenance and renewals programme. Sites will be prioritised based on number of potential users (high trip generators), feasibility, cost and safety risk.
Rationale: problem & opportunity	- To achieve Dunedin's targets, Zero Carbon modelling suggests that emissions from transport need to be reduced at least 42% below 2018/19 levels. This will require a significant increase in the number of trips taken by bike. - A comprehensive, safe, connected network of cycleways is a critical enabling factor for residents to travel by bike. Without investment in Dunedin's cycle network, significant cycle mode shift will not be achieved. - Dunedin's cycle network is still in its infancy. Some key routes have been developed such as the Harbour Cycleway and the SH1 separated cycle lanes. However, due to the number of gaps in the network, most people who want to cycle for everyday trips are not well served by it. - The Ōtepoti Pathways business case has identified a need to fill missing links in the cycleways network with priority areas being the City Centre, the Hill suburbs, South Dunedin, Mosgiel and Andersons Bay. - Many walking and cycling improvements could be delivered through several of the proposed investment options. This investment option gives a high degree of flexibility, allowing interventions to be prioritized according to mode shift potential, feasibility and cost. - With the reduction in Low Cost Low Risk co-funding, DCC will not have budget to improve walking and cycling infrastructure other than through approved projects.
Total new investment	This project is scalable. Cost per intervention ranges from $500 for wayfinding signage to $25,000 for an improved intersection. **High and Medium:** $1M capex per annum has been nominally identified as being a level of spend feasibly deliverable within existing resources (depending on what other additional work is approved).
ER / $	Assessed as having **very high** emissions reduction potential for the investment required.
Dependencies or linkages	Links with all other investment options that build safe walking and cycling infrastructure, as network connectivity will be prioritised.

	Complemented by Workplace travel planning expansion programme and Cycle skills training investment options (because complementary initiatives alongside infrastructure improvements help improve active travel rates). Complemented by Central City bike parking facilities investment option (because secure/sheltered bike parking at key destinations helps support mode shift).			
Status	Areas for improvements have been prioritised through the Ōtepoti Pathways Programme Business case and potential sites have been identified. This project can be delivered in house with existing skills and resources and would be delivered through the maintenance contract.			
Risks	This project is low risk as it would deliver standard interventions that can be planned and designed in-house, which has been done many times in the past.			
Co-benefits	**Social**	**Economic**	**Environmental**	**Cultural**
	++	++	++	

Title	Bus priority improvements
Priority	3 (Transport)
ZC Plan # and action area	T4.10.4 – Support improvements in public transport service frequency, operating hours and quality, while maintaining affordability for users
Description	This project would improve bus journey times and reliability by implementing bus priority at signalised intersections and bus stops and changing bus routes where it makes sense to do so e.g. to avoid a difficult turn.
Rationale: problem & opportunity	- To achieve Dunedin's targets, Zero Carbon modelling suggests that emissions from transport need to be reduced at least 42% below 2018/19 levels. This will require a significant increase in the number of trips taken by public transport. - Local surveys suggest that public transport is seen as the most viable alternative to private motor vehicles for the largest number of Dunedin residents, and can more readily be used for longer journeys than active modes. - Key factors determining use of public transport are fares, service frequencies, journey times (relative to the private motor vehicle) and reliability. - This funding would enable DCC to work closely with ORC, analysing their journey time data to identify and improve bus priority at locations additional to those already built into budgets (see linkages below). - Locations would be prioritized based on journey time improved and user numbers. Potential key areas for improvement include the Cargills Corner and Gardens/North Rd intersections.
Total new investment	This project is scalable as it can be delivered one bottleneck at a time. Costs range from no cost for minor bus route changes, $20,000 for shifting a bus stop due to a bus route change, and $35,000 for in lane bus stops. The cost for priority at signals depends on the design solution, which ranges from a simple dedicated bus approach lane to a costly software solution (cost to be investigated). **High and Medium:** $2M capex
ER / $	Assessed as having **very high** emissions reduction potential for the investment required.
Dependencies or linkages	The Princes Street Bus Priority and Corridor Safety Plan project (in draft 9YP budgets) includes these measures to improve journey times and reliability of the southern bus spine routes. The George/Bank St Connection investment option also builds in provision for in lane bus stops, which would improve

	journey times and reliability of Dunedin's northern public transport spine routes. Links with the bus network and infrastructure improvements investment option (as both projects will support efficiency and reliability). Complemented by the Workplace travel planning expansion programme.			
Status	Some bus priority measures have been identified and planned for as part of existing or planned projects. Next steps would involve working with the ORC to analyse journey time data and identify/prioritise further sites for bus priority improvements.			
Risks	This project is low to medium risk depending on what interventions are implemented: - Risks associated with installation of priority at traffic signals will be scoped during the project. - While well established in other New Zealand cities, bus priority measures are a new concept for Dunedin and may result in some delays for private motor vehicles e.g. at in-lane bus stops or priority at traffic signals. - These risks can be mitigated through transparent and strong public engagement, and project monitoring.			
Co-benefits	**Social**	**Economic**	**Environmental**	**Cultural**
	++	+	+	

Title	Bus network and infrastructure improvements
Priority	4 (Transport)
ZC Plan # and action area	T4.10.4 – Support improvements in public transport service frequency, operating hours and quality, while maintaining affordability for users T4.12.5 – Support improvements in the quality and consistency of bus stops and bike facilities; Improve connections between modes
Description	This project aims to optimise bus routes, bus stop spacing and bus stop provision. It will review the bus network and once routes are confirmed, bus stop spacing and locations will be amended where necessary and bus stop infrastructure will be improved. Examples of bus stop improvements are adequate bus stop sizes and better pedestrian facilities, e.g. crossing points near bus stops.
Rationale: problem & opportunity	- To achieve Dunedin's targets, Zero Carbon modelling suggests that emissions from transport need to be reduced at least 42% below 2018/19 levels. This will require a significant increase in the number of trips taken by public transport. - Local surveys suggest that public transport is seen as the most viable alternative to private motor vehicles for the largest number of Dunedin residents, and can more readily be used for longer journeys than active modes. - The quality and spacing of bus stops impacts public transport use. It is particularly important for demographics for whom safety and security is of greater concern e.g. older people, women, and people with disabilities. However, engagement suggests there is general dissatisfaction with the quality of the city's bus stops – many cite their inability to provide adequate protection from the weather, security issues, inadequate seating, and lack of real-time bus information. - Optimizing bus stop spacing and routes can also improve bus reliability and journey times.

	- ORC is currently reviewing its Regional Public Transport Plan. The draft identifies a bus network review and bus infrastructure improvements as key priorities. - This builds on work already completed: ORC has undertaken an audit of bus stop quality across the city and identified where there is deficient infrastructure. Bus stop improvements would be prioritised based on user numbers and safety risk. - DCC would work closely with ORC to review and change bus routes where necessary and once a route is confirmed, review the bus stop locations and improve bus stop infrastructure.
Total new investment	This project is scalable as it can be delivered one bus route at a time. Costs range from $2,000 for new line marking to $100,000 for a new raised crossing point. **High and Medium:** $2M capex
ER / $	Assessed as having **very high** emissions reduction potential for the investment required.
Dependencies or linkages	Complemented by the Workplace travel planning expansion programme investment option. Links with various other infrastructure projects, depending on location. The future of the Bus Hub needs to be determined. This will also influence whether changes to bus routes in the central city are necessary.
Status	A bus stop quality audit was recently completed by the ORC, identifying necessary bus stop improvements and their priority. Improvements have been planned to be delivered as part of the Princes St Connections and George/Bank St Connections projects. The next step would involve detailed project scoping in conjunction with the ORC.
Risks	This project is low risk as it would deliver standard interventions that can be planned and designed in-house, which has been done many times in the past.

Co-benefits	**Social**	**Economic**	**Environmental**	**Cultural**
	+	+	+	

Title	Car share
Priority	5 (Transport)
ZC Plan # and action area	T5.14.1 – Establish and promote car share
Description	This project would support establishment of a car share service in Dunedin for a three-year trial period, by forgoing revenue from parking spaces to be dedicated to car share. The launch service would be a ‘back-to-base’ operation, with ‘bases’ in the Central City, and the launch fleet would be vehicles with internal combustion engines (rather than electric vehicles).
Rationale: problem & opportunity	- To achieve Dunedin’s targets, Zero Carbon modelling suggests that emissions from transport need to be reduced at least 42% below 2018/19 levels. This will require a significant increase in the number of trips taken by bike, by foot, and in public transport.

	- Car share schemes (a car rental model for short periods e.g. by the hour) reduce car ownership and use, and promote use of active/public transport modes. - Research has shown that each car share car can lead to a reduction of 7-10 private vehicles, which will reduce parking pressure and encourage the use of alternative modes. - Car share is also recognised as a way to enable more options for use of road space (including by reducing parking demand) and broadening mobility options for residents/visitors and businesses. - Through 2023/24, staff worked under an MoU with a car share provider. To facilitate establishment of a public car sharing operation in Dunedin, provision of public parking spaces would be required either at minimal or no charge.
Total new investment	The estimated cost accounts for lost revenue from providing 10 dedicated parking spaces for car share vehicles. Actual waived revenue would depend on the final location of the parks. **High and Medium:** $68,000 opex per annum (total $408,000)The trial is for 3 years but opex needs to be included for 6 years in case the trial is successful and carsharing will continue.
ER / $	Assessed as having **very high** emissions reduction potential for the investment required.
Dependencies or linkages	The project is supported by DCC's Zero Carbon Alliance partners, particularly the University of Otago and Te Pukenga – Dunedin Campus, who would be very supportive of a public car share scheme available to student populations. Additional car share parking spaces are likely to be made available by Zero Carbon Alliance partners.
Status	DCC signed a Memorandum of Understanding with a car share provider to work in good faith to establish a car share operation in Dunedin. This was valid from 28 September 2023 – 01 July 2024. To establish in Dunedin, the car share provider requires DCC to provide parking spaces in the central city at no cost, which would result in reduced parking revenue. Should council approve this through the 9 year plan, the memorandum would be resigned for the period 01 July 2025 until 30 June 2026.
Risks	This project is low risk. Car share schemes are well established overseas and in other cities around New Zealand. Commercial risks associated with establishment would be borne by the operator(s).

Co-benefits	**Social**	**Economic**	**Environmental**	**Cultural**
	+	+	+	

Title	Workplace travel planning expansion programme
Priority	6 (Transport)
ZC Plan # and action area	T5.15.1 – Expand workplace and school travel planning, and road safety promotion
Description	This project would expand the current DCC workplace travel planning programme to reach more workplaces (likely two or three major central city employers each year) and support them to promote sustainable transport on work journeys and implement priority initiatives. Potential initiative examples

	include Workride (which helps employees to save up to 63% on bikes, e-bikes and scooters) and, subject to availability in Dunedin, FareShare (which enables employers to subsidize their employees' public transport costs).
Rationale: problem & opportunity	- To achieve Dunedin's targets, Zero Carbon modelling suggests that emissions from transport need to be reduced at least 42% below 2018/19 levels. This will require a significant increase in the number of trips taken by walking, cycling and public transport. - Recent improvements in active and public transport infrastructure and services have given residents a wider range of transport choices. Both High and Medium investment packages would result in further improvements. - Mode shift is maximised when active and public transport infrastructure and service level upgrades are supported by a package of complementary measures. - Travel to work generates significant emissions. Workplace travel plans are a bespoke collection of measures for an employer that support their staff to take advantage of lower-emissions transport options when convenient through a combination of raising awareness, education and providing incentives.
Total new investment	**High and Medium:** $120,000 opex per annum (total $720,000 opex over six years)
ER / $	Assessed as having **high** emissions reduction potential for the investment required.
Dependencies or linkages	Builds on pedestrian and cycle improvements as infrastructure improvements with Travel Demand Management initiatives combined provides the highest mode shift potential.
Status	Large Dunedin employers including DCC, the University of Otago and Te Whatu Ora Southern (in Dunedin) have been engaging in workplace travel planning since 2022. This work could now be expanded to a wider network of central city employers. Next steps would involve employing a coordinator.
Risks	There is a medium/high risk that it will be difficult to recruit suitable staff, based on past experience.

Co-benefits	**Social**	**Economic**	**Environmental**	**Cultural**
	+	+	+	

Title	Ōtepoti Pathways – George / Bank St Improvements
Priority	7 (Transport)
ZC Plan # and action area	T4.9.7 – Complete urban cycleway networks and improve priority pedestrian networks
Description	This project would implement changes to George/Bank St (Albany St to North Road), including improved bus stops with bus priority, cycle lanes, pedestrian crossings, a roundabout and other intersection improvements. The George/Bank St Connection would provide a safe route for pedestrians and cyclists connecting the schools and gardens shopping area to North East Valley and the Central City. It would also improve public transport reliability and efficiency on Dunedin's northern public transport spine.
Rationale: problem & opportunity	- To achieve Dunedin's targets, Zero Carbon modelling suggests that emissions from transport need to be reduced at least 42% below 2018/19 levels. This will require a significant increase in the number of trips taken by bike. - A comprehensive, safe, connected network of cycleways is a critical enabling factor for residents wishing to travel by bike. Without investment in Dunedin's cycle network, significant cycle mode shift will not be achieved.

	- The Ōtepoti Pathways Business Case identified a need to improve the walking and cycling connection between North East Valley and the Central City, which is currently compromised by the poor safety of the Pine Hill/Great King Street SH1 intersection. This intersection has also been identified as a constraint to growth within Dunedin's Future Development Strategy. - The George/Bank St route would provide a safe alternative route to the SH1 route.			
Total new investment	This project is scalable as the roundabout at the St David St intersection and the bus stops could be delivered at different times than the cycle lanes and pedestrian improvements. **High and Medium:** $4M capex (full project scope)			
ER / $	Assessed as having **high** emissions reduction potential for the investment required.			
Dependencies or linkages	Links with other investment options that build safe walking and cycling infrastructure, particularly the Ōtepoti Pathways – Hill Suburbs Link investment option, and the Albany St project (in draft 9 year plan budgets). Complemented by Workplace travel planning expansion programme and Cycle skills training investment options (because complementary initiatives alongside infrastructure improvements help improve active travel rates). Complemented by Central City bike parking facilities investment option (because secure/sheltered bike parking at key destinations helps support mode shift).			
Status	- NZTA is investigating improvements to the Pine Hill/Great King Street intersection through their SH1 Business Case, but any changes are unlikely to be imminent. - DCC has consulted on the proposed Bank/George St changes and designs were developed through the previous governments Climate Emergency Response Fund (CERF). The project has detailed designs that have been consulted on and can be implemented. - Next steps involve procurement of civil works and construction.			
Risks	This project is designed and consulted on so planning risks are low. However, this project involves changes to the transport network and parking changes. These changes can be mitigated through transparent and strong public engagement.			
Co-benefits	**Social**	**Economic**	**Environmental**	**Cultural**
	++	+	++	

Title	South Dunedin Safer School Streets
Priority	8 (Transport)
ZC Plan # and action area	T4.9.8 – Complete urban cycleway networks and improve priority pedestrian networks
Description	This project would improve streets near the South Dunedin schools to encourage and enable more walking, cycling, scooting and public transport use on school journeys. The proposed changes include improved bus stops, crossing points, speed calming, cycle routes and intersection.

	DCC has consulted on proposed changes near eight South Dunedin schools and designs. DCC has also supported these schools with travel planning and cycle skills training activities during 2022 -2024 in anticipation of infrastructure improvements. Both activities were funded through the previous government's Climate Emergency Response Fund (CERF).			
Rationale: problem & opportunity	- To achieve Dunedin's targets, Zero Carbon modelling suggests that emissions from transport need to be reduced at least 42% below 2018/19 levels. This will require a significant increase in the number of trips taken by bike and on foot. - Focusing on active modes for shorter journeys, including travel to school, is best practice due to its significant wider benefits e.g. for health and wellbeing. - Encouraging and enabling safe walking and cycling around schools unlocks options for students, but also enables mode choice for parents. International evidence and local engagement show that the need to transport others (particularly school children) is a key reason why many employees drive to work.			
Total new investment	This project is scalable as it can be delivered as a whole or in part or over time. **High:** $10M capex (full project scope) **Medium:** $8M capex (reduced project scope)			
ER / $	Assessed as having **high** emissions reduction potential for the investment required.			
Dependencies or linkages	Complemented by Workplace travel planning expansion programme and Cycle skills training investment options (because complementary initiatives alongside infrastructure improvements help improve active travel rates).			
Status	Concepts are designed and have been consulted on. Next steps would involve procurement of civil works and construction.			
Risks	This project is designed and consulted on so planning risks are low. However, this project involves changes to the transport network and parking changes. These changes can be mitigated through transparent and strong public engagement.			
Co-benefits	**Social**	**Economic**	**Environmental**	**Cultural**
	+++	++	++	

Titles	Cycle skills training – existing schools Cycling skills training – waiting list
Priority	Existing schools - 9 (Transport) Waiting list – 18 (Transport)
ZC Plan # and action area	T5.15.3 – Expand workplace and school travel planning, and road safety promotion
Description	Continue delivering DCC's cycle skills training programme at the same level as in 2024/25 (38 schools/1,490 students). Additional funding could be applied to extend this to other schools on the waitlist (10 schools/220 students).
Rationale: problem & opportunity	- To achieve Dunedin's targets, Zero Carbon modelling suggests that emissions from transport need to be reduced at least 42% below 2018/19 levels. This will require a significant increase in the number of trips taken by bike. - Focusing on active modes for shorter journeys, including travel to school, is best practice due to its significant wider benefits e.g. for health and wellbeing.

	- Encouraging and enabling safe walking and cycling around schools unlocks travel options for students, but also enables mode choice for parents. International evidence and local engagement show that the need to transport others (particularly school children) is a key reason why many employees drive to work. - Complementary initiatives alongside infrastructure improvements help improve active travel rates to schools. Cycle skills training has been proven to increase confidence and skills for children to cycle on the road for everyday journeys. - NZTA co-funding for Travel Demand Management initiatives has been reduced significantly in the 2024-2027 NLTP and will mainly be used to deliver School Travel Planning activities such as Move it March and Active August activation months. - The schools cycle skills training is therefore significantly reduced within existing budgets.			
Total new investment	**High:** $300,000 opex per annum to maintain support at 2024/25 levels (38 schools/1,490 students) with an additional $55,000 opex per annum to provide support to waitlisted schools (10 schools/220 students) **Medium:** $150,000 opex per annum to support schools with adjacent safe walking and cycling infrastructure (approx. half of those supported by the programme in 2024/25)			
ER / $	Assessed as having **high** emissions reduction potential for the investment required (if delivered following infrastructure improvements)			
Dependencies or linkages	Effective when progressed following direct investment in safe walking and cycling infrastructure, particularly around schools. Complements: - South Dunedin Safer School Streets - Ōtepoti Pathways – cycleway improvements - Ōtepoti Pathways – pedestrian improvements			
Status	Next steps would involve adjusting the contract with the cycle skills training supplier, so that they can start planning for delivery.			
Risks	This project is BAU/low risk. DCC has been delivering school travel planning and cycle skills training to primary schools across Dunedin for many years.			
Co-benefits	**Social**	**Economic**	**Environmental**	**Cultural**
	+	+	+	

Title	Ōtepoti Pathways – Vogel St Improvements
Priority	10 (Transport)
ZC Plan # and action area	T4.9.2 – Complete urban cycleway networks and improve priority pedestrian networks
Description	Vogel Street will be changed to a shared and low speed street to enable people feel safe and confident to cycle. This would form part of the priority cycle route connecting Dunedin's southern suburbs to the City Centre.
Rationale: problem & opportunity	- To achieve Dunedin's targets, Zero Carbon modelling suggests that emissions from transport need to be reduced at least 42% below 2018/19 levels. This will require a significant increase in the number of trips taken by bike. - A comprehensive, safe, connected network of cycleways is a critical enabling factor for residents to travel by bike. Without investment in Dunedin's cycle network, significant cycle mode shift will not be achieved.

	- Most people need separated cycleways to feel confident and safe to cycle for everyday trips. A cost-effective alternative is speed and traffic calming of existing streets, creating safe, direct and easy to find routes. - The Ōtepoti Pathways Plan has identified Vogel Street as part of the priority cycle route connecting Dunedin's southern suburbs to the City Centre. - The project could be delivered at relatively low cost, with minimal parking loss and would contribute to filling the missing link from the south. There are also strong links with other projects (see below).
Total new investment	This project is scalable as it can be delivered using minimal or temporary infrastructure as an alternative to permanent infrastructure. **High and medium:** $2.3M capex and $200,000 opex
ER / $	Assessed as having **very high** emissions reduction potential for the investment required.
Dependencies or linkages	The project aligns well with NZTA's SH1 project which proposes changes that would improve this route. It supports the proposed City to Waterfront Bridge, Princes St Connections project and the Central City Plan. Links with other investment options that build safe walking and cycling infrastructure. Particularly strong links with the Ōtepoti Pathways – Caversham to Central City Tunnels Trail Link investment option, and with the Dunedin Tunnels Trail. Complements the Workplace travel planning expansion programme and Cycle skills training investment options (because complementary initiatives alongside infrastructure improvements help improve active travel rates). Links with Central City bike parking facilities investment option (because secure/sheltered bike parking at key destinations helps support mode shift).
Status	Initial scoping has taken place. This project is now ready to move into the planning phase. Some planning occurred through the SH1 business case phase.
Risks	This project is medium risk for public acceptability as it would include changes to the transport network such as vehicle restrictions and parking changes (but no or minimal parking loss). These changes can be mitigated through transparent and strong public engagement.

Co-benefits	**Social**	**Economic**	**Environmental**	**Cultural**
	++	+	++	

Title	Ōtepoti Pathways – Caversham to Central City Tunnels Trail Link
Priority	11 (Transport)
ZC Plan # and action area	T4.9.2 – Complete urban cycleway networks and improve priority pedestrian networks
Description	This project would improve existing shared paths, improve the legibility and consistency of the existing segments and build a new connection between South Road and Vogel Street. This project would deliver a continuous southern cycle route from Mosgiel and other southern suburbs to the City Centre, which would be improved further once the Dunedin Tunnels Trail is built.
Rationale: problem & opportunity	- To achieve Dunedin's targets, Zero Carbon modelling suggests that emissions from transport need to be reduced at least 42% below 2018/19 levels. This will require a significant increase in the number of trips taken by bike.

	- A comprehensive, safe, connected network of cycleways is a critical enabling factor for residents wishing to travel by bike. Without investment in Dunedin's cycle network, significant cycle mode shift will not be achieved. - There is a missing link between where the Dunedin Tunnels Trail is proposed to end in Caversham, and the City Centre. The current route consists of shared paths and shared streets. However, the route is not well known, is not direct, and has narrow paths. In addition, the on-road segment is not suitable for people will only cycle for everyday trips if they feel safe (60% of all people).			
Total new investment	**High and Medium**: $4M capex and $500,000 opex			
ER / $	Assessed as having **very high** emissions reduction potential for the investment required.			
Dependencies or linkages	Links with other investment options that build safe walking and cycling infrastructure. Particularly strong links with the Ōtepoti Pathways – Vogel St investment option, and with the Dunedin Tunnels Trail. Complemented by the Workplace travel planning expansion programme and Cycle skills training investment options (because complementary initiatives alongside infrastructure improvements help improve active travel rates). Complemented by the Central City bike parking facilities investment option (because secure/sheltered bike parking at key destinations helps support mode shift).			
Status	Initial scoping is complete. This project is now ready to move into the planning phase. Some planning occurred through the SH1 business case phase.			
Risks	This project has some risk as the planning has not taken place yet. It is unlikely that this project would impact on parking. NZTA's approval or consent may be required for a potential section on the SH1 alignment (between South Road and King Edward Street).			
Co-benefits	**Social**	**Economic**	**Environmental**	**Cultural**
	++	+	++	

Title	Ōtepoti Pathways – Town Belt Improvements
Priority	12 (Transport)
ZC Plan # and action area	T4.9.2 – Complete urban cycleway networks and improve priority pedestrian networks
Description	This project would improve walking and cycling connections through the Town Belt by delivering new crossing points across busy roads, changed priority give way, wayfinding signage, access restrictions for vehicles and improved paths.
Rationale: problem & opportunity	- To achieve Dunedin's targets, Zero Carbon modelling suggests that emissions from transport need to be reduced at least 42% below 2018/19 levels. This will require a significant increase in the number of trips taken by bike. - A comprehensive, safe, connected network of cycleways is a critical enabling factor for residents wishing to travel by bike. Without investment in Dunedin's cycle network, significant cycle mode shift will not be achieved. - The Ōtepoti Pathways Business Case and the Town Belt Reserve Management Plan consultation both identified improved walking and cycling connections through the Town Belt as high priorities.

	- This would enable safe and active commuter journeys from the Hill suburbs to the city centre, school journeys to the many schools along the Town Belt, as well as recreational journeys. - If this project was funded, Transport Group and PARS would investigate options, engage with the community and draft an implementation plan before detailed design and implementation. - This project is likely to have minimal impact on parking and could potentially increase the parking offering in some places.
Total new investment	This project is scalable as the Town Belt is large and improvements can be delivered in stages and packages. **High:** $2M capex and $100,000 opex **Medium:** $500,000 capex and $50,000 opex
ER / $	Assessed as having **high** emissions reduction potential for the investment required.
Dependencies or linkages	This project is closely linked to, and should be coordinated with, the Ōtepoti Pathways – Hill suburbs link investment option. Also links with other investment options that build safe walking and cycling infrastructure, particularly the Ōtepoti Pathways – George/Bank St Connection investment option, and Albany St (in draft 9 year plan budgets). Complemented by the Workplace travel planning expansion programme and Cycle skills training investment options (because complementary initiatives alongside infrastructure improvements help improve active travel rates). Complemented by the Central City bike parking facilities investment option (because secure/sheltered bike parking at key destinations helps support mode shift).
Status	This project has been identified through development of the Ōtepoti Pathways Plan. Initial planning and scoping has taken place. Next steps would involve project establishment, scoping and planning.
Risks	The risks will be identified during the planning phase.

Co-benefits	**Social**	**Economic**	**Environmental**	**Cultural**
	++	+	++	

Title	Ōtepoti Pathways – Hill suburbs link
Priority	13 (Transport)
ZC Plan # and action area	T4.9.2 – Complete urban cycleway networks and improve priority pedestrian networks
Description	This project would deliver a safe cycle route between the central city and the hill suburbs around and beyond the Town Belt.
Rationale: problem & opportunity	- To achieve Dunedin's targets, Zero Carbon modelling suggests that emissions from transport need to be reduced at least 42% below 2018/19 levels. This will require a significant increase in the number of trips taken by bike. - A comprehensive, safe, connected network of cycleways is a critical enabling factor for residents wishing to travel by bike. Without investment in Dunedin's cycle network, significant cycle mode shift will not be achieved.

	- The hill suburbs have a significant residential population within close distance to the city centre, several schools, and significant employers. Wakari is identified as a growth area in the Dunedin's Future Development Strategy. - E-bikes have increased the number of people for whom cycling in hilly terrain is possible, creating more demand for cycling infrastructure. - However, there is currently no safe and convenient cycle route connecting the hill suburbs to the central city. - There are a number of possible alignments and further work is required to determine the preferred routes, facility types and to engage with the community.			
Total new investment	**High:** $2.7M capex and $300,000 opex **Medium:** $500,000 capex and $60,000 opex			
ER / $	Assessed as having **high** emissions reduction potential for the investment required.			
Dependencies or linkages	This project is closely linked to, and should be coordinated with, the Ōtepoti Pathways – Town Belt improvements investment option. Also links with other investment options that build safe walking and cycling infrastructure, particularly the Otepoti Pathways – George/Bank St Connection investment option, and Albany St (in draft 9 year plan budgets). Complemented by the Workplace travel planning expansion programme and Cycle skills training investment options (because complementary initiatives alongside infrastructure improvements help improve active travel rates). Complemented by Central City bike parking facilities (because secure/sheltered bike parking at key destinations helps support mode shift).			
Status	This project has been identified through development of the Ōtepoti Pathways Plan. Next steps would involve project establishment, scoping and planning.			
Risks	The risks will be identified during the planning phase.			
Co-benefits	**Social**	**Economic**	**Environmental**	**Cultural**
	++	+	++	

Title	Central City bike parking facilities
Priority	14 (Transport)
ZC Plan # and action area	T4.12.1 – Support improvements in the quality and consistency of bus stops and bike facilities
Description	This project would deliver three safe bike parking facilities in the Central City, targeted at commuters and visitors to the Central City. Each bike hub would cater for 12 bikes.
Rationale: problem & opportunity	- To achieve Dunedin's targets, Zero Carbon modelling suggests that emissions from transport need to be reduced at least 42% below 2018/19 levels. This will require a significant increase in the number of trips taken by bike. - Safe bike parking facilities are important for commuters who have valuable ebikes or bikes but no option to park their bike safely at their workplace or elsewhere. Travel surveys at major workplaces indicate this is a barrier to cycling for some employees.
Total new investment	This project is scalable, one bike hub at a time (an installed facility costs $80,000 including civil works)

	High and Medium: $240,000 capex			
ER / $	Assessed as having **high** emissions reduction potential for the investment required (when delivered in tandem with adjacent cycle network improvements).			
Dependencies or linkages	This project links to cycle infrastructure improvements in the central city (e.g. Albany St, in draft 9 year plan budgets).			
Status	Options were explored through a business case, locations have been identified and facility types and procurement have been scoped. This project is ready to be implemented.			
Risks	This project is low risk as it is well scoped and understood. There are multiple suppliers in market, units are relocatable and exemplars are in use elsewhere.			
Co-benefits	**Social**	**Economic**	**Environmental**	**Cultural**
	+	+	++	

Title	City to Waterfront Bridge
Priority	15 (Transport)
ZC Plan # and action area	T4.9.5 – Complete urban cycleway networks and improve priority pedestrian networks
Description	This project would construct a new pedestrian and cycling bridge connecting the Queens Gardens area with the waterfront (Steamer Basin), thereby linking the central city with the Otago Harbour walking and cycleway. The DCC was awarded $19.9 million funding from the Government's Provincial Growth Fund (PGF) to assess the feasibility of the vision, develop a business case and pay for the first stage of work. A single stage business case for the project was completed. However due to the impact of the COVID-19 pandemic, the project has been put on hold and unspent funding returned.
Rationale: problem & opportunity	- To achieve Dunedin's targets, Zero Carbon modelling suggests that emissions from transport need to be reduced at least 42% below 2018/19 levels. This will require a significant increase in the number of trips taken by bike. - A comprehensive, safe, connected network of cycleways is a critical enabling factor for residents wishing to travel by bike, and without this significant cycle mode shift will not be achieved. - The Ōtepoti Pathways Business Case confirmed the importance of a safe cycling link across the railway lines to connect the central city with the Harbour Cycleway - Safer, direct pedestrian access to the harbourside/Steamer Basin area has long been identified as an issue constraining greater use of the area and private investment opportunities. A growing number of businesses and residents are establishing in the area and the lack of safe, direct access is a constraint on further growth. Greater development on the city side of the connection around Queens Gardens and Rattray Street with development of the ACC building, ORC headquarters and continued growth of the Warehouse Precinct also increases demand for a safer direct pedestrian and cycle connection between the areas. - Connecting the harbourside area to the area of the central city housing most of the city's large hotels will also expand tourism opportunities.
Total new investment	**High:** $20,000M capex and $300,000 opex **Medium:** not included
ER / $	Assessed as having **high** emissions reduction potential for the investment required

Dependencies or linkages	Links with other investment options that build safe walking and cycling infrastructure. Particularly strong links with the Ōtepoti Pathways – Vogel St investment option. Links with the Central City Plan. In 2014, prior to the PGF opportunities, improving connection between the central city and the harbourside area was identified as one of the transformational projects that would unlock the potential of the central city and encourage redevelopment of the harbourside area. Links with the draft Otago Harbour Plan, which identifies improved access to the harbour as a key demand from Dunedin residents. Complemented by the Workplace travel planning expansion programme and Cycle skills training investment options (because complementary initiatives alongside infrastructure improvements help improve active travel rates). Complemented by Central City bike parking facilities investment option (because secure/sheltered bike parking at key destinations helps support mode shift).			
Status	A business case had been developed before Covid and work has been on hold since then. Next steps would be to scope the project start planning which will include engagement, concept and design development. The main current risk relates to the cost of the bridge. It is suggested that at this stage, the budget included in the 2021-31 longterm plan would be insufficient for a bespoke bridge, but a more functional bridge could be achieved within the budget available.			
Risks	The risks will be identified during the project planning phase.			
Co-benefits	**Social**	**Economic**	**Environmental**	**Cultural**
	++	+	++	

Title	Dunedin Tunnels Trail
Priority	16 (Transport)
ZC Plan # and action area	T4.9.3 – Complete urban cycleway networks and improve priority pedestrian networks; encourage low carbon recreation Support development of a diverse low carbon economy
Description	This project is to build the Dunedin Tunnels Trail to connect Mosgiel and other southern suburbs to Dunedin on a safe and attractive route. NZTA co-funding has not been approved, which provides the opportunity to build this connection to a different standard at lower cost.
Rationale: problem & opportunity	- To achieve Dunedin's targets, Zero Carbon modelling suggests that emissions from transport need to be reduced at least 42% below 2018/19 levels. This will require a significant increase in the number of trips taken by bike. - A comprehensive, safe, connected network of cycleways is a critical enabling factor for residents wishing to travel by bike. Without investment in Dunedin's cycle network, significant cycle mode shift will not be achieved. - This project would link Mosgiel and several southern suburbs to the central city (noting that additional investment would be required to provide a connection through to the central city). A high proportion of private motor vehicle trips to the

	central city originate south of the city. These areas are some of the fastest growing in Dunedin. - There is strong community support for the project. Designs are partly completed and consultation on the on-road sections has been undertaken. - The Tunnels Trail would also deliver benefits for low carbon recreation and tourism. It would link with a proposed trail to the south of Mosgiel, that would ultimately connect with the Clutha Gold Trail and provide a continuous off-road cycle experience from Queenstown to Dunedin as part of Ngā Haerenga Great Rides of New Zealand. - Recent years have seen a significant growth in use of New Zealand's off-road cycle trails, with further growth projected. The vast majority of cycle trail users are domestic tourists, suggesting there is an opportunity to grow lower carbon tourism through investment in the Tunnels Trail. - The base budget includes some provision for the Dunedin Tunnels Trail starting at Y9. Including this project in the Zero Carbon package would result in the Tunnels Trail being implemented before 2030 and thereby emissions reduction benefits being realised earlier.			
Total new investment	**High:** $23.4M capex **Medium:** not included			
ER / $	Assessed as having **medium** emissions reduction potential for the investment required			
Dependencies or linkages	Links with Ōtepoti Pathways – Caversham to Central City Tunnels Trail Link investment option and the Ōtepoti Pathways – Vogel Street improvements investment option. Also links with other investment options that build safe walking and cycling infrastructure. Complemented by the Workplace travel planning expansion programme and Cycle skills training investment options (because complementary initiatives alongside infrastructure improvements help improve active travel rates). Complemented by Central City bike parking facilities (because secure/sheltered bike parking at key destinations helps support mode shift).			
Status	Detailed designs for the first section is completed. Draft designs for the remainder are complete. Consultation for the on-road sections is completed. Next steps would include finalising the detailed design and preparing for construction.			
Risks	Building to a different standard will make it hard to attract NZTA co-funding in the future if there is a desire to upgrade the trail to a higher standard.			
Co-benefits	**Social**	**Economic**	**Environmental**	**Cultural**
	++	+	++	

Title	Shore St/Portsmouth Drive/Portobello Rd intersection upgrade
Priority	17 (Transport)
ZC Plan # and action area	Complete urban cycleway networks and improve priority pedestrian networks
Description	This project would deliver a safe crossing point for pedestrians and cyclists from South Dunedin, Musselburgh and Andersons Bay to cross to the Te Aka Ōtākou harbour cycleway.

Rationale: problem & opportunity	- To achieve Dunedin's targets, Zero Carbon modelling suggests that emissions from transport need to be reduced at least 42% below 2018/19 levels. This will require a significant increase in the number of trips taken by bike. - A comprehensive, safe, connected network of cycleways is a critical enabling factor for residents wishing to travel by bike, and without this significant cycle mode shift will not be achieved. - The Shore Street/Portsmouth Drive/Portobello Road intersection is one of Dunedin's busiest cycle intersections and the crossing point is a critical service gap. There is delay and safety risk for cyclists to cross the road at peak times, having to cross four lanes of traffic in a 50km/h environment with help of a median island. This gap means that the route is not suitable for people who are less confident and will only cycle for everyday trips if they feel safe (60% of all people). - Community and cycling advocacy groups have requested changes to this intersection to improve safety and to make it easier for people from South Dunedin, Musselburgh and Andersons Bay to cross to the Te Aka Ōtākou harbour cycleway and to key destinations such as the Edgar Centre, the City Centre and schools. - This project would implement walking and cycling signals on Portsmouth Drive between Teviot Street and Portobello Road. A longer-term solution would involve redesigning the Shore Street/Portobello Rd intersection and possibly the Portobello Rd/Portsmouth Drive intersection, however this is estimated to cost $6 million.			
Total new investment	**High:** $1.4M capex and $100,000 opex **Medium:** not included in package			
ER / $	Assessed as having **medium** emissions reduction potential for the investment required			
Dependencies or linkages	Links with other investment options that build safe walking and cycling infrastructure. Complemented by Workplace travel planning expansion programme and Cycle skills training investment options (because complementary initiatives alongside infrastructure improvements help improve active travel rates). Complemented by Central City bike parking facilities investment option (because secure/sheltered bike parking at key destinations helps support mode shift).			
Status	Preliminary options scoping has been undertaken but planning work is required to determine develop concepts and designs. This can be done in house.			
Risks	The risks will be identified during the project planning phase.			
Co-benefits	**Social**	**Economic**	**Environmental**	**Cultural**
	++	+	++	

Title	Centres upgrades – transport improvements
Priority	19 (Transport)
ZC Plan # and action area	T1.2.3 – Strengthen neighbourhood centres
Description	This project would involve transport improvements in priority suburban centres. Transport interventions would include improved safety of intersections, improved pedestrian crossings and footpaths, speed management and improved parking management.

	This investment option is a complementary addition to the Centres Upgrade programme in draft 9 year plan budgets and would support more substantial transport improvements to be coordinated with the amenity work. The existing budget is only sufficient to support very limited transport improvements focused on pedestrian amenity and safety.			
Rationale: problem & opportunity	- To achieve Dunedin's targets, Zero Carbon modelling suggests that emissions from transport need to be reduced at least 42% below 2018/19 levels. - Well-functioning suburban centres are crucial for enabling local trips to shops, health care and employment on foot, scooter, bike or taking the bus. If work and services people need in their daily lives are available locally, commutes are likely to be shorter. Shorter commutes allows people to have more options for travel, particularly active modes. - Ōtepoti Dunedin has many neighbourhood centres, some of which have struggled in recent years. Revitalising these centres will help re-establish local options for residents who might prefer to meet their daily needs locally. - Many of Dunedin's suburban centres lack safe crossing points, safe speeds or cycling facilities and are of low amenity value. -This project would have the City Development team and Transport team work closely to improve priority centres such as Mornington, Caversham and Maori Hill.			
Total new investment	This project is scalable depending on how many centres will be improved. The cost per centre varies depending on the scale of changes necessary and agreed through consultation. **High:** $3M capex (for approx. 3 centres) **Medium:** not included in package			
ER / $	Assessed as having **medium** emissions reduction potential for the investment required.			
Dependencies or linkages	This project is an extension of the City Development Centres Upgrade programme (in draft 9 year plan budgets). Links with the Ōtepoti Pathways – walking and cycling improvements investment options, and the bus network and infrastructure improvements investment option.			
Status	Prioritisation of the first three centres is completed (Caversham, Mornington and Maori Hill). Speeds have been lowered to 30km/h in these centres. Next steps would involve data collection and project establishment.			
Risks	This project would be scoped during the planning phase. It is anticipated that it would deliver standard interventions that have been planned and implemented many times in the past. Changes to the transport network and parking offering always have the risk of public acceptance. This risk can be mitigated through transparent and strong public engagement and project monitoring.			
Co-benefits	**Social**	**Economic**	**Environmental**	**Cultural**
	+	+	++	

Attachment C: Key projects not included in investment packages

Title	Central City Plan (remaining stages)			
ZC Plan # and action area	T4.9.11 - Complete urban cycleway networks and improve priority pedestrian networks			
Description	This project would involve transport and amenity improvements in the central city, building on the work that has been completed most recently on George St and before that in the Warehouse Precinct. The focus is the safety and accessibility of public spaces and creating compelling, attractive spaces where people want to spend time. Transport interventions may include improved safety of intersections, traffic restrictions, improved pedestrian crossings and footpaths, speed management, cycling facilities and improved parking management. This project would link strongly to other work that is being done in the central city for example, options investigation for a future Bus Hub location and associated bus route changes and NZTA's SH1 improvement project.			
Rationale: problem & opportunity	- To achieve Dunedin's targets, Zero Carbon modelling suggests that emissions from transport need to be reduced at least 42% below 2018/19 levels. - By increasing attractive spaces and making the central city safer and more attractive for pedestrians, people who cycle, scoot or take the bus, people are more likely to use these modes. - The project would knit together the many existing transport projects in the central city, to make sure the central city functions well as a whole.			
Reason for exclusion	- Further planning work is required before preferred scope and phasing and associated costs can be confirmed. This work can be managed within existing budgets. - The anticipated lead times for the project would limit its ability to contribute to the achievement of the DCC's Zero Carbon 2030 targets. - Some of the emissions reduction gains likely to be supported by the Central City Plan will be partially delivered through other projects (e.g. Princes St improvements) - Due in part to its emphasis on amenity, the project is a high cost investment option, which in terms of emissions reduction does not represent best value for money.			
Co-benefits	**Social**	**Economic**	**Environmental**	**Cultural**
	+	+	+	+

Title	Dunedin – Mosgiel commuter train
ZC Plan # and action area	Related to T4.10.6 - Support improvements in public transport service frequency, operating hours and quality, while maintaining affordability for users
Description	This project would involve commuter trains between Dunedin and Mosgiel.
Rationale: problem & opportunity	- To achieve Dunedin's targets, Zero Carbon modelling suggests that emissions from transport need to be reduced at least 42% below 2018/19 levels. This will require a significant increase in the number of trips taken by public transport.

	- There is strong community interest in restoring passenger rail services. This suggests that passenger rail service to some suburbs could attract higher patronage than would be achieved by buses alone.
Reason for exclusion	Staff will work with Dunedin Railways to assess opportunities for commuter services between Dunedin and Mosgiel. It is not possible to assess an investment option until this work has been completed.
Co benefits	Not assessed

Title	Tertiary Precinct upgrade			
ZC Plan # and action area	T4.9.17 - Complete urban cycleway networks and improve priority pedestrian networks			
Description	This project would deliver transport improvements in the Tertiary Precinct, including safer intersections, improved pedestrian crossings and footpaths, speed management and parking management.			
Rationale: problem & opportunity	- To achieve Dunedin's targets, Zero Carbon modelling suggests that emissions from transport need to be reduced at least 42% below 2018/19 levels. The closer people live to their work or education and the services they need in their daily lives, the shorter their commute is likely to be. Shorter commutes allow people to have more options for travel, particularly active modes. - Well-functioning precincts are crucial for enabling local trips to education, shops, health care and employment on foot, scooter, bike or taking the bus. - The speed limits in the Tertiary Precinct were lowered to 30km/h to improve safety and encourage more walking and cycling for everyday trips. There is a lack of speed management and safe crossing points. - The Union St improvements were implemented in 2024 and the Albany St Connection project is included in draft 9 year plan budgets.			
Reason for exclusion	- Under the Setting of Speed Limits Rule 2024, there are uncertainties whether reduced speed limits in the Tertiary Precinct can be retained. - With the Union Street improvements and the Albany St Connection projects implemented, and parking management being delivered through another project, the priority areas within the Tertiary Precinct will be improved. - Further work would mostly focus on safety improvements which from an emissions reduction point of view is not providing best value for money.			
Co-benefits	**Social**	**Economic**	**Environmental**	**Cultural**
	Not assessed			

Title	Peninsula Connection: Portobello-Harington Pt section
ZC Plan # and action area	T4.9.16 - Complete urban cycleway networks and improve priority pedestrian networks
Description	This project would fund the unfinished Peninsula Connection Road Safety project section between Portobello and Harington Point (or parts thereof).
Rationale: problem & opportunity	- To achieve Dunedin's targets, Zero Carbon modelling suggests that emissions from transport need to be reduced at least 42% below 2018/19 levels. - A comprehensive, safe, connected network of cycleways is a critical enabling factor for residents to travel by bike. Without investment in Dunedin's cycle and pedestrian network, significant cycle mode shift will not be achieved.

	- The majority of the Peninsula Connection was constructed between 2008 and 2016 but due to challenges securing NZTA co-funding for the project as a whole, the scope of the project was revised, and the unfunded sections were removed. - The missing shared path connection is important for mana whenua, connecting Ōtākou Marae. - The project would also deliver benefits for low carbon recreation and tourism by extending Te Awa Ōtākou beyond Portobello to Harington Pt.			
Reason for exclusion	Relative to other projects this has lower mode shift potential because of the lower number of potential users it would serve. From an emissions reduction perspective it is a higher cost investment option for relatively lower emissions reduction gains.			
Co-benefits	**Social**	**Economic**	**Environmental**	**Cultural**
	++	+	++	+

Title	Direct DCC contribution to bus operations, to help maintain affordable fares			
ZC Plan # and action area	Related to T4.10.2 - Support improvements in public transport service frequency, operating hours and quality, while maintaining affordability for users			
Description	This project would involve direct DCC investment in ORC managed bus operations, to help maintain affordable bus fares.			
Rationale: problem & opportunity	- To achieve Dunedin's targets, Zero Carbon modelling suggests that emissions from transport need to be reduced at least 42% below 2018/19 levels. - Local surveys suggest that public transport is seen as the most viable alternative to private motor vehicles for the largest number of Dunedin residents, and can more readily be used for longer journeys than active modes. - Fares alongside frequency, operating hours, travel time and reliability determine the quality and uptake of public transport. - Following the introduction of the $2 fare, public transport use has increased significantly. - Recent changes to NZTA's 'private share' recovery requirements will likely result in an increase in public transport fares in Dunedin. - If fares increase significantly, it is likely that patronage will decrease.			
Reason for exclusion	Further conversations with the ORC and NZTA are required to determine whether there is an opportunity for the DCC to contribute to the maintenance of affordable fares through direct investment in bus operations. The ORC is working through the implications of the recent Government/NZTA direction on private share recovery targets. There remains some uncertainty about what constitutes 'private share' funding, and whether there is a way for DCC contributions to qualify as 'private share'.			
Co-benefits	**Social**	**Economic**	**Environmental**	**Cultural**
	+	++	+	

Title	Central City facility for storing timber and other construction materials diverted from landfill

ZC Plan # and action area	R1.4.1, R1.4.2, R1.4.4 - Enable construction waste to be reduced, re-used and recycled			
Description	This would provide a large, enclosed construction and demolition salvage area in a central location with space to store large quantities of timber and other salvaged construction and demolition materials.			
Rationale: problem & opportunity	- - To achieve Dunedin's targets, Zero Carbon Plan modelling suggests resource use needs to be more circular and emissions from waste need to be reduced 37% by 2030 (relative to 2018/19). - Large amounts of construction and demolition waste are currently entering landfill. Timber that enters landfill is a high generator of emissions. - These show up as waste emissions in the city emissions footprint, and also in the DCC's organizational emissions footprint. - There is potential for construction and demolition materials, particularly timber, to be diverted from landfill and made available to the public for re-use. - A lack of suitable storage areas is currently a significant barrier to greater diversion and beneficial re-use of construction and demolition materials within Dunedin. - There is existing budget in WES to develop a second rummage store in a Central City location, however the amount in existing budgets is unlikely to secure a large covered site for storing bulk salvaged materials, including timber. Instead, it could deliver an operation similar to the Green Island rummage store in nature.			
Reason for exclusion	Business case still underway, preferred option and site still to be identified. Costs as yet unclear.			
Co-benefits	**Social**	**Economic**	**Environmental**	**Cultural**
	+		+	

Title	Moana Pool energy system decarbonisation – remaining scope			
ZC Plan # and action area	E1.2.2 – Replace fossil fuels and improve energy efficiency of DCC facilities			
Description	Changing energy used to heat Moana pool from LPG to a lower-carbon alternative.			
Rationale: problem & opportunity	- Decarbonising DCC energy systems contributes to the Zero Carbon Plan goal to reduce city LPG consumption by 65% compared with 2018/19 levels. - Moana Pool is DCC's largest LPG user, representing 60% of the DCC's total LPG kWh stationary energy usage in 2023/24.			
Reason for exclusion	- The replacement of the heat recovery unit is included in draft 9 year plan budgets. This aims to reduce LPG usage by 60-70% (noting the design is yet to be finalised so exact percentage is not known). - Other options were explored but these required the LPG system to remain as a back-up for technical reasons. - Fully displacing LPG is not included due to costs.			
Co-benefits	**Social**	**Economic**	**Environmental**	**Cultural**
	+	+	+	

Title	Green Island landfill solar farm
ZC Plan # and action area	E3.4.3 – Grow renewable energy generation from DCC-owned assets

Description	Installation of solar farm on landfill cap post closure and integration with existing energy export infrastructure at Green Island Wastewater Treatment Plant.			
Rationale: problem & opportunity	Following the landfill closure, the land would be available with limited usage possible. A solar farm could utilize the space, provide energy for the DCC or other users, offsetting current costs for energy.			
Reason for exclusion	- The national electricity grid is supplied predominantly with renewable generation, and the share of renewable generation is expected to grow further. In this context, the emissions reduction from this project is relatively minor. - The project may stack up as an investment decision rather than as a Zero Carbon initiative.			
Co-benefits	**Social**	**Economic**	**Environmental**	**Cultural**
	+	++		

Title	Zero Carbon business transition support programme			
ZC Plan # and action area	C4.7.3 – Support businesses to transition			
Description	A programme targeted to support local Small to Medium Enterprises (SMEs) to measure and reduce their operational emissions, and access external co-funding opportunities.			
Rationale: problem & opportunity	- Emissions from business in Dunedin span all areas of Dunedin's city inventory and are significant, but are not able to be separately quantified. - It can be challenging for businesses, especially smaller ones, to understand their emissions and to identify and secure funding for implementing low-carbon opportunities.			
Reason for exclusion	Provision for continuation of this programme is included in draft Zero Carbon operating budgets.			
Co-benefits	**Social**	**Economic**	**Environmental**	**Cultural**
		++	+	

Title	Wastewater bioresources facility (additional scope)
ZC Plan # and action area	R3.7.2 - Divert biosolids from landfill and minimise emissions from wastewater treatment
Description	This would provide for establishment of a bioresources facility capable of processing an additional 8,000 tonnes of biosolids/sludge per annum (i.e. the full original scope of the facility).
Rationale: problem & opportunity	- To achieve Dunedin's targets, Zero Carbon Plan modelling suggests resource use needs to be more circular and emissions from waste need to be reduced 37% by 2030 (relative to 2018/19). - Biosolids and sludge from wastewater treatment plants is currently sent to landfill. Sludge that is deposited in landfill generates emissions. - These show up as waste emissions in the city emissions footprint, and also in the DCC's organizational emissions footprint. - Emissions are also generated by the incineration of sludge at Tahuna wastewater treatment plant, using diesel, waste oils and grease. - There is potential for these sludges to be diverted from landfill and processed for the production of energy and/or bioresources (e.g. soil conditioner).

	- In draft 9 year plan budgets, investment has been scaled back to cover Phase 1 implementation only (i.e., 2,000 tonnes per year versus total requirement of 10,000 tonnes per year). - In absence of this facility, sludges will be treated with lime then landfilled. This will limit the reduction in 3W carbon emissions and may reduce potential operational cost savings.
Reason for exclusion	**-** Based on estimated capital investment costs, and without a more detailed understanding of the impact on operational costs, this project has a low emissions reduction potential for the level of investment required. - Work on a more detailed business case for the full facility can progress within base budgets. As such, diverting all sludge/biosolids from landfill and decommissioning the Tahuna wastewater plant sludge incinerator may be revisited in future.
Co-benefits	Not assessed

Attachment D: Zero Carbon context update

Context updates with financial implications for Zero Carbon investment packages

Chapter	Key Shift	Change	Implications for Zero Carbon Plan delivery
Transport	Nurture low emissions urban form	Consent data suggests Dunedin's urban development is trending towards more densification around centres and areas with access to frequent public transport.	A Centres upgrades – transport investment option is presented ('High' package only), to top up the Centres upgrade programme budgets to enable more substantial transport improvements/greater emissions reduction benefits. Modelling update to also consider these trends.
Transport	Target closer visitor markets, encourage local destinations, and inspire longer stays	Community groups are working to progress cycle routes outside of, but linking to, the main Dunedin urban area.	The strength of community activity in this area has been considered when prioritising related investment options (e.g. Dunedin Tunnels Trail; 'High' package only). No direct investment in cycle routes outside of the main Dunedin urban area is proposed.
Transport	Develop convenient and attractive cycling and walking networks and public transport services; boost travel demand management to support use of active and public modes	Reduced Government/NZTA co-funding for public and active transport.	Most transport infrastructure and some transport programme actions included in the September 2023 Zero Carbon indicative actions list do not currently qualify for NZTA co-funding, or will have funding reduced. The 'High' and 'Medium' packages reflect that active and public transport infrastructure or programmes would need to be fully funded by the DCC. In cases where existing programmes will have reductions in funding, the packages include a DCC funding top up, to enable delivery.
Transport	Develop convenient and attractive cycling and walking networks and public transport services	The Climate Emergency Response Fund (CERF) was discontinued by the Government.	CERF-funded 'Transport Choices' projects were previously anticipated to receive 90% government/NZTA co-funding (George/Bank St improvements and South Dunedin Safer School Streets projects). Delivering these projects will now require full funding by DCC. Investment packages reflect this.
Transport	Boost travel demand management to support use of active and public modes	Cycle counters in the city show a 12% increase in average daily movements per counter in 2023/24, compared to 2022/23.	Both packages include a range of investments that would support continued growth in cycling. Modelling update to also consider these trends.
Transport	Boost travel demand management to support use of active and public modes	The Government's new Setting of Speed Rule 2024 requires a different process for setting speed limits than speed management plans.	This change precludes the development and delivery of the full speed management plan envisaged by the Zero Carbon indicative action list (T4.9.14). Investment has been excluded.
Transport	Boost travel demand management to support use of active and public modes	Government policy/NZTA direction is requiring public transport authorities to increase third-party revenue. There are new, higher targets for public transport authorities for 'private share' recovery rates – the proportion of operating expenses covered by passengers' fares and sources other than rates and government funding.	Achieving new targets may necessitate a significant increase in bus fares in Dunedin, which would risk drops in patronage. Both investment packages reflect that, to protect current bus patronage levels, investment options such as bus priority measures and bus infrastructure improvements need to be prioritised. The report also discusses potential additional investment options that warrant further joint investigation with the Otago Regional Council (ORC): - Contributing to the maintenance of affordable fares through direct investment in bus operations. - Development/delivery of a scheme enabling employee subsidy of staff public transport costs
Transport	Boost travel demand management to support use of active and public modes	2023-24 Dunedin bus patronage increased by 21% from 2022-23, and now exceeds pre-Covid patronage levels.	Both packages prioritise maintaining current bus patronage levels, through investments such as parking management, bus priority measures and bus infrastructure improvements. Modelling update to also consider these trends.
Transport	Boost travel demand management to support use of active and public modes	The ORC's Fares and Frequency Business Case was not endorsed by NZTA and there is no funding for implementation.	Both packages prioritise maintaining current bus patronage levels, through alternative public transport investments such as bus priority measures and bus infrastructure improvements.
Transport	Boost travel demand management to support use of active and public modes	DCC's car share investigations have indicated that parking spaces would need to be offered to the preferred car share provider at no cost (except for an administration fee).	A car share investment option is presented by which DCC would accept a waiver of revenue from the affected parking spaces car share (T5.14.1).

Buildings, Energy & Industry	Switch to low carbon stationary energy sources	Winter 2024 saw very high wholesale electricity prices. A suite of Government actions proposed to improve supply and security of electricity, primarily through regulatory levers and Government Policy Statements.	This trend has been considered when developing and prioritising investment options. A residential energy efficiency programme investment option is presented ('High' and 'Mediumm' packages) by which residents experiencing energy hardship would be supported to identify and make energy efficiency improvements. Modelling update to also consider this development.
Forestry, Land and Agriculture	Reduce emissions from agriculture	Government delayed agriculture emissions pricing from 2025 to by 2030. Strong emphasis on emerging technology to support emissions reductions.	This change has been considered when developing and prioritising investment options. An agriculture innovation investment option is presented ('High' and 'Medium packages), modelled on the successful CODE approach.
Buildings, Energy & Industry		Internal DCC planning and investigative work relating to DCC stationary energy and associated emissions has progressed. A new DCC Emissions Management and Reduction Plan (EMRP) has been adopted.	Meeting EMRP targets relies on funding being secured in 9YP for key projects, and for those projects to be completed by 2030. Draft budgets include several projects. Zero Carbon packages include additional projects.

Context updates relating to modelling or other aspects of the plan (no financial implications)

Chapter	Key Shift	Change	Implications for Zero Carbon Plan Delivery
Resource use and Waste	Divert more waste from landfill	DCC's organics kerbside collection has commenced and significantly reduced organic waste to landfill.	Modelling update to consider these changes. No additional financial implications; draft budgets include next stage of delivery.
Resource use and Waste	Improve landfill and wastewater gas management	DCC's landfill gas capture and destruction rate continues to improve, significantly reducing emissions from waste and saving money from ETS payments. A new gas engine has recently been installed which will further improve destruction rates.	Modelling update to consider these changes.
Resource use and Waste	Use resource in a more circular way, divert more waste from landfill	Engagement on community resource recovery and construction and demolition waste initiatives has been positive.	No change. Investment was considered for inclusion in the Zero Carbon packages. It was not included because the next step of these projects is provided for in draft budgets, and costings for future stages are not yet clear.
Transport	Target closer visitor markets, encourage local destinations, and inspire longer stays	International flights are returning to Dunedin in mid-2025, with three flights per week between Dunedin and the Gold Coast scheduled. Other changes to domestic flights such as changes to scheduling for the Dunedin-Wellington flight will also have an emissions impact.	Modelling update to consider these changes.
Transport	Boost travel demand management to support use of active and public modes	The Government Policy Statement on Land Transport expects that public transport authorities should increase third-party revenue.	Commercial advertising on bus stops would be considered a third-party revenue stream that meets the definition of 'private share' for the purposes of meeting new NZTA targets. Under the 2GP, commercial advertising on bus stops is a non-complying activity.
Transport	Boost travel demand management to support use of active and public modes	DCC's work on parking management continues to advance.	Parking management actions are fully funded in draft budgets. Other changes in context, particularly relating to public transport, mean there will be additional reliance on alignment of parking management to meet Zero Carbon outcomes. It is considered that this can be achieved within existing budgets.
Transport	Shift freight to low emissions modes	Port Otago is exploring an inland container hub with potential partners near Mosgiel that would have a high reliance on rail and significantly reduce truck movements.	Modelling update to consider this development.

Transport	Electrify light vehicles	Government incentives and funding for electric vehicles discontinued.	Modelling update to consider this development.
	Electrify light vehicles; decarbonise heavy vehicles, marine and aviation	Dunedin's network of public EV chargers is expanding through private sector provision. The government plans to rollout 10,000 public chargers by 2030 and include a focus on heavy vehicle chargers.	Modelling update to consider this development.
Transport	Decarbonise heavy vehicles, marine and aviation	New EECA funding for low emissions heavy vehicles, but excludes public transport buses.	Modelling update to consider this development.
Transport	Decarbonise heavy vehicles, marine and aviation	Electric buses now operate on some bus routes, and more will be added as contracts are retendered.	Modelling update to consider this development.
Transport	Decarbonise heavy vehicles, marine and aviation	Cruise ship visits reached a record number in 2023/24 period (118 visits) but are anticipated to fall around 20% for the 2024/25 period. A baseline for cruise ship emissions has been established (approximately 4% of the city's footprint and 10% of transport sector emissions).	Modelling update to consider this development.
Transport	Decarbonise heavy vehicles, marine and aviation	Port Otago container volumes reached record levels in 2023, but it is forecast that export volumes will reduce due to increased costs for certain sectors.	Modelling update to consider this development.
Transport	Decarbonise heavy vehicles, marine and aviation	Providing shore power at Port Chalmers does not appear to be possible for economic and capacity reasons.	Modelling update to consider this development.
Buildings, Energy & Industry	Switch to low carbon stationary energy sources	All Dunedin schools and hospitals expected to be coal/LPG free for space heating by mid-2025. The only remaining 'public sector' buildings using significant amounts of LPG will be University of Otago and DCC.	Modelling update to consider this development.
Buildings, Energy & Industry	Switch to low carbon stationary energy sources	Government funding for decarbonising industry and commercial buildings disestablished (e.g. GIDI).	Businesses wanting to decarbonise space and process heat will have additional reliance on any supports that DCC can offer. A small-scale Zero Carbon SME support programme is fully funded in draft budgets. This programme will prioritise businesses that have high emissions profiles.
Buildings, Energy & Industry	Switch to low carbon stationary energy sources	Government target of 100% renewable electricity grid by 2030 changed to doubling renewable energy generation by 2050. Huntly has committed to using some biomass by 2028, which will reduce the electricity grid's emissions intensity.	Modelling update to consider this development.
Buildings, Energy & Industry	Reduce emissions from refrigerants	Refrigerant buy-back scheme payments increased. Refrigerants product stewardship scheme to be in place in 2025.	This is a positive development. DCC does not have many levers to reduce refrigerant emissions in the city. Modelling update to consider this development.
Forestry, Land and Agriculture	Grow sequestration that aligns with mana whenua and community values	Government exploring partnering with the private sector to plant on Crown land.	Opportunities for City Forests to contribute to city-wide emissions reduction targets are being explored through implementation of the DCHL Carbon Roadmap. Modelling update to consider this development, though difficult to predict what the regional impacts of these national decisions will be for Dunedin.

		Government is pursuing a net approach, encouraging forestry through the ETS, but placing some limits on productive land.	
Buildings, Energy & Industry	Switch to low carbon stationary energy sources; improve energy efficiency of buildings and industry	A cross-DCC incentives work programme was established to progress work on various incentives. The timeframe for this work is now ahead of the next long-term plan.	Incentives-related investments have not been included in investment packages.
Buildings, Energy & Industry	Switch to low carbon stationary energy sources	Relative price for heatpumps, solar, batteries, heatpump hotwater is decreasing and low-cost bank loans are available. Growth in solar installations is increasing in Dunedin and New Zealand.	Modelling update to consider these changes. Role of the DCC has been considered. Improving awareness of these changes will be considered through community outreach and activation projects.
Forestry, Land and Agriculture	Reduce emissions from agriculture	Agricultural emissions may be influenced by other Government policy. Changes to freshwater regulations may result in increased emissions. However, the Government's focus on net emissions reduction may decrease emissions due to farms on marginal land being converted to forestry. Challenging economic, land-use, and climatic conditions for beef and sheep farmers may reduce emissions.	Modelling update to consider these changes.
Communities and Economies	Deepen partnerships and collaboration	DCHL is progressing its Carbon Roadmap, identifying potential opportunities for the companies to city-wide emissions reduction. The Zero Carbon Alliance has continued to collaborate. An invitation to join the Alliance has recently been extended to Business South.	There is provision in draft Zero Carbon operational budgets to support DCHL's Carbon Roadmap and collaborate with the Zero Carbon Alliance.
Communities and Economies	Support businesses to transition	Increasing contractual, governance, and consumer drivers to take action. These are cascading through value chains – including ISO 14064 updates and TCFD requirements. Products with climate credentials are fetching a premium in some sectors. There is overseas investment interest in green NZ businesses.	To be considered during delivery of Zero Carbon business support programme (provision in draft budgets).

Attachment E: Zero Carbon Plan Advisory Panel Terms of Reference and Council minute extract

Adopted 27 AUG 2024 with changes

Zero Carbon Plan Advisory Panel Terms of Reference

Purpose	The Zero Carbon Plan Advisory Panel reviews and advises on implementation of the Zero Carbon Plan and progress towards its targets.
Responsibilities and functions	The Advisory Panel responsibilities include: **What outcomes we want to achieve:** The Zero Carbon Plan Advisory Panel supports Zero Carbon Plan implementation and achievement of its targets. **How we will achieve the outcomes:** The Panel will review: - monitoring and reporting of Plan implementation and progress against targets - proposed variations/updates to the Plan and targets - proposed implementation plans (linked with Long Term Plan and Annual Plan cycles). The Panel may provide advice to the Committee, Council, or staff on the above and any other relevant matters.
Reporting requirements	
- **Who to report to** - **Frequency of reporting**	Strategy, Planning and Engagement Committee, or Council Quarterly, or as required.
Membership	
- **Chairperson**	Chair Strategy Planning and Engagement Committee
- **Members**	Chair or Deputy Chair of Community Services Committee Chair or Deputy Chair of Infrastructure Services Committee Chair or Deputy Chair of Finance and Council Controlled Organisations Chair or Deputy Chair of Economic Development Committee Deputy Chair of Strategy, Planning and Engagement Committee Mana whenua representative (from either the Infrastructure Services Committee or the Strategy, Planning and Engagement Committee) Quorum is three.
Power to co-opt and consult	The Advisory Panel will have the power to co-opt additional members if they require further information or expertise. The Advisory Group will also have the ability to consult with specific interest groups if required.
Frequency of meetings	Quarterly, or as required.
Expected term	October 2025
Support staff	General Manager Climate and City Growth, or Chief Executive Officer Manager, Zero Carbon Chief Financial Officer (or delegate) Other staff as required to provide further information or expertise
Related work	The Zero Carbon workplan continues to be embedded in all areas of DCC's business-as-usual operations.

Resolution from 27 August 2024 Council meeting minutes:

11 ZERO CARBON PLAN ADVISORY PANEL - DRAFT TERMS OF REFERENCE

A report from the Sustainability Group presented the draft Terms of Reference (ToR) for the Zero Carbon Plan Advisory Panel for adoption.

The General Manager, Climate and City Growth (Scott MacLean) and Acting Manager Zero Carbon (Florence Reynolds) spoke to the report and responded to questions on the draft Terms of Reference.

Moved Cr Marie Laufiso/Cr Christine Garey):

That the Council:

Adjourns the meeting for five minutes.

Motion carried

The meeting adjourned at 11.01 am and reconvened at 11.06 am.
Cr Mandy Mayhem entered the meeting at 11.07 am.

Moved (Cr Cherry Lucas/Cr Sophie Barker):

That the Council:

a) **Adopts** the Zero Carbon Plan Advisory Panel Terms of Reference with agreed amendments to the frequency of reporting and meetings and membership.

Motion carried (CNL/2024/156) with Cr David Benson-Pope recording his vote against